THE 3rd INTERNATIONAL CONFERENCE AND EXHIBITION ON INDONESIAN MEDICAL EDUCATION AND RESEARCH INSTITUTE (ICE on IMERI)

“Precision Medicine: Leading Medical Research to Changing Life Results”
# CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>WELCOME MESSAGE</td>
<td>2</td>
</tr>
<tr>
<td>WELCOME ADDRESS FROM DEAN OF FACULTY OF MEDICINE UNIVERSITAS INDONESIA (FKUI)</td>
<td>3</td>
</tr>
<tr>
<td>WELCOME ADDRESS FROM CHAIRMAN OF THE 3rd ICE ON IMERI 2018</td>
<td>4</td>
</tr>
<tr>
<td>CONFERENCE INFORMATION</td>
<td>5</td>
</tr>
<tr>
<td>The 3rd ICE on IMERI ORGANIZING COMMITTEE</td>
<td>6</td>
</tr>
<tr>
<td>SCIENTIFIC PROGRAM OVERVIEW</td>
<td>9</td>
</tr>
<tr>
<td>SPEAKERS</td>
<td>18</td>
</tr>
<tr>
<td>ABSTRACTS OF SPEAKERS</td>
<td>19</td>
</tr>
<tr>
<td>ABSTRACTS OF PARTICIPANTS</td>
<td>26</td>
</tr>
</tbody>
</table>
WELCOME MESSAGE

Dear Colleagues and Friends,

It gives me a great pleasure welcoming you for the 3rd Annual International Conference and Exhibition on Indonesian Medical Education and Research Institute (ICE on IMERI) 2018. ICE on IMERI is one of the most important events dedicated to further enrich the field of medical research and education. The objective of the conference aimed to gather experts on global health from various countries to share experiences, develop knowledge, and find solution to overcome medical research and education problems. The 1st and 2nd ICE on IMERI has been conducted successfully in Jakarta, Indonesia on November 2016 and 2017.

The theme of 3rd ICE on IMERI is “Precision Medicine: Leading Medical Research to Changing Life Results”. The topics of 3rd ICE on IMERI consist of (1) Drug Development; (2) Sport and Exercise Studies; (3) Metabolic, Cardiovascular & Aging; (4) Human Nutrition; (5) Human Reproductive, Fertility and Family Planning; (6) Human Genetic; (7) Cancer; (8) Infectious Disease and Immunology; (9) Neuroscience and Brain Development; (10) Occupational & Environment Health; (11) Stem Cell; (12) Medical Technology; (13) Hypoxia & Oxidative Stress Study; (14) Hydration (15) Clinical Research (16) Molecular Biology (17) Animal Research; (18) Bioinformatics; (19) Medical Education.

The success of this conference will require the participation and support of all professions involved in the field, from academics to policy makers, researchers to clinicians, and also industries or other related professions. Therefore, as the Chairman, I would like to invite all prospective attendees for this occasion and look forward to the changes brought by this event. I really hope that this will be a memorable conference, both the scientific agendas and more offered by Jakarta.

Indonesian Medical Education and Research Institute, committee of the conference, and our unique blend of traditional Indonesia are ready to welcome you to share your experiences.

Warm regards,

Dr. dr. Purwita Wijaya Laksni, SpPD(K)
Chairperson The 3rd ICE on IMERI 2018

Prof. Dr. dr. Badriul hegar, Sp.A (K)
Director of IMERI-FKUI

Dr. dr. Budi Wiweko, SpOG(K), MPH
Vice Director of IMERI - FKUI
Welcome Address from Dean of Faculty of Medicine
Universitas Indonesia (FKUI)

Being knowledgeable is an important and a priceless thing in this modern era, especially in the era of Sustainable Development Goals. Many people browse about everything they want to know to satisfy their curiosity of certain knowledge, including knowledge about health. Keeping updated and upgraded with the current knowledge is not only our responsibility, but also our need as a healthcare personnel and human resources in healthcare services. Because of that reason, research comes to fulfill our needs in knowledge.

The 3rd Annual International Conference and Exhibition on Indonesian Medical Education and Research Institute (ICE on IMERI) 2018 with the main theme of Precision Medicine: Leading Medical Research to Changing Life Results, will be held with various research topics, such as tackling the Challenges of Antimicrobial Resistance, Genetic Approach in Precision Medicine, Gut Ecosystem and Metabolic Diseases, Environment, Occupational and Health, Immunology and Vaccine, Designing Technology-enhanced Learning in Medical Education, Clinical Trial on New Drug Development, Aging and Quality of Life, Toward Healthy Generation in Precision Medicine Era, Medical Technology & Bio-engineering for Precision Medicine, Novel Diagnostic and Therapeutic in Infectious Disease, and Translational Research. This event is not only bringing the research as the main theme, but also raising various problems and its solutions to fulfill our needs.

Concerning to the shift paradigm in this era about genetic, lifestyle, and environment, this event will provide many updated information in order to develop our concept, especially in medical health and bioengineering. In the topic of health problems, the theme of this event that is Precision Medicine is expected can be one of the idea in diagnosing and treating patient precisely. Hopefully, this event will increase our spirit and knowledge in order to be better human resources.

Enjoy the Event,

Thank You

Dean of Faculty of Medicine Universitas Indonesia,

Prof. Dr. dr. Ari Fahrial Syam, SpPD, KGEH, MMB
Welcome Address from Chairman of the 3rd International Conference and Exhibition on Indonesian Medical Education and Research Institute Faculty of Medicine Universitas Indonesia (IMERI-FKUI)

Personalized Medicine or Precision Medicine is defined by National Institutes of Health (NIH) as a treatment or preventive approach which considers individual variation in the aspect of genetic, environment, and lifestyle in each person. This method is applied by healthcare professionals in predicting treatment and preventive strategy to any specific group of disease. Healthcare personnel can treat any specific disease in patient by knowing specific information in each patient. Although precision medicine is rarely recognized in our daily healthcare service, it actually has been established since many years ago. Blood donor with proper result of crossmatch is one of the example of Precision Medicine or Personalized Medicine that can be more interesting in the development of sequencing technology.

Therefore, Indonesian Medical Education and Research Institute Faculty of Medicine Universitas Indonesia (IMERI-FKUI) will organized the event of The 3rd Annual International Conference and Exhibition on Indonesian Medical Education and Research Institute (ICE on IMERI) 2018 with the main theme of Precision Medicine: Leading Medical Research to Changing Life Results, that focuses in many topics. Symposium and workshop also will be held in the theme of current shift paradigm, treatment, and technology of medicine in this era.

Research in this Sustainable Development Goals era are really needed to decrease morbidity and mortality to develop better generation. We wish development of knowledge and technology about current health problem through research and its applicability will improve our knowledge and can be practiced in our community, especially in treating the patient accurately. Hopefully, this event can give much benefit to every community and academic personnel in every university, including Medical Faculty, Dentistry Faculty, Nursing Faculty, Public Health Faculty, Pharmacy Faculty, Biologic Faculty, Mathematics Faculty, and the others.

We wish you will have fruitful discussion and useful knowledge,

Have a pleasant time

Chairman of the 3rd ICE on IMERI,

Dr. dr. Purwita Wijaya Laksmi, SpPD, KGer
CONFERENCE INFORMATION

DATES
November, 4th – 6th, 2018

VENUE
Indonesian Medical Education and Research Institute (IMERI) Tower
Jl. Salemba 6, Jakarta Pusat, 10430
Phone : +62 21 3155696 / +62 2139016643
Phone/Fax : +62 21 3155696
Website : imeri.ui.ac.id

OFFICIAL LANGUAGE
The conference will use English as the primary language. All abstracts and presentations are in English.

PARTICIPANTS
500 participants are expected

CONTACT
The 3rd ICE on IMERI 2018 Conference Secretariat
CP: Dein Iftitah (085224571113)
Tyas (085695627922)
Salemba Raya No. 6, Jakarta Pusat 10430, INDONESIA
E-mail: imeri-ic@ui.ac.id
THE 3rd ICE on IMERI
ORGANIZING COMMITTEE

Advisory Board
Ari Fahrial Syam
Badriul Hegar

Steering Committee
Dwiana Ocviyanti
Anis Karuniawati
Rahyussalim
Henri Verbrugh
Diantha Soemantri
Budi Wiweko
Tri Novita

General Chair
Purwita Wijaya Laksmi

Vice Chair Person
Aida Riyanti
Andriansjah Rukmana

Secretary
Sri Wahdini
Dein Iftitah

Scientific Committee
Dicky L. Tahapary
Dante S Harbuwono
Erлина Burhan
Saleha Sungkar
Siti Setiati
Edrial Eddin
Frans Suyatna
Radiana Antarianti
Aida Tantri
Damayanti
Septelia Inawati
Sukamto K
Rina Agustina
Farid Kurniawan
Bambang Widyantoro
Erfi Prafiartini
Ismail H.
Ardi Findyartini
Maria Fransiska Ham
Aida Riyanti
Ade Tobing
Martina Wiwiek
Puspita
Erni Juwita Nelwan
Ade Arsyanti
Dewi Soemarker
Isabella

**Manuscript Preparation**
Hariyono Winarto
Indah Suci Widyahening
Erlina Burhan
Agus Rizal Hamid
Shanty Olivia
Karomah Widianingsih
Indina Tarziah
Grady Nagara

**Finance**
Giri Meraksa
Euis Novera

**Logistic**
Aryo Tedjo
Winarsih
The 3rd International Conference and Exhibition On Indonesian Medical Education and Research Institute (ICE on IMERI)

Arif Kuswandi
Zakaria
Iyan
Maria Fajri
Lucia Dwi Antika

Technical Committee
Dewi Friska
Riestantya Reissa Fanny
Dein Iftitah
Erry Nur Rahmawati
Tika Pradnya Paramita
Dini
Amaliatu
M. Ilyas

Consumption
Astrid Saraswati
Perina
Nurlatifah

Sponsorship
Ningtyas Ayu Pramanto

IT
Jaya Permana
Ahmad Syafe’i

Public relation and documentation
Melisa
Adi Nugroho
Deni
Bangun Tuko
Indah
## SCIENTIFIC PROGRAM OVERVIEW

**Conference IMERI 2018**

- **Day 1, November 5th, 2018**

<table>
<thead>
<tr>
<th>TIME</th>
<th>SESSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>07.30–09.00</td>
<td>RE-REGISTRATION</td>
</tr>
<tr>
<td></td>
<td>Auditorium 1</td>
</tr>
<tr>
<td>08.00–09.00</td>
<td>UNDERGRADUATE ORAL SESSION 1</td>
</tr>
<tr>
<td></td>
<td>Referee:</td>
</tr>
<tr>
<td></td>
<td>Sukamto &amp; Dwiana Ocviyanti</td>
</tr>
<tr>
<td>09.00–09.30</td>
<td>Opening by MC</td>
</tr>
<tr>
<td></td>
<td>National Anthem</td>
</tr>
<tr>
<td>09.30–09.40</td>
<td>Event Report (Director of IMERI)</td>
</tr>
<tr>
<td>09.40–09.50</td>
<td>Welcome Remarks (Dean FKUI)</td>
</tr>
<tr>
<td>09.50–10.00</td>
<td>Greetings from UI (Rector UI)</td>
</tr>
<tr>
<td></td>
<td>Conference Opening by Rector UI</td>
</tr>
<tr>
<td>10.00–11.00</td>
<td>KEYNOTE LECTURE</td>
</tr>
<tr>
<td></td>
<td>Chairperson: Henri Verbrugh, Co-Chair: Tri Novita</td>
</tr>
<tr>
<td>10.00–10.20</td>
<td>Keynote Lecture 1:</td>
</tr>
<tr>
<td></td>
<td>The Role of Academic Health System in The Era of Precision Medicine</td>
</tr>
<tr>
<td></td>
<td>Speaker: Ali Ghufron</td>
</tr>
<tr>
<td>10.20–10.40</td>
<td>Keynote Lecture 2:</td>
</tr>
<tr>
<td></td>
<td>The Role of Health Research Center in Indonesia in the Era of Urbanization and the Industrial Revolution 4.0: challenges and opportunities</td>
</tr>
<tr>
<td></td>
<td>Speaker: Siswanto</td>
</tr>
<tr>
<td>10.40–11.00</td>
<td>Keynote Lecture 3</td>
</tr>
<tr>
<td></td>
<td>The Future Challenges in Medical Education: shaping up the medical graduates in the era of industrial revolution 4.0</td>
</tr>
<tr>
<td></td>
<td>Speaker: Gandes Retno Rahayu</td>
</tr>
<tr>
<td>11.00–11.20</td>
<td>Coffee Break &amp; Exhibition Round</td>
</tr>
<tr>
<td>Time</td>
<td>Auditorium 1</td>
</tr>
<tr>
<td>----------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>11.20–12.40</td>
<td><strong>SYMPOSIUM 1A</strong>&lt;br&gt;Tackling the Challenges of Antimicrobial Resistance&lt;br&gt;Chairperson: Djoko Widodo</td>
</tr>
<tr>
<td>11.20–11.40</td>
<td><strong>Turning Back the Tide of Antimicrobial Resistance in the Era of Precision Medicine</strong>&lt;br&gt;Speaker: Harry Parathon</td>
</tr>
<tr>
<td>11.40–12.00</td>
<td><strong>Outsmarting Antimicrobial Resistance in Septic Patients</strong>&lt;br&gt;Speaker: Khie Chen</td>
</tr>
<tr>
<td>12.00–12.20</td>
<td><strong>Strategy to Combat TB and TB Drug Resistance in Indonesia</strong>&lt;br&gt;Speaker: Erlina Burhan</td>
</tr>
<tr>
<td>12.20–12.40</td>
<td>Discussion</td>
</tr>
<tr>
<td>12.40–13.40</td>
<td><strong>LUNCH SYMPOSIUM 1</strong>&lt;br&gt;“Precision Reproductive Medicine”&lt;br&gt;Chairperson: Shanty Olivia</td>
</tr>
<tr>
<td>12.40–13.00</td>
<td><strong>Improving Quality and Efficacy in Assisted Reproductive Technology</strong>&lt;br&gt;Speaker: Budi Wiweko</td>
</tr>
<tr>
<td>13.00–13.20</td>
<td>Discussion</td>
</tr>
<tr>
<td>Time</td>
<td>Auditorium 1</td>
</tr>
<tr>
<td>----------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>13.40–15.00</td>
<td><strong>SYMPOSIUM 2A</strong>&lt;br&gt;Gut Ecosystem and Metabolic Diseases&lt;br&gt;Chairperson: Badriul Hegar&lt;br&gt;Co-chair: Maria Fransisca</td>
</tr>
<tr>
<td>13.40–14.00</td>
<td><strong>The Impact of Diet on Microbiome Composition</strong>&lt;br&gt;Speaker: Rina Agustina</td>
</tr>
<tr>
<td>14.00–14.20</td>
<td><strong>Gut Biotas, Insulin Resistance and Dysglycemia: unravelling the black box</strong>&lt;br&gt;Speaker: Dicky L. Tahapary</td>
</tr>
<tr>
<td>14.20–14.40</td>
<td><strong>The Role of Bioinformatics on Microbiome Data Analysis</strong>&lt;br&gt;Speaker: Rafika</td>
</tr>
<tr>
<td>14.40–15.00</td>
<td><strong>Discussion</strong></td>
</tr>
<tr>
<td>15.00–15.20</td>
<td><strong>Coffee Break &amp; Exhibition Round</strong></td>
</tr>
<tr>
<td>Time</td>
<td>Auditorium 1</td>
</tr>
<tr>
<td>-----------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>15.20–16.40</td>
<td><strong>WEBINAR SESSION</strong>&lt;br&gt;SYMPOSIUM 3A&lt;br&gt;Designing Technology-enhanced Learning in Medical Education&lt;br&gt;Chairperson: Ari Fahrial Syam&lt;br&gt;Co-Chair: Aria Kekalih</td>
</tr>
<tr>
<td>15.20–15.40</td>
<td>Development and Implementation of e-Portfolio&lt;br&gt;Speaker: Ardi Findyartini</td>
</tr>
<tr>
<td>15.40–16.00</td>
<td>Simulation-based Medical Education: high vs. low fidelity simulation&lt;br&gt;Speaker: Aida Tantri</td>
</tr>
<tr>
<td>16.00–16.20</td>
<td>Virtual Reality in Medical Education: digital as a story telling in learning anatomy&lt;br&gt;Speaker: Isabella Kurnia Liem</td>
</tr>
<tr>
<td>16.20–17.00</td>
<td>Discussion</td>
</tr>
<tr>
<td>17.00</td>
<td>End of Day 1</td>
</tr>
<tr>
<td>19.00–21.00</td>
<td>FACULTY DINNER</td>
</tr>
</tbody>
</table>
Day 2, November 6th, 2018

<table>
<thead>
<tr>
<th>TIME</th>
<th>SESSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>07.30–09.00</td>
<td>RE-REGISTRATION</td>
</tr>
<tr>
<td></td>
<td>Auditorium 1</td>
</tr>
<tr>
<td>08.00–09.00</td>
<td>UNDERGRADUATE ORAL SESSION 3</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>09.00–10.00</td>
<td>KEYNOTE LECTURE</td>
</tr>
<tr>
<td></td>
<td>Chairperson: Markus Meyer</td>
</tr>
<tr>
<td></td>
<td>Co-Chair: Diantha Soemantri</td>
</tr>
<tr>
<td>09.00–09.20</td>
<td>Keynote Lecture 4</td>
</tr>
<tr>
<td></td>
<td>Paradigm Shift in Medicine: from evidence-based medicine to precision medicine</td>
</tr>
<tr>
<td></td>
<td>Speaker: Akmal Taher</td>
</tr>
<tr>
<td>09.20–09.40</td>
<td>Keynote Lecture 5</td>
</tr>
<tr>
<td></td>
<td>Managing Big Data in Health Care and in Medical Research</td>
</tr>
<tr>
<td></td>
<td>Speaker: Setia Pramana</td>
</tr>
<tr>
<td>09.40–10.00</td>
<td>Keynote Lecture 6</td>
</tr>
<tr>
<td></td>
<td>Indonesian Bio-Diversities for Precision Medicine</td>
</tr>
<tr>
<td></td>
<td>Speaker: Roy Sparringa</td>
</tr>
<tr>
<td>10.00–10.20</td>
<td>Coffee Break</td>
</tr>
<tr>
<td></td>
<td>POSTER SESSION 2 (at e-Poster Area)</td>
</tr>
<tr>
<td>Time</td>
<td>Auditorium 1</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| 10.20–11.40  | SYMPOSIUM 4A  
Clinical Trial on New Drug Development  
Chairperson: Pratiwi Soedarmono  
Co-chair: Frans Suyatna | SYMPOSIUM 4B  
Aging and Quality of Life  
Chairperson: Raldi Koestoer  
Co-Chair: Siti Setiati | FREE PAPER 4  
EBCR/ Systematic Review/ Meta-analysis, Community/Environment, Clinical Epidemiology (8 slots)  
Referee: Eka Dian Safitri & Retno Asti W. |
| 10.20–10.40  | Clinical Trial in New Drug of TB  
Speaker: Raph Hammers | Early Clinical Detection in Neuropsychiatric Diseases for Better Quality of Life  
Speaker: Martina Wiwie S.N. |                                                                 |
| 10.40–11.00  | Clinical Trial in Parasitic Infections  
Speaker: Erni Nelwan | Health Care toward Better Quality of Life in the Very Old  
Speaker: Cz. Heriawan S. |                                                                 |
| 11.00–11.20  | Laboratory Tests to Screen Blood Donors in Ambon Island  
Speaker: Inge Susanto | Exercise as Medicine in the Elderly  
Speaker: Nani Cahyani S. |                                                                 |
| 11.20–11.40  | Discussion | Discussion |                                                                 |
| 11.40–12.40  | LUNCH SYMPOSIUM 2  
“Hydration Academic: The Basic and Kidney Health”  
Chairperson: dr. Widjaja Lukito, PhD, SpGK | POSTER SESSION 3 (at e-Poster Area) | UNDERGRADUATE ORAL SESSION 4  
Referee: Rini Sekartini & Dewi Friska |
| 11.40–12.00  | Hydration Basic  
Speaker: Stavros Kavouras |                                                                 |                                                                 |
| 12.00–12.20  | Hydration and Kidney Health  
Speaker: Ivan Tack |                                                                 |                                                                 |
<p>| 12.20–12.40  | Discussion |                                                                 |                                                                 |</p>
<table>
<thead>
<tr>
<th>Time</th>
<th>Auditorium 1</th>
<th>Auditorium 2</th>
<th>Auditorium 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.40–14.00</td>
<td><strong>SYMPOSIUM 5A</strong> T toward healthy generation in precision medicine era</td>
<td><strong>SYMPOSIUM 5B</strong> Medical technology &amp; bio-engineering for precision medicine</td>
<td><strong>FREE PAPER 5</strong> Metabolic disorder, CV, and aging (8 slots)</td>
</tr>
<tr>
<td></td>
<td>Chairperson: Bernie I. Medise</td>
<td>Chairperson: Ismail</td>
<td>Referee: Dicky L Tahapary &amp; Bambang Widyantoro</td>
</tr>
<tr>
<td></td>
<td>Co-Chair: Gita Pratama</td>
<td>Co-Chair: Mirta Hediyati</td>
<td></td>
</tr>
<tr>
<td>12.40–13.00</td>
<td><strong>SYMPOSIUM 5A</strong> Nurturing a healthy generation: early life nutrition for future health</td>
<td><strong>SYMPOSIUM 5B</strong> The role of medical technology in tissue engineering and brain stimulation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Speaker: Titis Prawitasari</td>
<td>Speaker: Nino Susanto</td>
<td></td>
</tr>
<tr>
<td>13.00–13.20</td>
<td><strong>FREE PAPER 5</strong> Metabolic disorder, CV, and aging (8 slots)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Referee: Dicky L Tahapary &amp; Bambang Widyantoro</td>
</tr>
<tr>
<td>13.00–13.20</td>
<td><strong>SYMPOSIUM 5B</strong> Current technology and the challenge of pre-implantation genetic diagnostic (PGD) and pre-implantation genetic screening (PGS) in Indonesia</td>
<td><strong>SYMPOSIUM 5B</strong> Current technology and the challenge of pre-implantation genetic diagnostic (PGD) and pre-implantation genetic screening (PGS) in Indonesia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Speaker: Pritta Ifanolia</td>
<td>Speaker: Pritta Ifanolia</td>
<td></td>
</tr>
<tr>
<td>13.20–13.40</td>
<td><strong>SYMPOSIUM 5B</strong> Stem cell in vascular disease</td>
<td><strong>SYMPOSIUM 5B</strong> Stem cell in vascular disease</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Speaker: Em Yunir</td>
<td>Speaker: Em Yunir</td>
<td></td>
</tr>
<tr>
<td>13.40–14.00</td>
<td><em>Symposium 6A</em> Translational research</td>
<td><em>Symposium 6B</em> Novel diagnostic and therapeutic in infectious disease</td>
<td><strong>FREE PAPER 6</strong> Genetic &amp; molecular biology (8 slots)</td>
</tr>
<tr>
<td></td>
<td>Chairperson: Hariyono</td>
<td>Chairperson: Andrijansah R.</td>
<td>Referee: Ina S. Timan &amp; Asmarinah</td>
</tr>
<tr>
<td>14.00–15.20</td>
<td><strong>SYMPOSIUM 6A</strong> The role of animal laboratory in translational research</td>
<td><strong>SYMPOSIUM 6B</strong> Update in clinical approach of meningitis TB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Speaker: Vivian Soetikno</td>
<td>Speaker: Darma Imran</td>
<td></td>
</tr>
<tr>
<td>14.00–14.20</td>
<td><strong>SYMPOSIUM 6A</strong> Immune senescence-inflammaging and its clinical implications</td>
<td><strong>SYMPOSIUM 6B</strong> Use of mass cytometry to study the human immune system and help us design effective vaccines</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Speaker: Aulia Rizka</td>
<td>Speaker: Maria Yazdanbakhsh</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Speaker: Angelica Anggunadi</td>
<td>Speaker: Rino A. Gani</td>
<td></td>
</tr>
<tr>
<td>14.40–15.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>Auditorium 1</td>
<td>Auditorium 2</td>
<td>Auditorium 3</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------</td>
<td>--------------</td>
<td>--------------</td>
</tr>
<tr>
<td>15.00–15.20</td>
<td>Discussion</td>
<td>Discussion</td>
<td></td>
</tr>
<tr>
<td>15.20–15.40</td>
<td></td>
<td></td>
<td>Coffee Break</td>
</tr>
<tr>
<td>15.40–16.10</td>
<td>CLOSING CEREMONY</td>
<td>Best Oral Presentation &amp; Best Poster Announcement</td>
<td>Closing Remarks (Director of IMERI)</td>
</tr>
<tr>
<td>15.20–15.40</td>
<td></td>
<td>Coffee Break</td>
<td>(Poster Session)</td>
</tr>
<tr>
<td>15.40–16.10</td>
<td>Closing Ceremony</td>
<td>Report from Committee</td>
<td>Best Oral Presentation &amp; Best Poster Announcement</td>
</tr>
</tbody>
</table>
The 3rd International Conference and Exhibition On Indonesian Medical Education and Research Institute (ICE on IMERI)
SPEAKERS

Aida Tantri                              Ivan Tack
Akmal Taher                              Khie Chen
Ali GhufRon                               Maria MM Kaisar
Angelica Anggunadi                       Maria Yazdanbahksh
Ardi Findyartini                         Martina Wiwie S.N.
Aulia Rizka                               Mizuno Seiya
Budi Wiweko                               Nani Cahyani S.
Cz. Heriawan S.                           Nino Susanto
Damayanti                                Nuri Purwito Adi
Darma Imran                               Pritta Ifanolia
Dewi Soemarko                             Rafika
Dicky L. Tahapary                         Raph Hammers
Em Yunir                                  Rina Agustina
Erlina Burhan                             Rino A. Gani
Erni Juwita Nelwan                        Roy Sparringa
Fiastuti Witjaksono                       Setia Pramana
Gandes Retno Rahayu                       Siswanto
Harry Parathon                            Stavros Kavouras
Indah Suci W.                             Titis Prawitasari
Inge Sutanto                              Vivian Soetikno
Iris Rengganis                            Wisnu Ananta
Isabella Kurnia Liem
ABSTRACTS OF SPEAKERS
Current Technology and The Challenge of PGD (Preimplantation Genetic Diagnosis) and PGS (Preimplantation Genetic Screening) in Indonesia

Pritta Ameilia Iffanolida

Cluster Human Reproduction, Infertility and Family Planning IMERI FKUI
pritta.ameilia@yahoo.com

Since In-Vitro Fertilization (IVF) technology has begun to be widely practiced in the world, many efforts have been made to increase the percentage of pregnancy success, embryo selection is one of the most evaluated methods. Many findings that mention the occurrence of embryos with chromosome abnormalities occur in patients who get poor results after undergoing IVF (age above 35 years) and in cases of recurrent miscarriages that cannot be explained. Embryo selection in Indonesia is still based on morphological evaluation on the 3rd and 5th days of embryonic development stage (percentage of cell fragmentation, number and size of blastomeres, and the presence of multinucleation), but this approach is thought to be unsuitable for IVF patients suspected of having chromosome abnormalities, which can lead to failure of implantation or miscarriage.

Preimplantation genetic screening (PGS) is a medical procedure performed by taking one or more nucleoli from oocytes or one or more blastomeres and trophectoderm cells from the embryo, aiming to determine the problems that exist in the genome or chromosome sequence before the implantation of the embryo. PGS makes it possible to know the number and structure of chromosomes from the cell division stage using the Fluorescence In-Situ Hybridization (FISH) method or at the morula stage using Microarray-based Comparative Genomic Hybridization (a-CGH). This technique is applied in the field of Assisted Reproductive Technology (ART) to screen for possible chromosomes such as deletion, inversion, and translocation. With PGS, it is expected to increase the likelihood of implantation, the rate of pregnancy and to reduce the rate of miscarriage of pregnant women. Another advantage of PGS is that it can reduce the possibility of multiple pregnancies caused by the transfer of more than one embryo.
Update in Biomonitoring and Waste/Heavy Metal Exposure Management among Workers: a Study in Artisanal Workers

Dewi Sumaryani Soemarko
Occupational Medicine Division, Dept of Community Medicine, Faculty of Medicine Universitas Indonesia
Post graduate in Occupational Medicine, Faculty of Medicine Universitas Indonesia
Occupational and Environmental Health Research Centre, Faculty of Medicine Universitas Indonesia

Introduction: To know the health effect of the hazards, need some assessment. One of the assessments is biomonitoring, that is essential measurement to determine exposure and health effect. Biomonitoring can provide more efficient to assess the exposure, and also using the information from other sources, such as the toxicological, epidemiologic or other study. It’s better using the comprehensive approach to know and measure the exposure and health effect that can be done. Using the artisanal research’s data as sample, we can understand by using biomonitoring, physical examination, historical disease’s data for knowing health effect. The aim of this study is to comprehensive analysed of toxicology biomarker for explained the exposure, human genetic/metabolism and health effects of the workers.

Method: The data has been collected by Occupational Medicine programme collaborated to Ministry of Health in Artisanal research in 2016. The location in west Nusa Tenggara and Banten province. Total workers are 53 people in Banten and 197 people in West Nusa Tenggara. The data are work activities, duration of work, Hg urine, Health effects, Hg in workplace, renal function conversion data, the total cumulative exposure has been calculated by semiquantitative methods. All data have been analysed using SPSS version 20.0. The research has been approved by Faculty of Medicine Universitas Indonesia.

Results and discussion: The location is in Lebak, Banten, and in the Sekotong and Taliwang Lombok, West Nusa Tenggara. Found 53 people worker in Banten and 197 in West Nusa Tenggara. Biomarkers have been measured are urine Hg, based on the Hg elemental that has been exposed to the artisanal workers’ elemental changed to inorganic Hg in the body and excreted through urine. Total cumulative exposure has been conversion by duration of work, urine Hg, using PPE properly, controlling the hazards. Comprehensive biomonitoring analysing use the exposure biomarker, susceptibility biomarker and health effect biomarker.

Keywords: biomonitoring, Artisanal workers, Hg elemental
The Role of Bioinformatics in Precision Medicine

Wisnu Ananta Kusuma

Department of Computer Science, Bogor Agriculture University
Tropical Biopharmaca Research Center, Bogor Agriculture University

Precision medicine is commonly used to refer to medicine which be formulated by considering the information of genomes and their derivatives, such as RNA, proteins, and metabolites. In the more comprehensive approach we require clinical data, sensor data, and image data to obtain an optimal decision making or diagnosis. Bioinformatics is one of the many areas which apply machine learning technique to solve many problems in handling biological data. In this study, we show the opportunity and the role of Single nucleotide polymorphism (SNP), one of the most popular markers used to identify genetic polymorphism, in performing personalized drug discovery. This study would like to show whether a genetic variant is associated with a certain phenotype. However, SNPs markers are actually very abundant because they are produced by conducting multiple sequence alignment between fragments yielded by Next generation sequencer and their reference sequence. Thus, reducing the number of SNPs would reduce the search space when performing association between SNPs and a phenotype. Here we propose the use of machine learning approach using random forest algorithm in an attempt to reduce the search space. The search in the reduced space was then conducted using sequential forward floating selection (SFFS) which wraps support vector regression (SVR) to show the association between SNPs and a certain phenotype. Using simulated data, our results show that the removal of less important SNPs prior to SNP selection improves the selection results, which will increase the performance of genotype-phenotype association model. It is expected that the proposed approach could be implemented as one of modules that build precision medicine discovery system.

Keywords: association studies, bioinformatics, precision medicine, single nucleotide polymorphism
Enhancing Quality of Supervision and Implementing Competency-based Curriculum in Undergraduate And Postgraduate Medical Education: The role of e-portfolio

Ardi Findyartini

Development of competence in medical education is a continuous process which involves students, teachers, teaching-learning process, and assessment systematically. Globally, all key components in undergraduate and postgraduate medical education have been organized in competency-based curricula in which the final expected outcomes are defined based on the healthcare needs and curriculum is then developed from this point backward to the earliest stage with increasing milestones. In each level, students or residents need to show that they have achieved the expected competence which encompasses cognitive, psychomotor and affective area. During clinical rotation, this process highly involves workplace-based learning and assessment. A complementary framework of competency-based medical curriculum i.e Enstrustable Professional Activities (EPA) connects the competence to the professional activities of medical doctors that can be entrusted in stepwise manner to medical students or residents. The entrustment process requires appropriate level of supervision and documentation of achievement evidence. Evidence that demonstrates students’ achievement at the certain point of time in relevant forms and enriched by student’s/resident’s reflection on their experience is recognised as portfolio. The aim of portfolio development can be for assessment (summative), learning and professional development. In regards to EPA, portfolio use hence is very important to track clinical case exposure, to facilitate entrustment process and to adjust the level of supervision. E-portfolio comes into place to further support the data collection, cumulative reflection and feedback for medical students and residents in digital form. This presentation will highlight the use of e-portfolio especially in facilitating implementation of EPA and quality supervision in clinical practice. Finally, reflections on current project in developing e-portfolio in one of the largest teaching hospitals in Indonesia will also be discussed.
Assisted reproductive technology showed high biological inefficiency since only 5% among oocytes retrieved are success to become a baby. This condition are affected by the quality of oocytes, sperm, embryo and endometrial receptivity.

The terminology of precision medicine lead us to understand that every patients have different susceptibilities towards some diseases. Combination of genetics and clinical data play important role as a basics in precision medicine. Many studies proved the evidence of FSH receptor genetic and variant beta LH polymorphism as a potential biomarker for ovarian response towards stimulation.

Pre implantation genetic screening (PGS) told us how to select the best embryo before replaced them into the womb. Until now many studies done were trying to solve the failure of embryo implantation by looking for biomarkers from culture media, endometrial biopsy and time lapsed morpho kinetics. One of our study in 1616 reproductive age women succeed to develop nomogram biological age to predict oocytes quality based on level of anti-Mullerian hormone (AMH). By using this nomogram we can predict the response and dosage of recombinant FSH individually.

The most important biomarker on endometrial receptivity was commercially available based on 236 genes that was significantly contributed in implantation process. Precision medicine is potential answer to bridge the gap between clinical and genomic data which should be supported by good and reliable bioinformatics system.

**Keywords**
Biological inefficiency, genetics, precision medicine, PGS, biomarker
The Use of Omics Approach to Study the Immunology of Infectious Diseases: The Utilization of Proteomics and Lipidomics Platform in Understanding the Immune Polarization by Helminth

Maria M. M. Kaisar, Ph.D

Helminth infection remains as one of major neglected tropical diseases (NTDs) that globally infect over 1.5 million people. Although people with light helminth infections normally have no symptoms, heavy infections are commonly associated with morbidity. Interestingly however, helminth infections do not only do harm. They are also known for their ability to dampen host immune responses, to allow their long term survival, and at the same time this can be beneficial to the host by helping to control excessive inflammation and thereby occurrence of inflammatory diseases. The issue of immune modulation by helminth infection, still requires in depth understanding of how helminths induce T helper 2 (Th2) via Dendritic Cells (DCs). From the methodological standpoint, we could foresee that the use of omics approaches will be crucial to unravel the molecular mechanism through which DCs prime Th2 response, as they allow for unbiased characterization of cellular phenotypes. Therefore, two omics approaches which are proteomics and lipidomics were applied to investigate the interplay between helminth and mammalian host immune system, with particular emphasis on the mechanisms by which helminth-derived molecules promote Th2 responses.

Here, we aim to conduct a proteome and a lipidome analysis of helminth antigen-stimulated DCs, in order to gain more insight into the cellular processes associated with their ability to polarize immune responses. We analyzed maturation and polarization of monocyte-derived DCs from healthy donors at different time points after stimulation with different Th1 and Th2-polarizing pathogen-derived molecules. For the proteome analysis purpose the samples were measured using liquid chromatography-Fourier transform ion cyclotron resonance mass spectrometry (LC-FTICRMS) for relative quantitation. A LC-tandem MS (LC-MS/MS) was used to analyze lipidomics profile of Th2-driven by DCs, followed by a set of cellular inhibitory assays.

Proteomics: Th1 polarizing DCs, conditioned by IFN-γ during maturation, displayed accelerated maturation by differentially expressing cytoskeletal proteins and proteins involved in immune regulation. Stimulation of DCs with Souluble Egg Antigents (SEA) and omega-1 (ω-1) derived from Schistosoma mansoni, two Th2-inducing stimuli, increased 60S acidic ribosomal protein P2 (RPLP2) and vesicle amine transferase 1 (VAT1) while decreasing the expression of proteins related to antigen processing and presentation. Our data indicate that not only proteins involved in interaction between T cells and DCs at the level of the immunological synapse but also those related to cellular metabolism and stress may promote Th2 polarization. Lipidomics: here we report that SEA triggers DCs to produce Prostaglandin E2 (PGE2), which subsequently in an autocrine manner induces OX40L expression to license these DCs to drive Th2 responses. Mechanistically, SEA was found to promote PGE2 synthesis through Dectin-1 and Dectin-2 and via a downstream signaling cascade involving Syk, ERK, cPLA2, and COX-1/2. In summary, we identified a novel pathway in DCs involving Dectin-1/2-Syk-PGE2-OX40L through which Th2 immune responses are induced.
ABSTRACTS OF PARTICIPANTS

- Stem Cell
- Human Nutrition
- Human Genetic
- Human Reproduction
- Metabolic and Cardiovascular
- Drug Development
- Cancer
- Neuroscience
- Infectious Disease
- Medical Technology
- Occupational & Environmental Health
- Sport Studies
- Epidemiology and Evidence Based Medicine
- Molecular Biology and Proteomic
- Hypoxia and Oxidative Stress
- Animal Research
- Medical Education
Stem Cell
The Role of Platelet Rich Fibrin in Enhancing Viability Autologous Microlobular Fat Graft

Trimartano Koento, Mirta Reksodiputro, Olvi Marimpam

Background: Fat graft in plastic reconstructive surgery has been used for a long time by surgeons. However, problem lies with fat being absorbed up to 30-50%, especially centrifuged fats. This research aims to compare the viability of microlobular fat, centrifuged fat, microlobular fat with PRF, and centrifuged fat with PRF.

Method: Subcutaneous fat from the stomach area was taken and divided into two parts, Microlobular fat and centrifuged fat and processed adding PRF: 1. microlobular fat without PRF, 2. microlobular with PRF, 3. centrifuged fat without PRF, and 4. Centrifuged with PRF. Those fats graft are implanted into the rabbit earlobes. Each procedure was done repeatedly 9 times a total of 36 repetitions for all groups.

Result: Microscopic evaluation, the amount of adipocytes in microlobular fat with PRF group (median=547.74) and also fibroblast (median=600.52) showed a greater number compared to other treatment groups, but it was not statistically significant. Neovascularization parameter on microlobular fat group (mean=12.67) was greater, but it was not statistically significant.

Conclusion: Microlobular fat with PRF had more adipocytes and fibroblasts compared to the other groups without PRF.

Riky Febriansyah Saleh

Introduction: Articular cartilage defects (ACDs) remains one of the most challenging orthopaedic cases, as articular cartilage lacks capacity of self-repair due to its avascular, aneural, and alymphatic nature. Growth hormone (GH) has generative and constructive effect on cartilage. The exact mechanism remains unclear, but synovial fluid could enhance the proliferation, matrix synthesis, and differentiation of bone and cartilage cells in vitro. Studies regarding the use of intraarticular GH injection for cartilage repair are still lacking. We hope that this review would trigger new studies investigating the use of such injection for cartilage repair.

Methods: We conducted literature review regarding Concepts of intra-articular growth hormone injection for cartilage including cartilage structure and function, types of cartilage defects, partial thickness defect, full-thickness defect, cartilage repair techniques: current limitations, growth hormone and insulin-like growth factor 1, intraarticular growth hormone injection.

Results: IGF-1 plays an essential role in differentiation mesenchymal cells towards chondrocyte differentiation, upregulate chondrocyte anabolism, and thereby enhance cartilage repair. It is found that a new form of angiogenesis, morphoangiogenesis, was reported in the knee of adult rabbits with intra-articular GH injection for articulophyseal cartilage regeneration. This is suitable for the production of stem cells and regeneration of articulophyseal cartilage.

Conclusion: Intraarticular GH injection may be a potentially new treatment for cartilage repair. However, as there is only limited number of studies, further studies are required to investigate the effect of intraarticular GH injection for cartilage repair.
Role of Mesenchymal Stem Cell-Conditioned Medium (MSC-CM) In The Bone
Regeneration:
A Systematic Review

Jessica Fiolin

**Background:** The therapeutic value of mesenchymal stem cells in tissue engineering and regenerative medicine is attributable in part to paracrine pathways triggered by several secreted factors secreted into culture media. The secreted factor here is known as the conditioned medium (CM) or secretome.

**Objectives:** This systematic review aims to examine and summarize the in-vitro, pre-clinical in-vivo studies of CM-MSC role in the bone regeneration.

**Data sources:** Databases: PubMed, Medline, OVID, Scopus and Cochrane library. The following key words and search terms were used: secretome, conditioned medium, mesenchymal stem cell, bone healing, osteogenic, osteogenesis.

**Methods:** A total of 611 articles were reviewed. Ten articles were identified as relevant for the purpose of this systematic literature review.

**Results:** Three tables of studies were constructed for in vitro studies and in-vivo studies.

**Conclusion:** All of preexisting literatures in the in-vitro studies and in-vivo studies have shown a promoting effect of bone regeneration at various stages. Although at this stage there have been no clinical study regarding the use of CM-MSC in the human bone regeneration, transplantation of secretome has shown a promising result in the acceleration of bone healing process.

**Keywords:** secretome, conditioned medium, bone regeneration, osteogenic, mesenchymal stem cell, tissue engineering, musculoskeletal
The Effects of Growth Hormone Injection on Osteoarthritis Recent Therapy

Syahdi Farqani

Introduction: Osteoarthritis (OA) is a late-stage condition for which disease-modifying opportunities are limited, osteoarthritis typically develops over decades. Many options have been made available to address problems regarding cartilage damage, intra articular growth hormone injection becomes a good modality therapy for the treatment of osteoarthritis have been shown to reduce pain and improve joint function.

Methods: We conducted study review regarding the effects of growth hormone injection on osteoarthritis recent therapy including rationale for Intraarticular Injection of osteoarthritis, advantages and disadvantages of Intraarticular administration compared to systemic administration, technical consideration of intraarticular administration.

Results: Studies of human articular cartilage indicate that serum Insulin like growth factor-1 levels and chondrocyte responsiveness to Insulin like growth factor-1 diminish progressively with age. This suggests that a simultaneous decrease in the amount of Insulin like growth factor-1 may cause cartilage to be less capable of maintaining its structural and functional integrity. Intra articular growth hormone injection become a good modality therapy for the treatment of osteoarthritis have been shown to reduce pain and improve joint function. Growth hormone stimulates cartilage growth, probably through production of local and systemic Insulin like growth factor-1.

Conclusion: Intra articular growth hormone injection become a good modality therapy for the treatment of osteoarthritis have been shown to reduce pain and improve joint function. There is interest in the use of growth hormone as a potential osteoarthritis disease-modifying treatment; however, few studies of its effects in humans have been conducted.
**Gene Expression Profile Stemness and Aggressiveness in Breast Cancer Stem Cells (ALDH+)**

Gita Wideani, Septelia Inawati Wanandi

**Introduction:** It has been widely reported that the aggressiveness of breast cancer may be driven by a minor cell population, known as breast cancer stem cells (BCSCs), which contributes to cancer heterogeneity. BCSCs display stemness properties including self-renewal, tumorigenesis and pluripotency. Regulation of gene expression may play important roles on the understanding of BCSC stemness and aggressiveness. Therefore, this study aimed to examine the expression of genes related to stemness and aggressiveness in BCSCs compared to MCF7 breast cancer cell line.

**Methods:** Human BCSCs (ALDH+) were grown in non-serum DMEM/F12, while MCF7 in DMEM medium with 10% fetal bovine serum under standard cell culture conditions. Total RNA was extracted using Tripure Isolation reagent and the mRNA relative expression was determined by using qRT-PCR assay.

**Result:** Gene expression of OCT4 and ALDH1A1s determines stemness, whereas TGF-β1 and TGF-β1 receptor (TβR1) determines aggressiveness properties of ALDH+ and MCF7 cells. We found that OCT4, ALDH1A1, TGF-β1 and TβR1 mRNA expressions in BCSCs are higher than those in MCF7 cells.

**Conclusion:** We verify that BCSCs (ALDH+) has higher stemness and aggressiveness properties compared to MCF7 cells.

**Keywords:** aggressiveness, BCSCs, gene expression, MCF7, stemness
Platelet rich fibrin matrix (PRFM) is a new generation of concentrated platelet which has denser and pliable structure. It generates fibrin that consists of activated platelets. Based on PRFM morphology, it also acts as a scaffold that can localize growth factors. Application of PRFM in reconstructive surgery can shorten injury cure time and increase implant survival used in skin graft. Variety of growth factor content has been analyzed in platelet rich fibrin matrix (PRFM) such as, platelet derived growth factor (PDGF-AA), transforming growth factor (TGF-β1) and vascular endothelial growth factor (VEGF). However, the outcome does not optimal because its liquid form and the released of growth factors from activated platelet only occur in the beginning of application. In recent study, platelet rich fibrin matrix (PRFM) an alternative autologous platelet is developed. PRFM in this study we measured the VEGF released by UC and BM MSCs seeded on PRFM. VEGF was measured using ELISA while the fibronectin was identified using immunohistochemical assay. Methods: PRFM was prepared by gelation of PRP to form a coin with diameter of 5 cm. Each matrix was cut into half and seeded with UC and BM MSCs with seeding density of 2,500 cell.cm⁻². VEGF and fibronectin contain was analysed every 3, 5, 10 and 13 days incubation.
Human Nutrition
Correlation between Sleep Late and Consume Fast Food with Acne Vulgaris Prevalence in Student Class XII SMAN 1 Cirebon

Thysa Thysmelia Affandi

Acne vulgaris is a skin disease that occurs due to inflammation of pilosebacea characterized by the presence of blackheads, papules, pustules, nodules, and cysts. In Indonesia about 95-100% of men and 83-85% of women 16-17 years of Acne vulgaris who are suspected with hormones can also provide psychological information and decreased confidence. The aim of this research was to determine the correlation between sleep late and consume fast food with the incidence of Acne vulgaris in grade XII students of SMAN 1 Cirebon, as well as to know the most influential variable between sleep late with consume fast food. This research used observational method with cross sectional design. This research was using simple random sampling technique. Subjects of the research were students who were experiencing and not experiencing Acne vulgaris. The result of spearman test that there is correlation between sleep late with Acne vulgaris (p=0.008) with spearman correlation value of 0.521. There is correlation between consume fast food with Acne vulgaris (p=0.026) with spearman correlation value of 0.402.

The conclusion Based on the research is there is correlation between sleep late with Acne vulgaris with correlation power category moderately strong incidence in grade XII students of SMAN 1 Cirebon, there is correlation between consume fast food with Acne vulgaris with correlation power category moderately strong incidence in grade XII students of SMAN 1 Cirebon.

Keywords: Acne vulgaris, consume fast food, students, sleep late
Effect of Olive Oil and Rice Bran Oil on Malondialdehyde, Superoxide Dismutase, and Katalase in Patient with Diabetes Mellitus

Dwirini Retno*, Firsandi Prasastya Fikry**

*Department of Clinical Nutrition, **Master Student of Clinical Nutrition, Faculty of Medicine University of Indonesia

Diabetes mellitus is a disease with oxidative stress component. Oxidative stress is a condition caused by imbalance between oxidant and antioxidant in the human body. Oxidative stress in diabetic happen by three mechanisms: nonenzymatic protein glycation, polyol sorbitol (aldose reductase) pathway, and glucose autooxidation. The change of oxidative state can be measured in several parameter such as maleondialdehyde, superoxida dismutase, and katalase. Olive oil and rice bran oil are a source of exogenous antioxidant. Therefore, exogenous antioxidant has a beneficial role to inhibit oxidative damage in diabetic patients. These antioxidants include gamma oryzanol, vitamin E, and beta carotene.

Keywords: diabetes mellitus, oxidative stress, antioxidant, olive oil, rice bran oil
Human Nutrition
Clinical Research

Effects of Olive Oil and Rice Bran Oil on Glycemic Control and Lipid Profile in Patient Type 2 Diabetes Mellitus

Nadiyah Wijayanthie, Dwirini Retno Gunarti, Nurul Ratna Mutu Manikam, Yul Hasri

Diabetes mellitus (DM) has become one of the global public health problems. The chronic complications of type 2 DM can be macrovascular and microvascular complications that can decrease the quality of life of the patient. The main goal of sustainable DM nutrition therapy is to keep glucose in the blood close to normal levels to stop hyperglycemic and hyperlipidemic events that may inhibit further complications.

This study was a clinical trial with cross over study design, random allocation, and double blindness to compare changes in glucose, cholesterol and triglyceride levels supplemented with 15 ml / day of olive oil (KZ) with supplementation of 15 ml / day of bran oil (KB). Provision of oil for 4 weeks in a row. During the 2-week interval not being treated (wash out). After the wash out period cross-over by exchanging olive oil supplementation to rice bran and vice versa for 4 consecutive weeks. The research will be conducted at Family Clinic Clinic FKUI Kayu Putih, Jakarta.

Not yet result and conclusion
Human Nutrition
Clinical Research

Relationship between Serum Leptin Levels with Newborn Baby Growth of Maternal Obesity in Padang City, West Sumatera

Delmi - Sulastrri, Rini - Febrianti, Muhammad - Zhikron

Background: Leptin is a hormone that regulates placental and fetal growth. Leptin resistance in obese pregnant women is a potential risk factor associated with baby growth. This study aims to determine the association of serum leptin levels with newborn weight/Length baby from maternal obesity in Padang City, West Sumatera.

Method: Observational research with the cross-sectional study was conducted on obese mothers which have given birth to babies with normal and low birth weight, each group consists of 28 samples. Samples were taken with consecutive sampling technique and data collected from several hospitals in Padang city. Leptin Placenta serum level was measured using ELISA method in a Biomedical laboratory at Andalas University.

Result: The result of this study are the average serum leptin level in normal birth weight group is 32.00±22.99 ng/mL and low birth weight group is 18.47±16.53 ng/mL, body length was 48.18±1.36 cm. There is a significant difference in leptin serum level between normal birth weight baby with low birth weight baby (p=0.014) and there is the negative correlation between body length baby with serum leptin level (p=0.02).

Conclusion: Serum leptin level is one of the risk factors for birth weight and length baby in Maternal Obesity in Padang City, West Sumatera
The Effect of Olive Oil and Bran Oil on Glutathione (GSH) Levels on Type 2 Diabetes Mellitus Patients

Gede Bagus Yoga Satriadintha

To ensure that olive oil and bran oil have an effect on reducing oxidative stress in patients with type 2 diabetes, it is necessary to conduct a scientific study. Using a marker of decreased oxidative stress in the form of Glutathione (GSH), the effect of decreasing oxidative stress by olive oil and bran oil can be known. Thus, the purpose of this study was to determine the effect of 10mL / day of olive oil and 30mL of bran oil / day, for 4 consecutive weeks on Glutathione (GSH) levels in patients with type 2 Diabetes Mellitus. This study was a clinical study. This study was conducted with a parallel, randomized, and single-blind allocation study design, which aimed to compare between treatment group 1 (K1) who received olive oil supplementation 10mL / day with treatment group 2 (K2) who received 30mL / day bran oil supplementation. Supplementation is carried out for 4 consecutive weeks. This research was conducted at the RSCM Endocrinology Polyclinic and Family Physician Clinic (KDK) FK UI Kayu Putih, Jakarta.
**Level of Serum Vitamin C Correlated with the Incidence of Premature Rupture of Membranes in Pregnant Women**

Desmawati Desmawati, Arneti Arneti, Arni Amir

**Introduction:** Premature rupture of membranes (PRM) is assumed to occur by the weakness of the extracellular matrix of the amniotic membrane because of unbalanced collagen synthesis and degradation. PRM is predicted to be related with vitamin C intakes and levels in serum. This study aims to determine the correlation between intakes and levels of vitamin C with PRM.

**Methods:** This research used cross-sectional design, done from Mei until September 2015 in RSUD Dr.Achmad Mochtar Bukittinggi. The total samples were 38 pregnant women that were taken using consecutive sampling. Vitamin C intakes were obtained by interviewing a Food frequency questionnaire by a trained person. Levels were assayed in the Biomedical laboratory of Medicine Faculty of Unand by using Elisa method. Data normality test by Shapiro Wilk, unpaired T-test and Mann Witney test for the mean difference with a significance level of $p < 0.05$.

**Results:** Mean of vitamin C intakes in PRM pregnancy was $61.82 \pm 34.41$ mg/day while normal pregnancy $74.69 \pm 24.34$ mg/day. Mean of vitamin C levels in PRM pregnancy was $1.53 \pm 0.31 \mu g/ml$ and normal pregnancy was $1.81 \pm 0.25 \mu g/ml$. There was no significant difference between vitamin C intakes in PRM and normal pregnancy ($p=0.183$). There was a significant difference between vitamin C serum levels in PRM and normal pregnancy ($p=0.004$).

**Conclusion:** Intakes and vitamin C serum levels in PRM lower than the normal pregnancy. There was a significant difference between the level of serum vitamin C in PRM and normal pregnancy, but not in vitamin C intake.
Correlation of The Waist-Hip Ratio and Food Intakes among Medical Student in Padang, West Sumatera

Desmawati Desmawati, Vivian Dovana Putri, Arni Amir

Introduction: Abdominal obesity appears when the Waist-Hip Ratio (WHR) is greater than normal that its prevalence is increasing year by year including on young adult. This research aims to determine the correlation between WHR and foods intake (carbohydrate, fat, protein, fiber, and total calorie intakes) among medical students in Padang.

Methods: This research used cross-sectional design, done from January until June 2015 at Medical Faculty of Andalas University. The total samples were 126 people that were taken by using stratified random sampling. food intake was obtained by interviewing a Food frequency questionnaire by a trained person, WHR was measured using a measuring tape. Statistical analysis used the Pearson correlation test with a significance level of p <0.05.

Results: As as many as 66.7% of subjects were female subjects. WHR mean 0.95 ± 0.06 in male and 0.84 ± 0.04 in female. Total calorie intake was 2342.19 ± 668.42 kcal, carbohydrate was 337.16 ± 87.29 grams, fat 70.57 ± 30.30 grams, protein 89.28 ± 33.05 grams, fiber 9.57 ± 5.25 grams. There was significant correlation between WHR with protein intakes (p=0.032; r=-0.165) and fiber intakes (p=0.010; r=0.206), and there was no significant correlation between WHR with carbohydrate intakes (r=-0.018; p=0.422), fat (r=-0.109; p=0.112), and total calories (r=-0.084; p=0.174).

Conclusion: Based on the result, we can take a conclusion that there is a significant correlation between WHR with protein and fiber intakes, whereas total calories, carbohydrate, and fat intake have no significant correlation with WHR.
Predictor of Post Prandial Triglyceride Levels in Healthy Young Adults

Tri Juli Edi Tarigan, Murdani Abdullah, Inggrid Surono, Anandhara Indri Khumaedi, Dicky Levenus Tahapary

Background: Human spends most of their day in postprandial state. In line with this, postprandial triglyceride (TG) has been reported to better predict cardiovascular events in comparison to fasting TG. However, only limited data were available on the association between fasting and postprandial TG in Asian population. We aim to assess the association between fasting TG and postprandial TG in healthy young Indonesian adults.

Methods: This study involved 200 healthy young Indonesian adults aged 21-26 years old. In addition to measurement of body weight and body height for body mass index (BMI) calculation, we performed serial TG measurements before, 2-hour after, and 4-hour after a mixed meal challenge. Bivariate analysis was performed using Spearman correlation, while multivariate linear regression analysis was also performed to determine whether fasting TG could predict 4 hours postprandial TG independent from BMI and age.

Result: Increasing BMI was associated with an upward trend in fasting TG, 2-hours TG and 4-hours TG. There was a strong correlation between fasting TG and 2 hours postprandial TG with 4 hours postprandial TG (r=0.756; p<0.001 dan r=0.791; p<0.001). In a multivariate analysis, fasting TG was observed to be a strong predictor of 4 hours postprandial TG, even after adjustment with BMI and age (1.7 (1.6 to 1.8), p<0.001).

Conclusion: Fasting TG is a strong predictor of 4 hours postprandial TG in normoglycemic and normolipidemic young Indonesian adults. Hence, in this group of subjects, measuring fasting TG would suffice to stratify one’s risk in cardiovascular diseases.
The 3rd International Conference and Exhibition on Indonesian Medical Education and Research Institute (ICE on IMERI)

Human Nutrition
Clinical Research

The Impact of Ramadan Fasting on Glycemic Control of Type 2 Diabetes Mellitus Patients: An Observational Comparative Study

Dante Saksono, Farid Kurniawan, Bambang Widyangtoro, Dyah Purnamasari, Lusiani Siregar, Cindy Astrella, Tika Pradnjaparamita, Dicky Levenus Tahapary

Introduction: Studies have shown positive alteration of metabolic biomarkers such as blood glucose level but conflicting findings of lipid profile after Ramadan fasting among type 2 diabetes mellitus (T2DM) patients. However, most studies were performed without proper control group. The aim of this study is to analyze the impact of Ramadan fasting on glycemic control of T2DM patients compared to healthy control.

Method: This observational comparative study recruited a total of 20 women with T2DM and 30 age-matched healthy women who underwent Ramadan fasting. We assessed glycemic control and lipid profile 2-4 weeks before the start of Ramadan fasting, after at least 2 weeks of fasting, and 4 weeks after the end of the Ramadan fasting.

Results: Ramadan fasting was associated with a more pronounced reduction of fasting blood glucose among T2D subjects in comparison to healthy subjects [median (IQR), -11.0(-29.5--0.75) mg/dl vs -0.50(-5.25-3.00), p=0.003]. HDL-cholesterol and triglyceride levels decreased significantly in both groups during Ramadan fasting. Four weeks after the end of the Ramadan fasting, we observed a rebound of all metabolic control parameters toward pre-fasting Ramadan levels.

Conclusion: Ramadan fasting was associated with a temporary improvement of glycemic control in T2DM subjects.
**Relationship of Physical Activity, Food Intake and Haemoglobin Level with Physical Fitness Value Athletes at UPTD Sporting Talent of West Sumatra**

Afriwardi Afriwardi, Denas Symond, Desmawati Desmawati

**Background:** Good physical fitness will avoid the risk of injury. Physical activity, food intake and Hemoglobin can affect the carrying capacity of oxygen that affects the attainment of good physical fitness. The purpose of this study to determine the relationship of Physical activity, food intake and blood Hemoglobin Levels with Athletic Physical Fitness at UPTD Sports Talent West Sumatra

**Methods:** The design of this research was the Cross-Sectional study. This research was conducted at UPTD Sports of West Sumatera in 2018. The number of respondents in this study was 98 people. Retrieval of data food recall 2 X 24-hours by interview. Physical activity was measured by using the Physical Activity Questionnaire For Adolescents (PAQ-A), and physical fitness value with the bleep test. Hemoglobin level was measured by using easy touch GcHb. Data analysis was carried out using a correlation test with significant levels p<0.05.

**Results:** The results obtained average value of VO2 Max 48.44 ml / kg / min. mean of Hemoglobin male was 16.44 mg / dl, mean of female hemoglobin was 13.5 mg / dl. Carbohydrate consumption 295,77 gr, protein 78,5 gr, fat 66,21 gr. As 89.6% athlete have active physical activity. Pearson correlation test showed that there was the significant relationship between physical fitness with hemoglobin (r=0,351, p= 0.000), carbohydrate intake (r=0,381 p =0,000), protein intake (r =0,397, p=0,000), and fat intake (r=0,333, p=0,001). Also, there was a relationship between physical activity and fitness level (p = 0.001)

**Conclusion:** Physical activity, food intake and haemoglobin level have the significant relationship with physical fitness value athletes at UPTD sporting talent of West Sumatra.
Nutritional Status Assessment of Pair Mothers-Children in Cohort Study of East Jakarta

Lestari Octavia, Asmarinah Asmarinah, Murdani Abdullah, Ali Sungkar, Budi Wiweko, Aman Bhakti Pulungan

Introduction: The co-existence of dual-form of malnutrition among mothers and children in urban setting is commonly found in developing countries, like Indonesia. We determined the proportion of overweight/obese mother whose children categorized as malnourished within household, and identified causes to this problem.

Method: The longitudinal study was started in 2015 by Department of Nutrition, Faculty of Medicine, Universitas Indonesia involving 113 pairs of mothers and their children. Weight and height were assessed to determine the was determined for overweight/obese (BMI ≥ 25 kg/m²) and for mother and HAZ, WHZ, WAZ for children. We also conducted interview using structured questionnaire for gathering data on socioeconomic data. Data were analyzed for descriptive and the chi-square for the association between the suspected variables.

Result: The mean age ± SD of the mothers and the median ± SE of the children were 32.9 ± 5.35 , 3.35 ± 0.40 years old, respectively. Most of the subjects came from the low socioeconomic level, 56.6%. Almost all of the mothers accomplished the basic education level. The proportion of overweight and obese among mothers was high, 66.4 % while the prevalence of stunting and severe stunting, wasting and severe wasting, and underweight among the children are 15.9%, 6.36% and 10.6%, respectively. Mother’s nutritional status has association with wasting status of the children.

Conclusion: Mother’s nutritional status is one determinant factor affecting the children’s current nutritional status. The magnitude of the problem is not categorized as double burden of malnutrition in the region.
The Nutritional Status Assessment of Pair Children-Mother: Jakarta Timur Cohort Study

Lestari Octavia

Introduction: The dual of malnutrition is commonly found in developing countries, like Indonesia. The increment of economic growth shifted the food pattern, from traditional food to dense energy, high fat and low fiber. Within household, it was found that the mother has overweight/obese while the children categorized as malnourished. By year 2015, Department of Nutrition, Faculty of Medicine, Universitas Indonesia initiated the study included 361 mothers in the third trimester of pregnancy. In 2018, we follow the subject to have nutritional status assessment of the children and their mothers.

Method: The study design is longitudinal study, we re-collected the subject involved in the previous data collection. Due to high loss to follow up, the number of participant was 113 children. We did anthropometric measurement to the mother and their children, conducted an interview using structured questionnaire and collected the blood for biochemical measurement status.

Result: The prevalence of stunting (including severe stunting), wasting (including severe wasting), and underweight among the children are 15.9%, 6.36% and 10.62%, respectively. 66.67% the stunting children were the children of over nutrition mothers. The possibility causes are quality and quantity of intake, disease suffered, quality of caring and other factors.

Conclusion: The co-existence of dual malnutrition among mother and children in urban setting remain public health problem. Further measurement and assessment are required to define the magnitude of the problem and identify the support factors to assist in offering solution for the future in improving the quality of health of Indonesian women and children.
The Relationship between Specific Nutrient Intake with Prevalence of Stunting among Schoolchildren, in Padang, West Sumatera, Indonesia

Delmi - Sulastri, Yola Angreka Taufik, Kirana

Background: Stunting is a nutritional problem and most commonly found in children in Indonesia. Deficiencies of specific nutrients such as protein, calcium, phosphorus, vitamin C and magnesium are thought to be related to stunting.

Objective: The objective of this study was to look at the relationship between Specific Nutrient Intake with Prevalence of Stunting Among Schoolchildren, in Padang, West Sumatera, Indonesia.

Method: A cross-sectional survey was conducted among 232 children (6-7 years) randomly selected from eight primary schools in Padang City in 2016. The data were collected by measuring the height of children using microtois, stunting determined by TB / age and make use of diagrams WHO-NCHS, and to assess specific nutrient intake using food frequency questionnaire (FFQ) and nutrisurvey programme. The data was processed using a computer and analyzed using T-Test and Mann-Whitney U.

Result: This study shows that average protein intake, Ca, F, Vitamin C and Mg in normal children are 86.58±34.82 gr/hr, 759.79±524.25 mg/hr, 1366.00±784.29 mg/hr, 86.07±50.19 mg/hr dan 285.19±110.25 mg/hr and in stunting children are 80.24±24.87 gr/hr, 624.91±361.28 mg/hr, 1228.74±508.99 mg/hr, 98.76±45.91 mg/hr and 284.91±85.21 mg/hr. There was a significant mean difference between intake proteins between normal children and stunting children (p=0.04), but not with other nutrient intakes (p>0.05).

Conclusion: This study showed that only intake proteins are related to the incidence of stunting Among Schoolchildren, in Padang, West Sumatera, Indonesia.

Keywords: Stunting, Specific nutrients, schoolchildren
Human Genetic
Suspicion of Woodhouse-Sakati Syndrome in an Indonesian Female Young Adult: A Case Report

Lucky Aziza Bawazir

**Background:** Woodhouse-Sakati syndrome (WSS) is an extremely rare autosomal recessive neuroendocrine disease with loss of function mutation of DCAF17 gene (DDB1 and CUL4 associated factor 17) or c2orf37, which is located on chromosome 2q31. Common clinical manifestations of this syndrome are hypogonadism, hypothyroidism, alopecia, diabetes mellitus, and mental retardation.

**Case report:** This report discusses about the first documented case of suspected WSS in Indonesia in a 20 year-old female patient with multiple metabolic abnormalities, delayed puberty, secondary osteoporosis, hydronephrosis, colitis, and recurrent urinary tract infection. Despite being treated regularly for her type-1 diabetes mellitus with subcutaneous insulin detemir and insulin aspart, her blood glucose level was still uncontrolled. She also consumed levothyroxine daily for her hypothyroidism. Additionally, patient also experience pathological fracture with malunion possibly due to her secondary osteoporosis, which was confirmed by Bone Mass Densitometry. A standard karyotyping and FISH examination were also performed in this patient; showing no chromosomal abnormality and no mosaic monosomy in X chromosome.

**Conclusion:** In Indonesia, to our knowledge, there has not been any documented report about Woodhouse-Sakati syndrome. As a developing country, the challenges mainly appear from lack of diagnostic tools and treatment, lack of healthcare access towards existing diagnostic tools, as well as lack of awareness about the possibility of genetic and/or metabolic abnormalities in pediatric and adult patients. Further recommendations about diagnostic confirmation, as well as comprehensive and multi-disciplinary management for this patient still need to be fulfilled through the publication of this case report.
Identification of Novel Variant for Exon 9 of Iduronate 2-Sulfatase Gene on MPS II Patients in Indonesia

Rizky Priambodo, Yulia Ariani, Damayanti Rusli Sjarif

Mucopolysaccaridosis Type II (MPS II) or Hunter Syndrome is one of lysosomal storage disorder caused by mutation in Iduronate 2-Sulfatase (IDS) gene, which is located in chromosome X. Profile of IDS gene at Exon 9 has not done before in Indonesia. The objective of the research is to find and analyze mutation that occurs at exon 9 of IDS gene of MPS II patient in Indonesia. Analysis was conducted by using DNA from Indonesia MPS II patient and individual controls that consists of 25 normal individual of male or female. Analysis was done by going through steps of DNA isolation, amplification by Polymerase Chain Reaction (PCR), electrophoresis visualization, and sequencing. Research result shows that IDS gene from the whole samples used were successfully analysed. This study found base deletion in position c.1549delATC in an MPS II patient. The variant is novel and change the amino acid sequence. Further research would necessary to find another variant at other exon in IDS gene from Indonesian MPS II patients.
Identification of Novel Variant on Exon 8 of Iduronate-2-Sulfatase Gene in Indonesian Patient with Mucopolysaccharidosis II

Anggia Nurwulan Kusno Putri, Rizky Priambodo, Yulia Ariani, Steven Arianto, Yuliandini Pangestika, Anom Bowolaksono, Damayanti Rusli Sjarif

Mucopolysaccharidosis II (MPS II), also known as “Hunter syndrome”, is a rare X-linked recessive disease caused by lysosomal storage disorder due to the deficiency of the lysosomal enzyme iduronate-2-sulfatase (IDS). The IDS gene is important for the lysosomal degradation process of dermatan sulfate and heparan sulfate, in which the deficiency of the IDS enzyme will lead to the accumulation of these glycosaminoglycans. Exon-specific analyses on exon 8 of the IDS gene were done on patients with MPS II in Cipto Mangunkusumo National Referral Hospital, Jakarta, Indonesia. In this study, 8 samples of Indonesian patients with MPS II were analyzed using PCR and sequencing methods. Two novel mutations in Indonesian patients with MPS II are reported. A single-nucleotide deletion variant (c.1023delA) which leads to the alteration of amino acids in the p.Glu341AspfsTer19 was observed in all patients. A novel missense mutation (c.1033T>C) leading to the alteration of an amino acid tryptophan to arginine in the p.Trp345Arg and a single-nucleotide deletion variant (c.1041delA) leading to the alteration of amino acids composition in the p.Lys347AsnfsTer13 on exon 8 of the IDS gene were observed in one patient with MPS II.
Monounsaturated Fatty Acid Related to Telomere Length in Minangkabau Premenopausal with Dominant Homozygot TERT Polymorphism

Delmi - Sulastri, Desmawati Desmawati, Yuniar Lestari

Background: High fat intake causes the stress oxidative condition and be able to increase the telomere attrition. But, polymorphism of the TERT gene influences the fat intake to affect telomere length. This study aims to elucidate the correlation between fat intake with telomere length based on polymorphism of the TERT gene in Minangkabau premenopausal people.

Methods: A cross-sectional study was conducted in 113 Minangkabau premenopausal people, aged 40 – 55 years old at Padang City in West Sumatera, Indonesia. Fat intake examined 76 subjects by using a food frequency questionnaire (FFQ) that contain 200 kinds of food. Telomere length was measured by a modification of O’Challagen technique by quantitative Poly Chain Reaction (qPCR). Polymorphism of the TERT gene was analyzed using PCR and sequencing. Data were analyzed by using a correlation test with significant levels p<0.05.

Results: Based on study result, Average telomere length of subjects was 554.79 ± 426.8 bp, total fat intake 64.2 ± 28.1 gram/d, PUFA 8.0 ± 4.6 gram/d, MUFA 9.1 ± 4.7 gram/d, SFA 28.3 ± 12.1 gram/d. there were 50.4% of subjects have heterozygote polymorphism of TERT gen, 30.1% have dominant homozygote and 19.5% have recessive homozygote. MUFA intake has a significant correlation with telomere length (r=-0.429; p=0.011) only in dominant homozygote, but another intake has no significant correlation with telomere length.

Conclusion: MUFA intake has a significant correlation with telomere length in Minangkabau premenopausal people who have dominant homozygote polymorphism TERT.
Identification of Novel Mutation in Exon 1 of Iduronate-2-Sulfatase Gene from Mucopolysaccharidosis Type II Patient in Indonesia

Aulia Reski Widyaningrum, Rizky Priambodo, Yulia Ariani, Damayanti Rusli Sjarif

Introduction: Mucopolysaccharidosis type II (MPS II, OMIM 309900) is X-linked recessive lysosomal storage disorder causing the accumulation of dermatan sulfate and dermatan sulfate due to iduronate-2-sulfatase (IDS) enzyme deficiency.

Methods: To detect IDS gene mutation, DNA samples are obtained from 10 MPS II patients and 50 normal individuals, then analyzed with Sanger sequencing of exon 1 IDS gene.

Results: Two novel mutations are found from one male patient at the site of c.22C>A (silent mutation) and c.54C>A (missense). Both of mutations are not located in the bases which are responsible as signal peptide cleavage site. Amino acid substitution caused by missense in c.54 does not change the hydrophobic characteristic as both amino acids are hydrophobic. Therefore, those mutations do not change IDS enzyme structure nor alter the signalling pathway of IDS mRNA-ribosome complex to endoplasmic reticulum.

Conclusion: This study of exon 1 is first to be performed in Indonesia. The novel mutations found in this study can contribute to single nucleotide polymorphism (SNP) database of MPS II patients from all over the world, thus leads to deeper understanding of this rare disease in molecular level. Therefore, genotype study is needed to get full profile of MPS II patients in Indonesia.
Human Genetic
Basic Science

Mutation Analysis for Exon 2 and 5 of Iduronate 2-Sulfatase Gene on MPS II in Indonesia

Anantya Pustimbara, Rizky Priambodo, Yulia Ariani, Steven Arianto, Yuliandini Pangestika, Anom Bowolaksono, Damayanti Rusli Sjarif

Mucopolysaccaridosis Type II (MPS II or Syndrome Hunter) is one of lysosomal storage disorder caused by mutation or changes of nitrogen base arrangement in IDS gene. This mutation can occur in various different exon locations. This research is aimed to recognize the presence of mutation that occur at exon 2 and 5 of gen IDS of MPS II patient, especially in Indonesia. Analysis was conducted by using 7 DNA MPS II patient samples of Indonesia origin and 50 controls that consists of 25 normal individual of male or female. Analysis was done by going through steps of DNA isolation, amplification by Polymerase Chain Reaction (PCR), electrophoresis visualization, and sequencing. Research result shows that IDS gene from the whole samples used were successfully analysed. Based on the previous research that has been conducted in countries in Southeast Asia, exon 2 and 5 are not one of exons that possess the most number of pathogenic mutations and the result of this research espouse the information. This study also found an adenine base deletion in position c.708+72 only in intron 5 of one control sample. The variant is novel and characterized as likely benign variant.
Correlation of Body Fat Percentage with Biochemical Marker of Cardiometabolic Disease Based on Polymorphism of Tert Gene in Minangkabau Premenopausal

Desmawati Desmawati, Delmi Sulastri, Yuniar Lestari, Afriwardi Afriwardi, Ulya Uti Fasrini

**Background:** Cardiometabolic disease risk is increasing in the premenopausal stage. Polymorphism of the TERT gene influence the modifiable risk factors for cardiometabolic disease. This study aims to elucidate the correlation between body fat percentage with the biochemical marker of cardiometabolic disease based on polymorphism of the TERT gene in Minangkabau premenopausal people.

**Methods:** A cross-sectional study was conducted in 113 Minangkabau premenopausal people, aged 40 – 55 years old at Padang City in West Sumatera, Indonesia. Body fat percentage analyzed by Bioelectrical Impedance Analyzer (BIA). Fasting blood glucose and lipid profile was examined from venous blood. Polymorphism of the TERT gene was analyzed by Poly Chain Reaction and sequencing. Data were analyzed by using a correlation test with significant levels \( p<0.05 \).

**Results:** Average body fat percentage of subjects 37.3 ± 7.2, blood glucose 101.5 ± 12.1 mg/dL, total cholesterol 194.0 ± 41.3 mg/dL, triglyceride 114.4 ± 38.8 mg/dL, LDL-cholesterol 119.8 ± 46.1 mg/dL, and HDL-cholesterol 54.1 ± 18.5 mg/dL. As 50.4% of subjects have heterozygote polymorphism of TERT gen, 30.1% have dominant homozygote and 19.5% have recessive homozygote. Body fat percentage has a significant correlation with triglyceride \((r=0.438; p=0.001)\), and HDL-Cholesterol levels \((r=-0.383; p=0.003)\) just in heterozygotes, but does not have a significant correlation with another biomarker.

**Background:** Body fat percentage correlates with triglyceride and HDL cholesterol in Minangkabau premenopausal people who have heterozygote polymorphism TERT.
Normal Chromosomal Prevalency Among 3PN Morphology Embryo

Kresna Mutia

**Introduction:** Evaluation of embryo morphology is the most important parameter to evaluating developmental timing and indicating for chromosomal failure or degeneration. The first step to evaluated a fertilization is confirming by determine the number and shape of the pronuclei (PN). The normally fertilized egg were indicated by 2 even PN. However, some embryos could be develop from abnormally fertilized zygotes for example tripronuclear zygotes (3PN). Previous study suggest that embryo developing from ICSI zygotes with 3PN are endowed with mechanism correction of triploidy to diploidy. In this study, we trying to evaluate the prevalency of 3PN morphology embryo with a normal chromosomal.

**Method:** 30 embryos under IVF treatment that were 3PN zygotes were cultured until day 5. Then one of the blastomere was biopsied. All of the samples were detected for abnormalities by using array-Comparative Genomic Hybridization (a-CGH).

**Result:** From the 30 embryos with 3PN zygotes, 33.3% has a normal chromosome.

**Discussion:** In this study, we analyzed the chromosomal form of the 3PN zygotes. In 3PN zygotes, the prevalency of the normal chromosome could be occur at a later stage. The embryo from 3PN zygotes are capable of normal in vitro development. It is reported that polyspermic fertilization embryos in themselves can correct, but eventually may end in abortion. Therefore, these zygotes or embryos couldn’t be used for embryo transfer or cryopreservation because of the risk for abnormal ploidy constitution.

**Conclusion:** Not all of the 3PN morphological embryo has genetically abnormal. Keyword: 3PN, a-CGH, embryo, IVF, morphology
Gaucher Disease (GD) is an autosomal recessive disorder caused by deficiency of glucocerebrosidase (GCase) enzyme, encoded by GBA gene. Analysis of common mutations (N370S and L444P) in GBA gene has been done in Spanish, Brazil, Egypt, and China, but has not been done in Indonesia yet. The objective of this experiment is to find variant of GBA gene in GD patient in Indonesia. Genetic analysis in exon 9—11 GBA gene was done using blood samples from a patient with suspected GD and 20 normal patients unrelated with GD. Samples were collected from RSUPN Cipto Mangunkusumo, Jakarta, Indonesia. Polymerase Chain Reaction (PCR) was performed to amplify GBA gene in exon 9—11 using specific primer, visualized by gel electrophoresis, and analyzed through Sanger sequencing method. The L444P mutation was found and located in exon 10. This missense mutation turned 483rd amino acid of GCase (leucine into proline) and related with type II GD. This latest discovery of L444P mutation can be added as a database to determine the prevalence of GD in Southeast Asia. However, further research is needed to ascertain the effect of L444P mutation on the GCase structure, and explore mutation in the other exons.

**Keywords:** Gaucher Disease; glucocerebrosidase; GBA gene; L444P mutation.
Human Genetic Undergraduate Student

**Identification of Novel Variant in Exon 5 of Galactosamine (N-Acetyl)-6-Sulfatase (GALNS) Gene in Mucopolysaccharidosis IVA Patients in Indonesia**

Nurul Muhammad Prakoso, Rizky Priambodo, Yulia Ariani, Cut Nurul Hafifah, Damayanti Rusli Sjarif

Mucopolysaccharidosis IVA (MPS IVA) or Morquio Syndrome A, is a lysosomal storage disorder caused by the deficiency of N-acetylgalactosamine-6-sulfatase (GALNS) enzyme, resulting in accumulation of keratan sulfate (KS) and chondroitin-6-sulfate (C6S) in the lysosome and leads to tissue or organ damage. The enzyme deficiency occurs due to mutations in the Galactosamine (N-Acetyl)-6-Sulfatase (GALNS) gene located at locus 16q24.3, consists of 14 exons with the size of ~43 kb and encodes 522 amino acids. Currently, 37 of 272 mutations are detected in exon 5, indicating this region as a hotspot of mutations. The objective of this study was to analyze the mutations in exon 5 of GALNS gene on MPS IVA patients in Indonesia. Genomic DNA of patients and normal individuals were isolated from fresh blood samples collected from Dr. Cipto Mangunkusumo Hospital. The exon 5 of GALNS gene were amplified using a pair of specific primer, PCR products then sequenced by automated sequencing technique. In this study, we revealed a novel missense mutation c.503G>T that alters amino acid at position 168 from Glycine to Valine (G168V). Two previously reported variations identified in this study are c.510T>C (Y170) and c.549 + 134G>A. This finding provides suplemental variant data in exon 5 of GALNS gene but further research must be conducted to analyze variations in another exon to fully map the mutation profile on MPS VIA patients in Indonesia.

**Keywords:** MPS IVA; GALNS; mutation; variation
Mutation Analysis of Exon 8 of the Iduronate-2-Sulfatase Gene in Mucopolysaccharidosis Type II Patients in Indonesia

Anggia Nurwulan Kusno Putri, Rizky Priambodo, Yulia Ariani, Steven Arianto, Yuliandini Pangestika, Anom Bowolaksono, Damayanti Rusli Sjarif

Introduction: Mucopolysaccharidosis II (MPS II), also known as “Hunter syndrome”, is a rare X-linked recessive disease caused by the deficiency of the lysosomal enzyme iduronate-2-sulfatase (I2S) produced by the IDS gene which leads to the development of a lysosomal storage disorder. The IDS gene is important for the lysosomal degradation process of dermatan sulfate and heparan sulfate. The deficiency of the I2S enzyme will lead to the accumulation of these glycosaminoglycans.

Methods: Exon-specific analyses on exon 8 of the IDS gene were done on 8 Indonesian patients with MPS II in Cipto Mangunkusumo National Referral Hospital, Jakarta, Indonesia using PCR and sequencing methods.

Results: Two novel mutations and a variant in Indonesian patients with MPS II are reported. A single-nucleotide deletion variant (c.1023delA) which leads to the alteration of amino acids in the p.Glu341AspfsTer19 was observed in all patients. A novel missense mutation (c.1033T>C) leading to the alteration of an amino acid tryptophan to arginine in the p.Trp345Arg and a deletion mutation (c.1041delA) altering the amino acids composition in the p.Lys347AsnfsTer13 of the IDS gene were observed in one patient with MPS II.

Conclusion: This study is the first one to perform mutation analysis on exon 8 of the IDS gene. The findings of this research will be added into the database of the IDS gene profile in hope to help the diagnosis of the MPS II disease in further researches.

Keywords: Mucopolysaccharidosis II, lysosomal storage disorder, IDS gene, PCR, exon 8, novel mutation, missense, deletion.
Gaucher Disease (GD) is a lysosomal storage disorder resulting by accumulation of glucocerebroside due to deficiency of enzyme glucosylceramidase, encoded by GBA gene. To date, research on GBA mutation has been carried out in many countries, but it has not been done in Indonesia yet. This study aims to report a mutation in intron 9 of GBA gene from Indonesian GD patients. Blood samples from patients with GD and unrelated with GD were obtained from RSUPN Dr. Cipto Mangunkusumo, Jakarta. Samples were extracted, purified and amplified using PCR with specific primer. Product of PCR was visualized by gel electrophoresis, then it was sequenced to analyze the presence of mutation in intron 9 of GBA gene. Mutant allele identified included a known mutation, IVS9+141A>G, discovered at 9335th nucleotide in intron 9. It didn’t play a role in the formation of novel donor or acceptor splice site for spliceosome. This mutation has been reported in India before and categorized as non-pathogenic. On further research, this study can be used as additional information for GD database to determine prevalence of GD in Indonesia.
Human Genetic  
Undergraduate student

**Molecular Analysis of Iduronate 2-Sulfatase Gene Exon 4 on Mucopolysaccharidosis Type II Patients in Indonesia: Identification of One Novel Deletion**

Mutiara Fadilla Purwanto, Rizky Priambodo, Yulia Ariani, Steven Arianto, Yuliandini Pangestika, Anom Bowolaksono, Damayanti Rusli Sjarif

Mucopolysaccharidosis type II (MPS II) is an X-linked lysosomal storage disorder which is caused by iduronate 2-sulfatase (I2S) enzyme deficiency. Deficiency of this enzyme is correlated with mutation in iduronate 2-sulfatase (IDS) gene, which encoded the enzyme. This study was aimed to analyze mutation in IDS gene exon 4 in mucopolysaccharidosis type II patients in Indonesia. Genomic DNA samples from 9 MPS II patients and normal individuals as control were extracted. The specific sequence of IDS gene exon 4 from those samples were amplified using PCR method. PCR results were visualized using Agarose Gel Electrophoresis (AGE), and were sequenced using automated sequencing. The results showed one novel deletion at the site of c.435_440delTACCGA which is classified as likely pathogenic variant.

**Keywords:** deletion, exon 4, iduronate 2-sulfatase (IDS) gene; mucopolysaccharidosis type II (MPS II).
Human Genetic
Undergraduate student

**Mutation Identification of Exon 11 of N-Acetyl Galactosamine-6-Sulfatase (GALNS) Gene in Indonesian Mucopolysaccharidosis type IV A Patients**

R. Abdullah Reinhart Sulaiman, Rizky Priambodo, Yulia Ariani, Cut Hafifah, Anom Bowolaksono, Rabbil Pratama Aji, Damayanti Rusli Sjarif

Mucopolysaccharidosis type IV A (MPS IV A) is an autosomal recessive disease, in which lysosomes are not able to catalyze glycosaminoglycans due to deficiency of the enzyme N-acetyl galactosamine-6-sulfatase (GALNS), encoded by GALNS gene. Currently, research on MPS IV A has been done in many countries, but it has not yet been done in Indonesia. This study aims to identify mutations that may be present in exon 11 of GALNS gene in patients with MPS IV A in Indonesia. The study was conducted using DNA from blood samples obtained from patients of RSUPN Cipto Mangunkusumo, Jakarta. DNA extraction was carried out, then the concentration was measured, and amplified using PCR. Then, PCR results were separated and visualized by gel electrophoresis, and after that sequencing was carried out. Sequencing results indicated that c.1177G> T mutation were present. This mutation converts the 393rd amino acid of GALNS enzyme, from Alanine to Serine. This mutation has been reported in Japan before and was identified as a non-pathogenic benign mutation. With this result, this research can be added as a database for further research to determine the prevalence of MPS IV A in Indonesia.

**Keywords:** GALNS gene; Mucopolysaccharidosis type IV A; N-acetyl galactosamine-6-sulfatase
Human Reproduction
Level of Compatibility and Acceptance of 20 Minutes versus 60 Minutes Sanitary Pad Test as a Method of Measuring Stress Urinary Incontinence Severity Degree

Kadek Fajar Marta

Background: The high prevalence and negative effects of stress urinary incontinence (SUI) requires appropriate treatment. Selection of therapy depends on the assessment of the severity of SUI. An accurate method is needed to measure the severity of SUI objectively so that appropriate therapy can be administered.

Methods: This study used cross-experimental design, which only requires one sample group that will be compared to itself. The subject are SUI patients in Urogynecology Outpatient Department of Cipto Mangunkusumo General Hospital, Jakarta, Indonesia who met the inclusion criteria. Sanitary pad test was obtained twice, which the first test was for the 20 minutes pad test and then followed with 60 minutes pad test or vice versa within one-week period. Subjects will be interviewed using questionnaire at the end of each pad test. The questionnaire was prepared by the researcher and a trial was performed on 5 patients prior the use to the subject of the study.

Results: Results Kappa R = 0.84 is indicating that a 20-minute sanitary pad test had a good level of agreement compared to 60-minute. On the level of satisfaction, 25 respondents (83.3%) stated that they were satisfied with 20 minute pad test and 5 respondents (16.7%) stated that they were very satisfied. On the other hand, 3 respondents (10%) stated that they were less satisfied with the 60-minute sanitary pad test, and the others was satisfied.

Conclusion: There is a good compatibility between the 20 minutes and 60 minutes sanitary pad test in assessing the severity of urinary incontinence. Compared to the 60 minutes sanitary pad test, the 20 minutes pad test obtained higher percentage of subject’s satisfaction.

Keywords: 20 Minutes Sanitary Pad Test, 60 Minutes Sanitary Pad Test, Stress Urinary Incontinence
Relationship of 3PN Embryo Morphology with Potential Chromosomal Abnormalities

Shanty Olivia Febrianti Jasirwan, SpOG

**Introduction:** Three pronuclei (3PN) zygote is one of the most frequently abnormal fertilization observed in IVF/ICSI technology. Embryos arising from 3PN zygotes are usually discarded as there are concerns about their abnormal chromosomal constitution. However, because in certain cases there are no other embryos available, new information would be valuable to help in the decision about transferring or discarding them. Preimplantation genetic screening (PGS) technology has been applied as a method to select genetically normal embryos for transfer that have the highest implantation potential.

**Objectives:** In recent study, we aim to analyze the chromosomal constitution of embryos arising from 3PN zygotes and to investigate the relationship between its morphology to its chromosome status.

**Methods:** Data from 18 consecutive ICSI cycles with 30 3PN zygotes were reviewed during a 6-month period (January-June 2018). Biopsy was performed on day 5/6 which were subsequently screened for chromosomal status by Next Generation Sequencing (NGS) method. The relationship between chromosomal constituent and embryo morphological features at cleavage and blastocyst stage were evaluated.

**Results:** Of the 30 3PN embryos with NGS results, 33.3 % were chromosomally normal. At the cleavage stage, there were no association between all morphological features and chromosomal status. However, at blastocyst stage, a grade 4 expanded blastocyst had significantly higher euploidy rate than the other grade of expansion (71.4 % 21.7%, P<0.05). As regards to intercellular mass (ICM) and trophectoderm (TE), embryos with grade A ICM and TE had a significantly higher euploidy rate (58.8.1%, P=0.001 and 60%, P=0.001 respectively).

**Conclusions:** Comprehensive chromosome screening associated with embryo morphology provides an opportunity to consider embryos arised from 3PN zygotes with top quality morphology features for transfer in IVF treatment, when no other embryos from 2PN ICSI zygotes are available.
Embryo Fragmentation and Its Relationship with Aneuploidy

Naylah Muna

Selecting embryos is one important step in IVF process before transferring the embryo to uterus. There are some methods to invasively choose good quality embryo, such as embryo grading by evaluating its equality and fragmentation. However, the methods is not properly evaluate chromosomal status of the embryos. Thus, further evaluation is needed especially for high-risk embryos. This research evaluate embryo fragmentation and chromosomal number using NGS. Each embryo was biopsied on third culture day to obtain single blastomere cell. DNA were then extracted from each blastomere and whole genome amplification was carried out. Amplification products were then sequenced to obtain ploidy number. Among 21 embryos which were evaluated, 12 embryos had no fragment, 9 embryos had small fragments, and 1 embryo had fragments. However, 7 of 12 embryos (58.3%) with no fragment were detected to have chromosomal abnormality. Aneuploidy was increased in small fragmented embryo with 62.5% (5 of 8 embryos). One fragmented embryo included was also found to have aneuploidy (100%). Statistics test showed that there was no correlation between fragmentation and incidence rate of aneuploidy (p>0.05). Although there was no correlation, it could be assumed from the percentage result that aneuploidy rate increased along with higher fragmentation. This research reached the conclusion that morphological evaluation itself was not enough to examine chromosomal status of an embryo and further precise methods were needed such as preimplantation genetic screening.
Human Reproduction
Clinical Research

**Progesterone Increases Sperm Capacitation and Exert Prosurvival by Akt Activation**

Sisca

**Background:** This study emphasizes whether progesterone (P4) has a prosurvival effect on sperm through suppression of apoptosis and inhibition of capacitation. This information is important to see if P4 can be used for preservation agents that increase and prolong the viability and motility of sperm.

**Methods:** Sperm from normal individuals were obtained from donors. Sperm were washed with gradient centrifugation using Percoll and then the sperm from the plasma seminal dissolved in the BWW medium. Sperm samples in aliquots of 500 μL into eppendorf tubes each contain approximately 10 million sperm cells. P4 was added to each tube with a final concentration of 0 (control), 250, 500, 750 and 1000 ng/mL. After the sample treatment was done, motility checking with CASA (Computer Assisted Sperm Analyzer). Detection of protein in the western blot will be done that recognizes the phosphorylation of tyrosine residues and Akt and caspase activity.

**Results:** P4 increased sperm motility but not significantly different (p>0.05). Western blot analysis revealed an increase of tyrosine phosphorylation protein levels between control and after P4 group (p>0.05). Similarly, the results of Akt protein phosphorylation also increased in control and after P4 group. Caspase-3 activity decreased when compared between control and after P4 group (p <0.05).

**Conclusion:** Overall data show that P4 has prosurvival effect on sperm
Maternal and Perinatal Outcome of Gestational Diabetes Mellitus in Persahabatan General Hospital

Kindy Agustin Wati

Background: The prevalence of gestational diabetes mellitus increases along with the high prevalence of diabetes mellitus type 2 in the world. Early identification of gestational diabetes mellitus is important for maternal morbidity and perinatal outcomes. The objectives of this study is to determine the maternal and perinatal outcomes of gestational diabetes mellitus and investigate association among GDM maternal fasting glucose test and HbA1c with pre eclampsia, preterm labor, and macrosomia in Persahabatan General Hospital.

Methods: This was a cohort-retrospective study with subject population were all patients who had gestational diabetes mellitus and had treatments in Persahabatan General Hospital from January 1, 2013 to December 31, 2016. The study included 75 GDM patients who diagnosed by fasting glucose test, oral glucose test, or hba1c. Exclusion criteria were patients who dropped out of treatments and had labor in another hospital. The data was collected by using medical records. The Chi-Square test was used to do bivariate analysis. The Fisher test used if the criteria for Chi-Square test was not fulfilled. Statistical significance data was analyzed by using SPSS v.20.

Results: The incidence of GDM in the population studied was 3.26%. Pre-eclampsia complicating pregnancy was noted in 6.7% patients, preterm labor in 4% patients, macrosomia in 16%, and HbA1c >6.5 in 40.4% patients. The significant association was showed by fasting glucose level of GDM patients and macrosomia in perinatal outcome (p=0.001). HbaA1c level of GDM patients was also significantly associated with macrosomia (p=0.05).

Conclusion: GDM was significatly associated with macrosomia in perinatal outcome in terms of maternal fasting glucose level and HbA1c during pregnancy.

Keywords: gestational, diabetes mellitus, maternal, perinatal, outcomes.
Involvement of Gonadotropin Hormones and Gonadal Steroid in the Occurrence of Mild Cognitive Impairment: Comparison between Geriatric and Non-Geriatric Women

Andon Hestiantoro, Brilliant Putri Kusuma Astuti

Introduction: Mild cognitive impairment (MCI) is a transitional period between physiological cognitive decline and dementia; age-associated changes in the levels of gonadotropin hormones and gonadal steroid have been considered as one of its influencing factors. The objective of this non-experimental comparative study was to determine and compare the association between gonadotropin hormones, gonadal steroid, and MCI both in geriatric and post-menopausal non-geriatric women.

Methods: This cross-sectional study was conducted in several Islamic meetings in Jakarta from November 2015 to February 2016. One hundred and one geriatric-aged women and 102 post-menopausal non-geriatric women participated in this study. These participants were classified into 2 groups according to their cognitive functional status. Each participant was subjected to a battery of neurocognitive examination to assess the cognitive functional status and blood sample collection to evaluate gonadotropin hormones and gonadal steroid level. Descriptive, bivariate, and multivariate analysis were performed to determine the association between study variables.

Results: In geriatric population, MCI had positive weak correlation with FSH (p= 0.004, r= 0.282) and positive moderate correlation with hCG (p= 0.000, r= 0.569), but showed no statistically significant correlation with LH, estradiol, and FSH to estradiol ratio. Multivariate analysis revealed hCG as the most influencing factor in the occurrence of MCI. While in non-geriatric aged population, no statistically significant association was observed between MCI, gonadotropin hormones, and gonadal steroid.

Conclusion: Gonadotropin hormones, particularly hCG, had stronger correlation with MCI condition in geriatric women compared to non-geriatric population.
Preoperative Assessment and Management with Minimal Access Surgery in IUD Translocation: A Case Report

Charly Haposan Siahaan

**Background:** IUD translocation is the serious complication that could happen from administration of intrauterine contraceptive device in the uterus. Risk factor such as lack of experience for inserting the IUD could be main cause. Preoperative assessment with ultrasound and abdominal x-ray could located the position of IUD. And management with minimal invasive surgery has been proven as one of the best way to solve this problem.

**Case Report:** Patient with history IUD insertion 3 month post c-section. She has the c-section 1 year before admission to our outpatient clinic. 1 month after insertion, she controlled to hospital that help her delivery, and been told that her intrauterine device was in the uterus completely. But then, after 8 month since the last check-up, she felt irregular abdominal pain, from US exam and abdomen x-ray the OBGYN conclude if her IUD was not inside the womb. The device was dislocated to pelvic space. Patient has been referred to advance hospital for laparoscopic diagnostic and retrieving the IUD.

**Conclusion:** IUD translocation is one complication that could make complex problem to the patient such as abdominal pain and also could make infection in the pelvic and abdomen cavity. Fast detection with good supportive examination has a good reason for quick management in this case with minimal invasive surgery such laparoscopy.

**Key word:** IUD, intrauterine contraceptive device, laparoscopy.
Comparison of PPARγ Eutopics in Endometriosis and Non Endometriosis Patients

Mardhatillah Fuady

Introduction: The increase in pro-inflammatory cytokines in patients with endometriosis has been widely reported in several studies. PPARγ activation can increase insulin sensitization and increase glucose metabolism, cell differentiation, apoptosis, and inflammation. Previous study shows there were presence of PPARγ in patients with endometriosis.

Methods: Cross-sectional research in December 2016 – October 2017 in operation room Ciptomangunkusumo Hospital. Endometriosis patients undergoing laparoscopy or laparotomy were recruited by consecutive sampling and examined the appearance of PPAR Gamma in endometrial endometriosis tissue and not endometriosis, then a descriptive analysis was performed.

Results: Eutopic concentration control when compared with eutopic endometriosis showed higher results for eutopic control (eutopic 22.52 ± and ectopic 22.16 ± 2.29ng / μl).

Conclusion: There are differences in PPARγ expression of endometrial endometriosis tissue and non-endometriosis.

Keywords: Endometriosis, Endometrial, PPARγ, therapy
Testicular Diameter, Sex Hormones Level, Presence of Varicocele, and Microdeletion of Chromosome Y Status as Predictors of Surgical Sperm-Retrieval Outcome in Infertile Men with Azoospermia

Ponco Birowo, Dimas Tri Prasetyo, Syifa Fauziah Fadhly, Eko Arianto, Nur Rasyid

Introduction: Combined association between testicular diameter, follicle-stimulating hormone (FSH) and testosterone levels, presence of varicocele, microdeletion of azoospermia factor (AZF) genes in chromosome Y (MDY) status, and surgical sperm-retrieval outcome in men with azoospermia has not been clearly established.

Methods: This retrospective study included 30 infertile men with azoospermia. All subjects underwent surgical sperm-retrieval procedures. The outcomes of sperm retrieval among subjects MDY status. Furthermore, we also analyzed the association between FSH level and testicular length. Statistical analyses were performed using Fisher Exact, Mann Whitney, Spearman Rho tests, and logistic regression with p<0.05 considered statistically significant.

Results: The median age of subjects were 35.5 (27 - 59) years old. Varicocele was found in 86.7% of subjects. Sixty percent of subjects underwent PESA/TESE procedure while the other 40% underwent PESA/TESE with microligation of varicocele. The median value of FSH level was 9.43 (1.72 – 69.1) mIU/mL, while the mean value of testosterone level was 412.96 ± 188.4 ng/dL. The median length of right and left testicular diameter were 3.37 cm and 3.41 cm, respectively. The difference was not statistically significant. Successful sperm retrieval outcome was observed in 15 (50%) subjects. There is an association between testicular length and sperm retrieval outcome (p<0.001). Furthermore, testicular length also has a strong negative correlation with FSH level (rs=-0.773; p<0.001). MDY examination among subjects showed that there were 5 (16.7%) subjects with MDY (partial microdeletions of AZFa, AZFb, AZFac, complete microdeletion of AZFb, and complete microdeletion of AZFb with partial microdeletion of AZFc). MDY itself is associated with the outcome of sperm retrieval outcome (p=0.042). Adjustment of all variables using logistic regression showed that the presence of varicocele (p=0.042) and the diameter of right testicle (p=0.009) are associated with surgical sperm-retrieval outcome in men with azoospermia.

Conclusion: This study found that varicocele and the diameter of right testicle are associated with the outcome of sperm retrieval in men with azoospermia. Further studies with larger number of subjects are needed for more objective and applicable results.

Keywords: testicular diameter; follicle-stimulating hormone; testosterone; varicocele; microdeletion of chromosome Y; sperm retrieval; azoospermia.
Testicular Length Diameter to Predict Surgical Sperm-Retrieval Outcome in Infertile Men with Azoospermia

Dimas Tri Prasetyo, Nur Rasyid, Ponco Birowo

**Introduction:** The association between longest testicular diameter and surgical sperm retrieval outcome in men with azoospermia has not been clearly established.

**Methods:** This retrospective study included 30 infertile men with azoospermia. All subjects underwent surgical sperm-retrieval procedures. The outcome of sperm retrieval in subjects was compared to their longest testicular length diameter using Mann Whitney test with p<0.05 considered statistically significant. Analysis of logistic regression was used to determine the cut-off point of the longest testicular diameter for predicting successful sperm retrieval.

**Results:** The subjects had a median age of 35.5 (27 – 59) years old with 86.7% of the subjects had varicocele. Sixty percent of subjects underwent PESA/TESE procedure while the other 40% underwent PESA/TESE combined with microligation of the varicocele. The median value of FSH level was 9.43 (1.72 – 69.1) mIU/mL, while the mean value of testosterone level was 412.96 ± 188.4 ng/dL. The median length of right and left testicular length diameter were 3.37 (1.59 – 4.5) cm and 3.41 (1.48 – 4.44) cm, respectively. The median value of longest testicular length diameter in each subject was 3.62 (1.62 – 4.5) cm. Successful sperm retrieval outcome was observed in 15 (50%) subjects. There is an association between longest testicular length diameter and surgical sperm-retrieval outcome (p<0.001). Cut-off value of 3.61cm for longest testicular length diameter has an 80% sensitivity and 80% specificity to predict successful surgical sperm-retrieval outcome in men with azoospermia (p<0.001; AUC 88.2% 95% CI 75.9-100%).

**Conclusion:** Testicular length diameter has a potential to be used as a predictor of surgical sperm-retrieval outcome in men with azoospermia.

**Keywords:** testicular diameter; varicocele; sperm retrieval; azoospermia.
Introduction: Male factor contributing to the fertility problem is approximately 50% of infertile couples, with up to 20% are found to be azoospermic. Several hormonal evaluations such as follicle-stimulating hormone (FSH) and testosterone are commonly done for evaluation of azoospermic men, with intracytoplasmic sperm injection (ICSI) with many kind of surgical sperm retrieval (SR) procedures was developed to treat this condition. However, correlation of hormonal levels and surgical SR success in general is still unknown. This study aim to determine the relations of FSH and testosterone levels with surgical SR success.

Methods: This retrospective study included 30 infertile men with azoospermia. All subjects underwent surgical sperm retrieval procedures. We analyzed the association between FSH and testosterone levels towards surgical sperm-retrieval outcome among our subjects. Statistical analyses were performed using student T-test, Mann Whitney, and Spearman Rho tests with p<0.05 considered statistically significant. Analysis of logistic regression was used to determine the cut-off point of the FSH and testosterone levels to predict successful surgical sperm-retrieval outcome.

Results: The subjects has median age of 35.5 (27 - 59) years old. The overall FSH and testosterone levels were 9.43 (1.72–69.1) mIU/mL and 412.96±188.4 ng/dL, respectively. The success rate for sperm retrieval was observed in 15 (50%) subjects. FSH level is negatively correlated with testosterone level (rs=-0.648; p<0.001). There is association between FSH level (p=0.001) and testosterone level (p=0.005) towards the outcome of surgical sperm-retrieval. Cut-off value of ≥7.63 mIU/mL for FSH has a sensitivity of 80% and specificity of 73.3% to predict unsuccessful surgical sperm-retrieval outcome (p=0.001; AUC 85.3% 95% CI 72.1-98.6% among subjects. On the other hand, cut-off value of ≥331.2 ng/dL for testosterone has a sensitivity of 86.7% and specificity of 73.3% to predict successful surgical sperm-retrieval outcome (p=0.001; AUC 80% 95%CI 63.9-96.1%) among subjects.

Conclusion: Cut-off values of FSH and testosterone levels can be used as predictors of surgical sperm-retrieval outcome in men with azoospermia. Further studies in our center with more subjects is needed to objectify this preliminary findings.

Keywords: follicle-stimulating hormone; testosterone; varicocele; sperm retrieval; azoospermia.
Microdeletion of Chromosome Y as a Predictor of Surgical Sperm-Retrieval Outcome in Men with Azoospermia

Eko Arianto, Dimas Tri Prasetyo, Nur Rasyid, Ponco Birowo

**Introduction:** Approximately 1% of men in general population suffer azoospermia. Currently, intracytoplasmic sperm injection (ICSI) with many kind of surgical sperm-retrieval (SR) procedures is being developed to treat men with azoospermia. Some infertile men with azoospermia have microdeletion in their Y chromosome (MDY). However, the correlation of such microdeletion among men with infertility and surgical SR success is still unknown. We aim to determine the correlation of Y chromosome microdeletion with surgical SR success in our center.

**Methods:** In this observational retrospective study, we enrolled 40 male with azoospermia. Y chromosome microdeletion analysis was collected for all patients. All of the obtained data was evaluated using SPSS ver. 23.0. Analysis of relations was done with Fisher’s exact test.

**Results:** Surgical sperm-retrieval surgeries were performed with either percutaneous epididymal sperm extraction (PESE) or testicular sperm extraction (TESE). Analysis on patients with MDY showed that there were 32 subjects without microdeletion (21 unsuccessful SR, 11 successful SR), 4 subjects with AZFa microdeletion (3 unsuccessful SR and 1 successful SR), 2 subjects with AZFb microdeletion (all with unsuccessful SR), and 2 patients with combined AZF microdeletions (all with unsuccessful SR). Statistical analysis showed that there is no significant association between MDY status with surgical SR outcome (p=0.613).

**Conclusion:** No significant difference was found regarding the surgical SR outcome between patients with MDY and those with no MDY. Nevertheless, our study was a pilot study with small number of study population.

**Keywords:** microdeletion of chromosome Y; varicocele; sperm retrieval; azoospermia.
High Aneuploidy Rate among 3PN Embryos was not Associated with Sperm Factors in IVF Patients

Ririn Rahmala Febri

Introduction: The high incidence of aneuploidy observed in preimplantation embryos is one of the most significant factors affecting the clinical outcomes in assisted reproduction. The aim of this study is to evaluate the association between sperm factors including sperm motility, concentration, and morphology with the frequencies of aneuploidy embryos in IVF patients.

Methods: Thirty-five embryos were collected from 12 women who underwent IVF in Dr. Ciptomangunkusumo General Hospital, Jakarta. Embryos were cultured until the blastocyst stage, then trophectoderm biopsy was performed by piercing the zona pellucida under the microscope with a laser. Numerical abnormalities chromosome was analyzed using Next Generation Sequencing (NGS) and Comparative Genomic Hybridization (CGH).

Results: We found a high frequency of aneuploidy among 3PN embryos (74.3%) which was determined by NGS. However, these results were not related to sperm volume (p=0.424), motility (p=0.342) and concentration (p=0.239).

Conclusion: These results suggested that sperm factors are not associated with the aneuploidy rate among 3PN embryos.

Keywords: Aneuploidy, CGH, 3PN, IVF, NGS, sperm
The Expression of Cytochrome P-450 Aromatase (CYP19A1) Gene in Granulosa Cells in Polycystic Ovary Syndrome (PCOS) Patients

Rina Puspita1, 2, Andon Hestiantoro3,4, Rina Agustina5, Asmarinah3,6,*

1 Doctoral Program in Biomedical Sciences, Faculty of Medicine, Universitas Indonesia
2 Siti Khadijah Institute of Health Science, Palembang, Indonesia
3 Human Reproductive, Infertility and Family Planning Cluster, IMERI, Faculty of Medicine, Universitas Indonesia
4 Obstetric and Gynaecology Departeman, Faculty of Medicine Universitas Indonesia-Cipto Mangunkusumo Hospital, Jakarta, Indonesia
5 Department of Human Nutrition, Faculty of Medicine Universitas Indonesia
6 Medical Biology Department, Faculty of Medicine Universitas Indonesia

Background: Polycystic ovary syndrome (PCOS) is the most common cause of anovulation, infertility and hyperandrogenisme that affected 5-10% of women of reproductive age. It has been known, genetic and epigenetic factor contribute in pathogenesis of PCOS. The aim of this study was to analyze the mRNA expression of CYP19A1 gene in granulosa cells from PCOS patients.

Methods: This cross sectional study used granulosa cells obtained from 23 women with PCOS compared to 23 women without PCOS as control. RNA from samples was isolated and reverse trancripted into cDNA. The mRNA expression level of CYP19A1 gene analyzed using quantitative real time polymerase chain reaction (qRT-PCR). Livak’s method and Mann-Whitney test were used as statistical analysis.

Result: The mRNA expression of CYP19A1 gene in granulosa cell from PCOS patients was decreased 1,284 fold compared to granulosa cell from healthy women. This expression was difference significant statistically (p<0.000).

Conclusion: The mRNA expression of CYP19A1 gene decreased in granulosa cells from PCOS patients and then might reduce estrogen synthesis in ovarium, lead to anovulation occurring in PCOS patients.

Keywords: mRNA expression, cytochrome p-450 aromatase, CYP19A1, PCOS, Granulosa cell.
Human Reproduction
Basic science

Choice of Delivery Places and Factors Traveling time, Antenatal Care and Parity in the Aceh Besar Regency

Rajuddin Rajuddin, Muhammad Ilham Kosman, Budi Wiweko

Objectives: to determine the relationship of maternal delivery and the factors that influence in Aceh Besar regency of Aceh Province.

Methods: This study used cross sectional design. Data were collected in all Community Health Center in each sub-district in Aceh Besar regency of Aceh province. The total sample size of this study was 80 patient data, with details of 40 maternity patients in health facilities and 40 patients who were delivered to non-health facilities. Data taken on factors that influence the choice of place of delivery, ie travel time from home to health facilities, parity, antenatal care.

Results: The result of chi-square test showed significant relation time (p = 0,000), Parity (p = 0,000), Antenatal care (p = 0,025), with maternity delivery in Aceh Besar regency. From the result of multivariate analysis found that travel time is the most influential factor in choosing the birth place with (OR = 51,976).

Conclusion: The result of multivariate analysis showed that travel time was the most influential factor in choosing the delivery place with 51,976 times.

Keywords: health facilities, maternal mortality rate, safe delivery
Correlation between Leukocytospermia with Sperm Motility Disturbance and the Possibility of Proinflammatory and Reactive Oxygen Species as the Underlying Mechanism

Ria Margiana

Infertility is a condition when married couples cannot have offspring in one year with regular sexual activity, without using contraception. Semen analysis in patients with infertility is a very important indicator of the presence of fertility disorders in men. Semen analysis includes examination of sperm cells, non-sperm cellular elements and semen. All three provide clues about testicular function and the condition of the male reproductive tract. The prevalence of leukocytospermia is very common in infertile men in inflammatory conditions associated with sperm quality, namely impaired sperm motility and capacity for fertilization, which results in decreased transport and resistance to sperm in the female reproductive tract. The relationship between leukocytes and parameters in semen analysis looks very complicated, and involves a number of factors such as proinflammatory cytokines and reactive oxygen species (ROS). This study aims to analyze the relationship between leukocytospermia and sperm motility in infertile men. This research was conducted with data retrieval of infertility patients who conducted semen analysis during January - December 2016 andrology laboratory at Anna Hospital. Data were analyzed using SPSS 23.0 with logistic regression test method. Based on the results of the analysis obtained showed a significant relationship between leukocytospermia and sperm motility in infertile men (P <0.05).

Keywords: male infertility, leukocytospermia, sperm motility
Human Reproduction
Basic Science

**Biochemical Stress Analysis of Platelet Rich Fibrin Matrix (PRFM)**

Normalina - Sandora, Gita Pratama, Mirta Hediyati

Platelet rich fibrin matrix (PRFM) has three dimensional structures that dense and pliable-matrix like. In reconstructive plastic surgery and orthopedic, fascia-like structure of PRFM make it easier to suture with surrounding tissue. Furthermore, PRFM can fill out an empty space between tissues, which caused by tissue disruption. Platelet rich fibrin matrix can be made from step by step centrifugation process of blood and CaCl2. The shape of PRFM might be vary depend on its placeholder when centrifugation process. Reksodiputro et al. has made 25 mm coin shape PRFM, which can be used as graft for dermis. Preparation of PRFM can be useful in other field such as ulcer healing, dentistry and as an implant in plastic surgery. Available study does not provide an analysis of matrix tolerance from biomechanical stress testing. Aim of this study is to test PRFM matrix resistance from biomechanics stress. We expected there will be fewer malfunctions in PRFM application in the future, especially when it used in surgery.

**Methods:** PRFM was prepared by gelation of PRP to form a coin with diameter of 5 cm. Each matrix was cut into half and seeded with UC and BM MSCs with seeding density of 2,500 cell.cm\(^{-2}\). The matrix was cut into a size of 5 mm x 20 mm x 0.5 mm (width, length and thickness) and fitted onto the grips of Dynatron USM-500 N (A&D Co. LTD) MCT 2150 serial 69034. The failure rate was 10 mm.min\(^{-1}\). Results: There were no differences of the biomechanical properties before and after 24 h incubation with umbilical cord stem cells or bone marrow mesenchymal stem cells.
Cito-compability Analysis of Platelet Rich Fibrin Matrix (PRFM) and Mesenchymal Stem Cells in Tissue Regeneration

Normalina – Sandora

Mesenchymal stem cells (MSCs) are non-hematopoietic stem cells which have the ability to differentiate into various types of mesenchymal cells or non-mesenchymal cells. It is believed that the MSCs will migrate immediately to the injury site. Mesenchymal stem cells can differentiate into osteoblast, condrogenic, and adipogenic cells. Recent studies have reported that some mesenchymal cells can also differentiate into liver, kidney, muscle, skin, nerve, and cardiac muscle cell types. Mesenchymal stem cells are commonly used in tissue engineering because of their multipotent nature, convenience to isolate, and ability to grow in vitro conditions. As the PRFM will be applied for graft, the capability of MSCs to migrate and house the graft will be studied. Methods: PRFM was prepared by gelation of PRP to form a coin with a diameter of 5 cm. Each matrix was cut into half and seeded with UC and BM MSCs with a seeding density of 2,500 cells/cm². The attachment of the cells was analyzed using H&E staining and SEM analysis. The infiltration and proliferation of the cells were also observed by H&E staining. Viability assay was analyzed using Live/Dead staining and imaged using confocal. Quantitative analysis was identified using MTT assay. Results: The optimal viability of cells seeded on scaffold was from 3 days and 5 days incubation while the rest, apparently too crowded and most cells were dead.
Human Reproduction
Basic Science

**Estradiol Level Correlate with Abdominal Obesity in Minangkabau Premenopausal People**

Yuniar Lestari, Delmi Sulastri, Desmawati Desmawati

**Background:** Estradiol level is decreasing as long as the premenopausal phase. Several studies suggest that its related to abdominal obesity incident. This study aims to elucidate the correlation between estradiol level and body composition in Minangkabau premenopausal people.

**Methods:** A cross-sectional study was conducted in 113 Minangkabau premenopausal people, aged 40 – 54 years old at Padang City in West Sumatera, Indonesia. Body fat percentage analyzed by Bioelectrical Impedance Analyzer (BIA) and Waist Circumference (WC) were measured using a measuring tape. Body mass index (BMI) calculated based on body weight and height. Serum estradiol was measured by the ELISA technique using E2 (estradiol) ELISA KIT from Elabscience. Data were analyzed by using a correlation test with significant levels p<0.05.

**Results:** This study shows that the average body fat percentage of subjects 37.3 ± 7.2. WC 86.1 ± 9.8 cm, BMI 26.2 ± 4.8 kg/m2, and estradiol levels was 149.7 ± 52.3 pg. The correlation test showed that there was a significant correlation between estradiol level with WC (r = 0.195, p=0.39 ), whereas there are no significant correlation between estradiol level with BMI (r= 0.032, p = 736 ) and body fat percentage (r = 0.90, p= 344).

**Conclusion:** estradiol level correlates with abdominal obesity in Minangkabau premenopausal people.
Study of DNA Methylation Profile EGFR Genes Encoding Actin Cytoskeleton Protein Regulator in Endometriosis Tissue

Annisah Zahrah

**Background:** Endometriosis is a common gynecological disease that affects > 10% of women of childbearing age. Endometriosis is defined by the presence and growth of endometrial tissue outside the uterine cavity, especially in the ovaries, pelvic peritoneum and rectovaginal septum. Causative factor of endometriosis, one of which is epigenetic factors, namely of DNA methylation. In a study conducted by Ping et al., using the microarray method found that there was an increase in gene expression in endometriosis. Genes that have increased expression, including the EGFR gene which is the actin cytoskeleton regulatory gene. However, the level of DNA methylation is not yet known and its correlation to the expression of these genes.

**Methods:** This study is a cross sectional study to determine the relationship between the level of DNA methylation and mRNA expression of the EGFR gene in endometriosis compared to controls. Samples taken were endometriosis tissue of endometriosis patients and endometrial tissue of women without endometriosis. The level of DNA methylation was obtained through methylation analysis with the Methylation Specific PCR method from endometriosis tissue samples and compared with controls.

**Results:** This study shows that there is a lower level of methylation of EGFR gene promoter DNA in endometriosis tissue compared to endometrial tissue of women without endometriosis.

**Conclusion:** There are differences in the level of methylation in endometriosis tissue compared to controls.

**Keywords:** Endometriosis, EGFR, Actin Cytoskeleton, DNA Methylation
Introduction: The purpose of this study is to report maternal and neonatal outcome of intrauterine transfusion (IUT) cases related fetal anemia.

Methods: Retrospective cohort study of all IUT in the Harapan Kita Women’s and Children Hospital as a tertiary referral hospital, between January 2014 and July 2018. The severity of fetal anemia, gestational age, fetal cardiac condition, development of hydrops and technique of transfusion on procedure related adverse events were examined.

Results: 22 IUTs were performed during the period. Three cases fetal or neonatal death were occurred. Adverse events were noted in 12% of IUTs. Fetal hydrops and transfusion in a free loop were associated with an increased risk of adverse events which perform in advanced gestational age. Median GA at birth was 33+2 weeks and 11% was born before 32 weeks. Non-hematologic complications occurred in 27.78% and were mainly related to preterm birth.

Conclusion: In experienced hands, IUT for fetal hydrops may decreasing mortality and morbidity in fetal anemia cases. Early recognition, prompt multidisciplinary management and postnatal follow up of these conditions can improve both patient’s and neonates outcome in respect of maternal-fetal morbidity and mortality.

Keywords: fetal anemia, fetal therapy, hydrops fetalis, intrauterine transfusion, neonatal outcome, perinatal survival
mRNA Expression of Enzyme Code Biosynthesis Estrogen CYP19A1 Gene in Granulosa Cells in Polycystic Ovary Syndrome (PCOS) Patients

Rina Puspita¹, Asmarinah²,³, Andon Hestiantoro³,⁴, Rina Agustina⁵

¹ Biomedical Sciences Doctoral Program, Faculty of Medicine, Indonesia University, Jakarta, Indonesia
² Medical Biology Department, Faculty of Medicine, Indonesia University, Jakarta, Indonesia
³ Obstetric and Gynaecology Department, Faculty of Medicine, Indonesia University-Cipto Mangunkusumo Hospital, Jakarta, Indonesia
⁴ Human Reproductive, Infertility and Family Planning Cluster, IMERI, Faculty of Medicine, Indonesia University, Jakarta, Indonesia
⁵ Department of Human Nutrition, Indonesia University, Jakarta, Indonesia

Background: Polycystic ovary syndrome (PCOS) is the most common cause of anovulation, infertility and hyperandrogenism in women. Indeed, 5-10% of women of reproductive age are affected. Despite considerable efforts to determine the cause, the pathophysiology of PCOS remains poorly understood. Multiple inherited genes are responsible for the occurrence of PCOS. In this study we want to analyze the mRNA expression of gene code enzyme biosynthesis estrogen in granulosa cells, CYP19A1 gene in PCOS.

Methods: This cross sectional study analyzed the level of mRNA expression of CYP19A1 gene in granulosa cells obtained from 8 women with PCOS compared to 8 women without PCOS as control. RNA from samples was isolated and cDNA synthesis from RNA. Analysis used quantitative real time polymerase chain reaction (qRT-PCR) to measured mRNA expression. Statistical analysis was independent-T test and significances was considered at p<0.05.

Result: Livak result mRNA expression of CYP19A1 gene in granulosa cell decreased (1,162) compare to control (p=0,01)

Conclusion: our study suggest that expression of CYP19A1 gene in granulosa cells in PCOS patients was decreased. That may caused decreased expression of CYP19A1 gene in PCOS Patients.

Keywords: mRNA Expression, Enzyme Code Biosynthesis Estrogen, CYP19A1, PCOS, Granulosa cell.
Human Reproduction
Basic Science

The Effect of Gallic Acid and Its Derivatives on Apoptosis Intrinsic Pathway of Endometriosis Primary Cultured

Arleni Bustami, Rahmi Budianti, Raden Muharam, Heri Wibowo, Fajar Utami

**Background:** Endometriosis characterized by the presence of extrauterine endometrial tissue, one of which caused by disregulation of apoptosis that contribute of endometrial ectopic survival. Our previous research has proven that gallic acid and its derivatives can suppress proliferation and induce apoptosis endometriosis cell in vitro. However, the effect of gallic acid and its derivatives on apoptosis intrinsic pathway mechanism is not proven yet.

**Method:** Endometriosis cell from endometriosis patients who had undergone laparascopy surgery were isolated by enzymatic reaction and primary cultured. Cultured cells treated by gallic acid, heptyl gallate and octyl gallate each with dosage 102.4 µg/ml, 153.6µg/ml for 48 hours, than induced by LPS 10ng/ml for 24 hours. Parameter research was assessed by qRT-PCR for mRNA expression of bcl-2, bax, caspase3.

**Result:** The relative mRNA expression of bcl-2, bax, and caspase3 in endometriosis cells with positive controls decreased compared to the relative expression of bcl-2, bax, and caspase3 with negative control assessed by qRT-PCR. There was no difference relative expression in gallic acid and heptyl gallate with dose 102.4 µg/ml. The highest increase of bax and caspase3 relative expression was in the octyl group with a dose of 153.6 µg/mL.

**Conclusion:** Octyl gallate influence the increase of mRNA relative expression of bax and caspase3, that can be used as an agent to induce apoptosis endometriosis cell.

**Keywords:** endometriosis, gallic acid, heptyl gallate, octyl gallate, apoptosis, bcl-2, bax, caspase3
DNA Methylation of P2X3 Receptor Gene as a Coding Protein Gene of Pain Marker in Endometriosis

Ocktariyana

**Background:** Endometriosis is a common, benign, oestrogen-dependent, chronic gynaecological disorder associated with pelvic pain and infertility. Epigenetic alteration has proven that epigenetics is one of the pathogenesis of endometriosis, including DNA methylation. Expression of P2X3 receptor was increased and lead signal transduction of pain in endometriosis lesions that mediated by extracellular-regulated protein kinase (ERK) through mitogen-Activated Protein Kinase (MAPK) pathway signaling. The purpose of this study was to differentiate DNA methylation levels of P2X3 receptor gene between peritoneal endometriosis tissue of endometriosis women with endometrial tissue of without endometriosis.

**Method:** This cross sectional study analyzed the level of DNA methylation of P2X3 receptor gene in peritoneal endometriosis tissue from 8 endometriosis women and endometrial tissue from without endometriosis as control. DNA from samples was isolated and with sodium bisulfite converted. We used Methyl Specific PCR (MSP) method to amplify the DNA and then running MSP product in gel electrophoresis. The band intensity of samples were measured using ImageJ software compared positive control. Statistical analysis was independent-T test and significances was considered at p<0.05.

**Result:** DNA methylation level of P2X3 receptor in peritoneal endometriosis tissue of endometriosis women was hypomethylated than endometrial tissue of without endometriosis (p <0.05).

**Conclusion:** Our study suggest that P2X3 receptor gene in endometriosis women was hypomethylated than women without endometriosis.

**Keywords:** Endometriosis, P2X3 receptor gene, Pain, DNA Methylation
Human Reproduction
Basic Science

Analysis of DNA Methylation RAC1 Gene (ras-related C3 Botulinum Toxin Substrate 1) as a Focal Adhesion Gene in Endometriosis Tissue

Irwina eka deraya

**Background:** Endometriosis is defined as the presence of endometrial-like tissue that grows outside the uterine cavity, especially in the peritoneal, ovary, and rectovaginal septum. This disease often occurs in women of reproductive age with a prevalence of 6-10%. One factor that is known to play a role in the pathogenesis of endometriosis is epigenetics, namely DNA methylation. DNA methylation has an effect on decreasing or increasing gene expression. This increase in expression has been investigated by Ping et al in endometrial women with endometriosis. Based on research by Ping et al. that using microarray, there is a focal adhesion gene including the RAC1 gene which increases its expression. RAC1 plays in the processes underlying the malignant transformation include tumorigenesis, angiogenesis, invasion, and metastasis. Therefore, this study wants to prove the effect of DNA methylation in the pathogenesis of endometriosis.

**Methods:** This study was a cross-sectional study to determine the level of DNA methylation RAC1 gene in endometriosis and endometrial tissue in women without endometriosis as controls. The level of DNA methylation was obtained through methylation analysis with MSP examination method.

**Results:** This study shows that there is a lower level of RAC1 gene promoter DNA methylation in endometriotic tissues compared with endometrial tissue subjects without endometriosis (control).

**Conclusion:** There are differences in the level of methylation in endometriotic tissue compared with controls

**Keywords:** Endometriosis, RAC1, Focal Adhesion, DNA Methylation
Placental Vitamin D is Strongly Correlated to Placental Glucose Concentration in both Normal and Preeclampsia Pregnancies

Ani Retno Prijanti

Background: Placental growth needs several factors to provide and ensure process of its energy metabolism. Availability of energy supply mostly from carbohydrate. Recently, it considers that vitamin D could improve the insulin sensitivity and also insulin secretion from pancreas. Signaling of vitamin D is directly into modulation of transcription of certain genes, otherwise improve insulin sensitivity.

Objective: We conduct research to reveal that vitamin D level in placental tissue has strong correlation to placental glucose concentration.

Method: This observational study used 40 placentas consist of 10 placentas each of groups: normal pregnancy, preeclampsia under 32, 32-36, and above 36 weeks of gestation. Each of placenta was homogenized and following measurement of placental tissue vitamin D and glucose concentration. Vitamin D was measured using ELISA (Elabscience) method, and glucose was measured using glucose spectrophotometric test (Randox).

Result: Vitamin D concentration tend to decreased below normal in preeclampsia. Lowest concentration in 32-36week group. Glucose concentration also tend to decreased below normal in preeclampsia. The lowest level was >32week group. Statistical analysis showed very strong correlation between placental vitamin D and glucose concentration (R=1, p<0.05).

Conclusion: Placental vitamin D has very strong correlation with its placental glucose concentration.

Keywords: vitamin D, glucose, placenta, preeclampsia
Metabolic and Cardiovascular
Profile of Hypertensive Patients in Indonesia National Referral Hospital

Lucky Aziza Bawazier, Raihan Arlan, Wicensius Parulian Sianipar

Introduction: Hypertension as a prevalent chronic disease requires lifelong therapy that often associated with a most common cause of referral and cost inefficiency. Nephrology and hypertension department outpatient clinic in national referral hospital is often burdened with overwhelming number of patients. This study is aimed to identify the rate of controlled blood pressure and related factors of patients in dr. Ciptomangunkusumo National Referral Hospital (CMH).

Methods: A cross-sectional study was conducted in (CMH) as Indonesia tertiary and national referral center. Data were obtained from medical record of patients admitted for hypertension between May to July 2018. Data reviewed in this study include blood pressure, demographic background, medication history, comorbidities, and supporting examinations.

Results: Among 301 medical record of patients admitted with hypertension, 37.5% of these patients have uncontrolled hypertension. Bivariate analysis of chi-square test reveals grade II hypertension (OR: 5.46 95% CI 3.03—9.83), low adherence (OR: 2.94 95% CI 1.46—5.92), combination of 3 drugs (OR: 4.80 95% CI 1.18—19.415), CKD grade IIIa (OR: 0.33 95% CI 0.10—1.01), grade IV (OR: 0.22 95% CI 0.80—0.61), and grade V (OR: 0.25 95% CI 0.08—0.70) to be statistically significant. Multivariate analysis showed that on linear regression model, grade II hypertension is an independent variable to uncontrolled blood pressure while higher eGFR is a strong predictor of controlled blood pressure.

Conclusion: This data of hypertension in Indonesia national referral hospital provides initial data and recommendation to regulate number of overwhelming patients in national referral hospital.
Effect of Oxygen Content on POCD in Open Heart Surgery

Ratna Farida Soenarto, Aditya Arbi

Introduction: Decreased brain oxygen delivery has been proposed as a factor that may cause postoperative cognitive dysfunction (POCD). This study designed to investigate the effect of arterial oxygen content on POCD in open heart surgery.

Methods: Adult patients listed for elective open heart surgery at Cipto Mangunkusumo General Hospital were enrolled in this study. Subjects’ cognitive function were tested using Rey auditory verbal learning test (RAVLT), trail making test (TMT), and digit span forward-backward before surgery and five days after surgery. Blood samples were taken from arterial line to measure hemoglobin levels (Hb), arterial saturation (SaO2), and arterial oxygen partial pressure (PaO2) in 5 moments: (1) before induction, (2) ten minutes after commencement of CPB, (3) ten minutes after cessation of CPB, (4) six hours after surgery, and (5) one day after surgery. Oxygen content (CaO2) was calculated from calculation: CaO2 = 1.36 x Hb x SaO2 + (0.003 x PaO2). Data were compared using Student’s t-test or Mann-Whitney in SPSS 24.0 software.

Result: POCD were found in 9 patients out of 19 (47.4%). Oxygen content (CaO2) at 10 minutes after cessation of CPB were significantly lower in subjects with POCD: 12.1 ± 2.6 vs. 14.5 ± 1.7, p = 0.03. Among parameters calculated in oxygen content, hemoglobin level (Hb) appears to be the cause of decreased CaO2 in POCD group (8.5 ± 2.3 vs. 10.2 ± 1.2, p = 0.06). PaO2 and SaO2 are parameters that are strictly maintained good during CPB for all patients. Therefore, oxygen content actually depends on hemoglobin levels. Decreased oxygen content due to hemodilution after CPB cessation may impair brain tissue oxygenation. This impaired brain oxygenation may lead to development of POCD.

Conclusion: Hemoglobin level in oxygen content may play an important role in POCD after open heart surgery, while SaO2 and PaO2 are not reliable indicators to predict POCD.
Effect of Oxygen Extraction Ratio on POCD after Cardiac Surgery

Ratna Farida Soenarto, Yoshua Baktiar

Introduction: Postoperative cognitive dysfunction (POCD) has become a new concern in cardiac anesthesia because of its detrimental effect on social and economic function. This study designed to investigate the effect of oxygen extraction ratio (OER) on POCD in adult patients undergoing open heart surgery.

Methods: This was a prospective cohort study. Adult patients scheduled for elective open heart surgery at Cipto Mangunkusumo Hospital, mentally healthy according to MINI test, able to read, write and speak Bahasa Indonesia were included. Subjects were tested using 3 psychometric tests (RAVLT, TMT, digit span) day before surgery. OER was calculated as (SaO2 - ScvO2)/SaO2. Arterial and central venous blood gas analysis were obtained in 5 times: (1) before induction, (2) during cardiopulmonary bypass/CPB, (3) after CPB, (4) 6 hours after surgery, and (5) 24 hours after surgery. Subjects were tested again using the same psychometric tests 5 days after surgery. POCD were defined as score decrease >20% on two or more tests. Data were compared using Student’s t-test or Mann-Whitney nonparametric test by using SPSS 24.0.

Results: Nineteen subjects were included in the study. POCD were found in 9 (47.4%) subjects. OER was significantly higher after CPB in subjects with POCD (0.16 [0.07-0.51] vs. 0.13 [0.05-0.16], p=0.04). Other OER measurements were not statistically significant. In this study higher OER after CPB is associated with POCD. Early period after CPB is a critical phase. High OER may indicate a high tissue oxygen demand. As the myocard function may not be back to normal condition yet, cardiac output may not be sufficient, and so is the oxygen delivery to brain and other organ. During this period, patients are also experience posthemodilution anemia and vasoconstriction. The pH which tends to be slight alkalosis during CPB time may also remain slightly high. This condition theoretically can shift the oxygen dissociation curve to the left, which decrease the OER. The fact that OER was higher in POCD subjects shows that oxygen demand was more critical in this period than other factors.

Conclusion: As conclusion, high OER may predict POCD after cardiac surgery.
The Role of Near Infrared Spectroscopy Monitoring in Preventing Postoperative Cognitive Dysfunction after Open Heart Surgery

Ratna Farida Soenarto, Oryza Eureka

Introduction: Postoperative cognitive dysfunction (POCD) is a decline of cognitive function that occurs after surgery, especially in cardiac surgery. This study aims to investigate the role of near infrared spectroscopy (NIRS) monitoring in preventing POCD after open heart surgery.

Methods: This prospective cohort study is conducted at Cipto Mangunkusumo Hospital, Indonesia. We enrolled adult patients who were scheduled for elective open-heart surgery. All subjects were assessed for their cognitive functions one day prior to surgery and were reevaluated on the fifth day after the surgery. NIRS probe was applied on subject’s forehead to obtain regional oxygen saturation (rSO2). Baseline rSO2 was recorded before the induction of anesthesia. Henceforth, rSO2 were recorded every 10 minutes. Desaturation was defined as decrease of rSO2 value more than 20% of baseline. Lowest rSO2 value and duration of desaturation were recorded in three phases: (1) before CPB, (2) during CPB, and (3) after CPB. Data were compared using Student’s t-test or Mann-Whitney in SPSS 24.0 software.

Result: Out of 21 subjects, 19 were enrolled in this study and 2 were excluded due to mortality. Nine subjects (47.4%) suffered POCD. Baseline rSO2 appear to be similar between POCD and non-POCD group (58.6±9.1% vs. 55.8±14.5%, p-value 0.63), respectively. We observed a trend of which lowest value of rSO2 after CPB is associated with POCD outcome (POCD 48.7±10.8% vs. non-POCD 59.1±11.9%, p value 0.08). Interestingly, longer total duration of desaturation is strongly related (p-value 0.003) with higher incidence of POCD (20 [10-190] minutes), as compared to its counterpart group (0 [0-20] minutes), with duration of desaturation before CPB phase plays the major role. Lower rSO2 in this study indicates lower brain tissue oxygenation. This may be caused by hemodynamic instability, arrhythmia, surgical manipulations, anemia, etc. Longer duration of desaturation is associated with higher risk of POCD.

Conclusion: Continuous NIRS monitoring may be a beneficial tool to detect brain tissue desaturation and may have a potential role as a tool to prevent POCD after open-heart surgery.
Conservative Therapeutic Approach in Patient with Sinus Venosus Atrial Septal Defect (Eisenmenger Syndrome): A Case-Report

Fahmi Adnan Musthofa

Introduction: Eisenmenger Syndrome (ES) is multiple system disorder that is marked by increasing pulmonary arterial pressure and right-to-left shunts, which commonly found as complication of Congenital Heart Disease (CHD), such as Atrial Septal Defect (ASD). In this case-report, we present the treatment approach of heart failure, which is triggered by pneumonia, in 22 years-old woman with ASD-ES.

Case Description: 22 years-old woman came to ER complaining severe dyspnea, fever, and cough since three days ago. She often complained dyspnea since delivered her first child, two years ago. The patient looked cyanotic and takipnea. Its SpO2 was 67% without O2 addition. There was systolic murmur and rhonchi at all area of lung. Electrocardiography showed sinus rhythm, right axis deviation, incomplete right bundle branch block, and extensive anterior also inferior wall ischemia. Echocardiography showed sinus venosus type defect in upper atrial septum (1,02-1,25 cm), severe pulmonary and tricuspid regurgitation, with ES.

Result: The patient was observed in the intensive care unit for three days, treated with 10 L/min oxygen; diuretic, pulmonary vasodilator, antiplatelet for its heart problem; and bronchodilator inhalation, antibiotic, expectorant, antitussive for the treatment of pneumonia. She was discharged after two days hospitalization in the medical ward, with reduction of dyspnea (SpO2 of 80% without O2), afebrile, and no rhonchi.

Conclusion: Conservative therapy in ASD-ES with heart failure has a good outcome. The medications, such as diuretic, antiplatelet, and pulmonary vasodilator, should be continued to reduce symptoms and increase quality of life.

Keywords: ASD, Eisenmenger, congenital, heart failure, pneumonia
Role of Gender on Incidence of Metabolic Abnormalities Among First Degree Relative of type II Diabetes Mellitus

Dyah Purnamasari, Rezky Aulia, Muhammad Syah Abdaly, Ahmad Hazim Mail

Introduction: Although several studies reported higher metabolic disorder among FDR of T2DM than that of non FDR, only few study analyzed the impact of gender on the occurrence of metabolic abnormalities. This study investigated the role of gender on metabolic abnormalities profile among FDR of T2DM.

Methods: This cross-sectional study recruited 62 FDR of T2DM age of 19 – 39 years old in Jakarta, Indonesia. For a control group we also included 62 non FDR who have age and gender matched. All participants didn’t have abnormal glucose tolerance and hypertension. Anthropometri, body composition and laboratory measurements (blood glucose, HbA1c, lipid profile, liver and kidney function test) were assessed.

Results: In male, FDR group whose age 30-39 years old had higher total cholesterol (p=0.036) and LDL cholesterol level (p=0.026) than that of non FDR significantly. Mean while FDR group had higher risk of hypercholesterolemia than non FDR [OR 5.25(1.09-25.21)]. There were no differences of metabolic abnormalities between female FDR and non FDR group.

Conclusion: Among male, FDR of T2DM showed higher level of total cholesterol and LDL cholesterol than that of non FDR DM. Male FDR also showed higher risk of dyslipidemia than that of non FDR
Introduction: Theoretically, first-degree relatives (FDR) of Type 2 Diabetes Mellitus (T2DM) is prone to have earlier and more severe atherosclerosis than that of non-FDR due to hereditary insulin resistance. The previous study reported that atherosclerotic plaques were found in 45.2% of young adults FDR of T2DM, but it didn’t include non FDR as control group. The aim of this study was to compare subclinical atherosclerosis (carotid intima-media thickness, CIMT) between FDR of T2DM and non-FDR.

Method: This was a cross-sectional study involving 16 FDR subjects and 16 age-sex matched non-FDR subjects, aged 19-40 years, with normal glucose tolerance and no hypertension. Collected data include demographic characteristic, anthropometric measurement (body mass index and waist circumference), laboratory analysis (fasting blood glucose HbA1c, lipid profile), and carotid intima-media thickness examination (using B-mode ultrasound).

Result: The mean of CIMT in FDR group was higher than that in non-FDR (0.44 mm vs 0.38 mm, p=0.005). After adjusting with waist circumference, body mass index, LDL cholesterol, and triglyceride, CIMT maintained significant difference between FDR and non FDR subjects. Body mass index and waist circumference had moderate correlation with CIMT.

Conclusion: CIMT in young adult FDR of T2DM is thicker than that in age-sex matched non-FDR population.
Non-Alcoholic Fatty Liver Disease Among First Degree Relatives of Type 2 Diabetes Mellitus

Dyah Purnamasari, Ahmad Hazim, Kemal Fariz Kalista, Cosmas Rinaldi Adithya Lesmana

Introduction: Non-alcoholic liver disease (NAFLD) is known associated with insulin resistance. First Degree Relatives (FDR) of type 2 diabetes mellitus (T2DM) had a higher risk to have NAFLD. Studies about NAFLD in FDR of T2DM populations are very limited and remains inconclusive. The aim of this study was to examine the prevalence of NAFLD among FDR of T2DM compared to non-FDR population.

Method: A total of 118 young adult subjects (19-39 years old) with normal glucose tolerance (59 FDR of T2DM and age-sex matching 59 non-FDR subjects) was investigated in this cross-sectional study. Anthropometric measurement (height, weight, BMI and waist circumference) and routine laboratory analysis (fasting blood glucose, HbA1c, lipid profile, alanine aminotransferase (ALT), aspartate transaminase (AST)) was examined in all subjects. Fatty liver was diagnosed by ultrasonography (US) using standard criteria.

Result: In this study 26 (22%) subjects with NAFLD were detected by US with equal number of subjects in both groups. Compared with non-FDR group, the proportion of moderate-severe NAFLD was higher in FDR than that non FDR group (3.4 vs 1.7%). Obesity, waist circumference and triglyceride have correlation with the occurrence of NAFLD (p value<0.05). After adjusting for confounding factors in multivariate analysis, waist circumference was significantly associated with NAFLD (Prevalence Odd Ratio (POR) 6.56, (95%CI: 1.93-20.3))

Conclusion: The proportion of NAFLD among FDR T2DM did not differ with non FDR, but the proportion of moderate-severe NAFLD was higher in FDR group than that in non FDR. Obesity, waist circumference and triglyceride may independently predispose to NAFLD.
Proportion and Risk Factors that Correlated to Asthma Exacerbation in Hajj Pilgrims From DKI Jakarta Province in 2018

H Saifuddin, A Uyainah, I Rengganis, H Shatri

Background: Asthma exacerbation still become a problem in pilgrims during hajj period. There are many factors that contribute in asthma exacerbation. Risk for exacerbation was higher in hajj pilgrims because of high transmission of respiratory infection, environmental factor and heavy activity. Well controlled asthma and prevention before hajj was important to reduce risk of exacerbation. This research was intend to find factors that significantly contribute for asthma exacerbation in in hajj pilgrims.

Method: This is a cross sectional study among asthma hajj pilgrims year 2018 from Jakarta. Hajj pilgrims with asthma were selected from Sistem Informasi dan Komputerisasi Haji Terpadu Kesehatan (Siskohatkes). Subjects were evaluated in primary facility (Puskesmas) through anamnesis, physical examination and spirometry. There were seven factors that examined in this research, including history of exacerbation one year before hajj, obesity, comorbid (diabetes, hypertension and coronary heart disease), lung physiology function, smoking, fitness level, and influenza vaccination. Exacerbation was determined in Saudi Arabia by direct visitation to pilgrims, interview of physician in charge of the flight group, and analyzed record from research questionnaire that given to pilgrims prior to departure.

Result: Sixty eight asthma patients were recruited comprising 46 female subjects (67,6%) and median age for this study is 56 years. Acute exacerbation occurred in 27 subjects (39,7%). In multivariate analysis with logistic regression test, history of exacerbation and obesity were factors that have significant effect on asthma exacerbation with odd ratio 4,27 (95% CI: 1,156-15,829, p=0,029) and 4,02 (95%CI: 1,151-14,097, p=0,029) respectively.

Conclusion: From seven factors researched in this study, obesity and history of asthma exacerbation one year before hajj period were the most important factors that contribute on asthma exacerbation among hajj pilgrims.
Asthma Control Test (ACT) as a Predictor of Asma Exacerbation in Embarkation Pilgrimage of DKI Jakarta Province In 2018

UZ Nasir

Introduction: Every year, millions of Muslims from around the world gather in Saudi Arabia to perform the Hajj. When worshiping pilgrims are very susceptible to various diseases, one of them is recurrence of asthma in patients with a history of previous asthma. Before leaving for pilgrimage the pilgrims have gone through various tests to find out how the condition of the pilgrims before leaving to Saudi Arabia. One of the assess of pilgrims is through the Asthma Control Test (ACT). This assessment has not been carried out to all the pilgrims in general. ACT can be used as a predictor of asthma exacerbation in asthma patients. Currently there is no research on ACT’s assessment of pilgrims to see the acute exacerbations. For this reason, a study was conducted to determine the predictions of asthma exacerbations in pilgrims during the pilgrimage.

Methods: The study was conducted with a cross-sectional design for pilgrims who suffer from asthma according to criteria of the Global Initiative for Asthma (GINA) in the DKI Jakarta Province Region, in 2018 (1439 H). Classification of asthma degrees based on ACT and grouped into uncontrolled, partially controlled, and fully controlled. ACT forms are filled in by doctors at the Regional Health Center, at the Embarkation, and in Saudi Arabia ahead of Armina. Observation of acute exacerbations on pilgrims while performing the Hajj by the doctor. Data analysis is done through the SPSS for Windows.

Results: A total of 68 subjects were included in this study; 46 (67.6%) subjects were female, the age of pilgrims <60 years is 45 (66.2%). Thirty-six pilgrims (52.9%) belonged to a partially controlled asthma group at ACT in embarkation, with an exacerbation during the pilgrimage as many as 17 pilgrims (47.2%). Thirteen pilgrims (19.1%) belonged to the uncontrolled asthma group at ACT in embarkation, with an exacerbation during the pilgrimage as many as 8 pilgrims (61.5%), with P = 0.006 for the ACT value in embarkation and the value of the Area Under Curve (AUC) on Receiver Operator Curve (ROC) curve is 0.717 with 95% CI 0.596-0.838.

Conclusion: There was increased in the incidence of acute exacerbations in category uncontrolled and partially controlled ACT when in Embarkation compared to the fully controlled ACT category which was statistically significant and the ACT score had the ability to predict the occurrence of acute exacerbations.

Keywords: Asthma, acute exacerbations, pilgrims, predictor, asthma control test (ACT).
Vaccination against Angiotensin as an Advance Strategy in Hypertension Management: A systematic review

Achmad Shidiq, Pupun Lufianti

Introduction: Angiotensin Inhibitor drug has been widely used as primary drug for essential hypertension. Nevertheless, noncompliance patients are often missed the benefit. Vaccination against Angiotensin are believed to provide long-lasting effect and improved patient compliance. This review evaluated the efficacy and safety of using the vaccination against Angiotensin in hypertensive patients.

Methods: We searched the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, EMBASE and other trial register through 2018. A database search was conducted for clinical trials comparing vaccination against angiotensin versus placebo or Angiotension inhibitor drug. We collected blood pressure reduction and adverse event information from the trials. Risk of bias was assessed respecting randomization, allocation concealment, blinding, incomplete outcome data, selective outcome reporting, and other biases.

Results: Five clinical trial studies involving 185 participants were included. Two studies of Angiotensin I vaccine reported no reduction of blood pressure. Three studies of Angiotensin II vaccine stated different result. A study showed significant blood pressure reduction, the other studies reported no reduction of blood pressure. Conflicting evidence existed regarding to the fatal adverse event. A study reported a fatal dose-limiting adverse event, resulting early termination of the study. The remains studies of Angiotension I and II vaccine showed no problem were found in safety evaluation.

Conclusion: Vaccination against Angiotensin in particular Angiotensin II has the potential to become a useful antihypertensive treatment that provides long-lasting effects and improve patient compliance.

Keyword: Angiotensin, hypertension, vaccination
Cardioprotective Effect of Hibiscuss sabdariffa Linn. on Malondialdehyde (MDA) and Superoxide Dismutase (SOD) Level in Overtrained Rat’s Heart

Nurul Paramita, Dewi Irawati, Ermita Isfandiary Ibrahim Ilyas, Neng Tine Kartinah, Trinovita Andraini, Imma Fatayati

Background: To improve performance, physical training regimen should follow the principle of overload. However, the accumulation of excess exercise volume, in the long run, can cause a decrease in performance called overtraining syndrome (OTS). The etiology of OTS is often associated with oxidative stress, namely the unbalance of free radical levels with endogenous antioxidants. Oxidative stress can contribute to cardiovascular disorders, but it can inhibited by providing additional antioxidants. Hibiscus Sabdariffa Linn. contains high antioxidants and expected to have a cardioprotective effect on overtraining. This study aims to determine the effect of Hibiscus Sabdariffa Linn. on levels of MDA (marker of free radicals) and SOD (marker of antioxidants) in the rat’s heart.

Methods: This is an in vivo experimental study using thirty male adult Wistar rats aged 8-10 weeks, 200-250 grams that were randomly assigned into five groups: Control (C), Control Hibiscus (C-Hib), moderate aerobic training (MAT), overtraining (OT), and overtraining Hibiscus (OT-Hib). Training (MAT and OT) were conducted 5 times per week for 11 weeks. The levels of MDA and SOD in cardiac tissues were measured using spectrophotometric tools.

Result: The results of this study showed that overtraining changed MDA and SOD levels in the rat’s heart compared to control group. Administration of Hibiscus sabdariffa Linn.decrease MDA level and increase SOD levels in the rat’s heart.

Conclusions: Hibiscus Sabdariffa Linn. has a cardioprotective effect in overtrained rats.
Metabolic and Cardiovascular
Basic Science

The Significance of Mitochondrial Dynamic in Heart Failure

Gio Fidelito

Introduction: As the population age, heart failure accounts for a significant number of morbidity and mortality worldwide. Moreover, a wide range of physiological defects can eventually lead to the development of heart failure. Thus, understanding the molecular basis of its development will provide a pivotal perspective in its management. Mitochondria as the powerhouse of the cell have been found to be crucial in the development of this condition.

Methods: Original articles included in this review were gathered from the PubMed database. Twenty-seven original articles examining the importance of mitochondrial dynamic in heart failure were discussed here. In addition, related studies and review articles were also included to support the main idea of this review.

Results: Failure in maintaining the balance of fusion and fission of mitochondria has been observed in the failing heart. Fragmented mitochondria morphology along with the diminution of mitochondrial fusion tend to occur in the development of heart failure. Imbalances in the proteolytic processing of OPA1 (optic atrophy 1) imply the propagation of heart failure. The loss of YME1L (yeast mitochondrial escape 1-like) expression and/or activity, gain of OMA1 (OMA1 zinc metallopeptidase) expression and/or activity result in the development of cardiomyopathy and heart failure.

Conclusion: Continuous mitochondrial morphology changes function as the adaptable activity of mitochondria under cellular and physiological insults. Maintaining the balance of OPA1 proteolysis, thereby sustaining the fitness of mitochondria may serve as the possible treatment in preventing the development of heart failure.
Correlational Study of Perceived Closeness with Adult Children and Psychological Well-being among Older Adults in Coresidence Living

Lathifah Hanum

National statistics show a majority of older people in Indonesia still took the role of a head of the family, which is burdening and could give detrimental effects on older people’s psychological well-being. Although previous studies have found both beneficial and damaging effects of coresidence with adult children for older parents psychological well-being, there are still limited findings on factors that could affect the relationship between parents and their adult children in coresidence living. This study is intended to see a correlation between perceived closeness of older adults with their adult children and psychological well-being among older adults in coresidence living. Relationship Closeness Inventory (RCI) and Ryff’s Scale of Psychological Well-Being (RSPWB) were administered to 102 older parents who had coresidence living with their adult children. Findings of this study are the increasing of perceived closeness with adult children is followed by the decreasing of older parents’ psychological well-being, but not significant ($r = -.114, p > .05$). Furthermore, types of living arrangements are found as a factor which contributed to older people’s perceived closeness and psychological well-being.
The Impact of Cobalamin Deficiency on Heart Function: 
A study on Abnormalities in ECG Pattern

Imelda Rosalyn Sianipar

Introduction: Cobalamin deficiency may cause lack of dietary methyl donors which alter heart metabolism. Cobalamin deficiency are common in patients with malnutrition, gastric ulcers, diabetes mellitus, and alcoholism. Most studies on cobalamin deficiencies are focused on its relationship with oxidative stress and atherogenesis. Therefore, this study aims to find the correlation between cardiomyocyte’s energy metabolism in cobalamin deficiency with the risk of heart abnormalities through analysis of ECG pattern.

Methods: Adult male Sprague Dawley Rats (age 24-28 weeks) were divided into 2 groups: control group and cobalamin-deficient group. The control group was given standard diet while the treatment group received a modified diet type AIN-93M (deficient in cobalamin) for a period of 16 weeks. ECG was performed in both groups on the last day of the 16-week period. ELISA test was also performed to evaluate plasma homocysteine (Hcy) and B12 levels in each group at the end of the treatment period.

Results: At the end of the 16-week period, higher Hcy level was observed in the treatment group, and lower plasma B12 level was seen in the treatment group when compared to the control group. ECG patterns showed sinus rhythm in both groups, with a higher QRS amplitude and duration in the treatment group. Two out of seven rats of the treatment group developed cardiac arrhythmia.

Conclusions: Cobalamin deficiency causes impairment in heart energy metabolism with left ventricular enlargement and arrhythmia.
Introduction: A balanced diet with caloric restriction has been suggested by most guidelines for the management of type 2 diabetes patients with obesity. By contrast, a low-calorie ketogenic diet has recently gained popularity as it can drastically reduce body weight and improve blood glucose levels in a short period of time. However, the safety and efficacy of this approach has not been fully evaluated.

Methods: The search for literature was carried out using the databases PubMed, Cochrane and Clinical Key on August - September 2018. The keywords used were diabetes, obesity, ketogenic diet, diabetes diet, weight reduction, glycemic control and other relevant terms. We only included clinical trials in humans. A critical review is then conducted for selected papers using the criteria from the Oxford Center for Evidence Based Medicine, 2011. This criterion includes the validity, importance and applicability of each journal.

Results: In all studies appraised, a low-calorie ketogenic diet compared to the conventional hypocaloric nutritional intervention resulted in significant weight loss, and improved glycemic control represented by fasting blood glucose and HbA1c levels. Studies reported a significant decrease in triglyceride levels and a significant increase in LDL levels. In all studies, no statistically significant adverse effects were found in the ketogenic diet group.

Conclusion: A low-calorie ketogenic diet may be a promising dietary approach for type 2 diabetes patients with obesity at the early stage of the disease. However, the decision to start such a diet and closed supervision should be advised and performed by a competent physician.
Drug Development
Drug Development
Clinical Research

Effect of Lunasin on Histopathology of Liver in Mice Induced with Azoxymethane (AOM) and Dextran Sodium Sulfate (DSS)

Kusmardi Kusmardi, Heriyanto Khiputra, Salinah salinah

This research is aimed to discover the effect of lunasin on histopathology of liver in mice induced with azoxymethane and dextran sodium sulfate. An experimental study was conducted using Balb/c mice in Department of Anatomic Pathology, Faculty of Medicine, Universitas Indonesia. Data is collected from quantification of necrotic foci, steatotic foci and dysplastic foci from liver of mice given lunasin extract with dose of 20 mg/kgBW, 30 mg/kgBB, 40 mg/kgBB and control group. Analysis on data shows that the number of necrotic foci in the group given 30 mg/kgBW of lunasin with mean of 9,0 ± 3,4 is lower compared to the control group with mean of 14,0 ± 0,8 (p = 0.017). The number of steatotic foci is also lower in the group given 30 mg/kgBW 3,8 ± 1,3 of lunasin with mean of compared to the control group with mean of 11,5 ± 1,9 (p = 0.002). There is no dysplastic foci found on any specimen observed. This experiment shows that lunasin could prevent the development of necrotic foci and steatotic foci in liver of mice induced with AOM and DSS starting from dosage of 30 mg/kgBW.

Keywords: azoxymethane; dextran sodium sulfate; histopathology; liver; lunasin.
Effectiveness and Safety of Hyaluronic Acid Application in Chronic Wounds: A Systematic Review

Maria Clarissa Wiraputran, Oktavianus Marciano

Introduction: Many studies examined hyaluronic acid as alternative treatment of chronic wounds to decrease healing time, provide cost-effective care, and improve the quality of life of the patients. This study aimed to review the effectiveness and safety of hyaluronic acid application in vascular ulcers, diabetic ulcers, and pressure ulcers.

Methods: A systematic review was performed using MEDLINE database by electronic literature search to select all randomized controlled trials (RCT) that assessed the dressing of hyaluronic acid to chronic wounds. MeSH term was used as keywords to search RCT from July 2008 to July 2018. Data of the articles that met the inclusion and didn’t meet the exclusion criteria would be reviewed by authors. Wound size reduction and side effects were collected to assess the effectiveness and safety of hyaluronic acid.

Results: There were 9 studies included in this review that consisted of 5 studies of vascular ulcers, 3 studies of diabetic ulcers, and 1 study of pressure ulcers. Many forms of hyaluronic acid were used in the studies and none of the studies showed side effect. Seven studies showed significant difference of wound size reduction compared with control group. There were 2 studies of vascular ulcers with hydrocolloid dressing as control group showed no significant difference of wound size reduction.

Conclusion: This review concluded that hyaluronic acid by various forms of application could be effective and safe to treat vascular ulcers, diabetic ulcers, and pressure ulcers.
Drug Development
Basic Science

**In Vitro Study of Garcinia lattissima Miq. Stem Barks against Hepatitis C Virus and Hepatocellular Carcinoma**

Dadan Ramadhan Apriyanto

**Introduction:** Hepatitis C Virus (HCV) infection can cause chronic Hepatitis C that leads to hepatocellular carcinoma (HCC), liver dysfunction and mortality. Currently, the standard therapy is associated with significant adverse effects and expensive costs limit the extensive use of the therapy. Therefore, there is a need for alternative choice from medicinal plants to develop safe and inexpensive drugs for HCV infections and HCC. In this study, we examined the antiviral activity and cytotoxicity of a crude extract from Garcinia lattissima stem barks (GL) against HCV (genotype 2a strain JFH1) and hepatocellular carcinoma (Huh7it-1).

**Methods:** Maceration method was used for extraction of GL with methanol solvent. The extracts were then examined with several doses 160, 80, 40, 20, 10, 5, 2.5, and 1.25 μg/mL for antiviral activity against JFH1 strain genotype 2a by focus-forming assay and cytotoxicity against Huh7it-1 cell line by MTT assay.

**Results:** The GL exhibited anti-HCV activity with a 50% effective concentration (EC50) of 4.7 μg/mL without cytotoxicity to Huh7it-1 cells. The GL exhibited cytotoxicity activity to Huh7it-1 with a 50% cytotoxicity concentration (CC50) of 34.2 μg/mL.

**Conclusion:** These results suggest that GL may be useful as an anti-HCV candidate for treating hepatocellular carcinoma.
In silico Study of Potential of Soursop Leaf Water Extract (Annona muricata L) Inhibiting GLP-1, DPP4, and FOXO1 Receptors

Dini Sri Damayanti, Nurdiana, M.Chandra Kusuma, Djoko Wahono Soeadmadji

Soursop leaf decoction is consumed as antiobesity, however active ingredients that play a role and the mechanism of action as antiobesity are still not explained. Computational approaches have been developed as a method to predict the ability of an active ingredient to cause biological effects. The aim of this study was to predict the potential active ingredient of soursop leaf (Annona muricata L.) water extract on GLP-1 receptor activity, DPP4 protein, and FoxO1 computationally. Identification of active ingredients of soursop leaf water extract using physicochemical methods and GCMS. Then computational analysis included potential analysis, prediction of GLP-1R interaction with the active ingredient of soursop leaf water extract and determination of the affinity of the active ingredient of soursop leaves to the proteins DPP4 and FoxO1 using molecular docking. The most active ingredient in soursop leaf water extract contains 5-isopropenyl-3,8-dimethyl-1,2,3,3A, 4,5,6,7-octahydroazulene (22,17%) and 1,2-benzenedicarboxylic acid, diethyl ester (phytalic acid) (57.30%). The active ingredient has not been known to interact with GLP-1R. 5-isopropenyl-3,8-dimethyl-1,2,3,3A, 4,5,6,7-octahydroazulene and Phytalic acid have a weak affinity for the DPP4 protein. Phytalic acid has a weak affinity for FoxO1 protein. Conclusions from the study that soursop leaf water extract has a weak potential as an inhibitor of DDP4 and FoxO1 protein.
Effect of Hibiscus sabdariffa Linn. on Heart Morphometry and PGC-1α in Overtrained Rats

Dewi Irawati Santoso, Mariyal Qibtiyah, Trinovita Andraini, Nurul Paramita, Neng Tine Kartinah, Gulshan Fahmi El Bayani, Ermita Isfandiary Ibrahim

Introduction: Several studies have shown that overtraining increases left ventricular wall mass. However, no research regarding the effect of Hibiscus sabdariffa Linn. administration in overtraining condition has been done. This study aims to determine the effect of Hibiscus sabdariffa Linn. on ventricular morphometry and PGC-1α as a marker of mitochondrial biogenesis.

Methods: This study uses thirty male adult Wistar rats aged 8-10 weeks. Rats were divided into five groups randomly: Control (C), Control Hibiscus (C-Hib), Moderate aerobic training (MAT), overtraining (OT), and overtraining Hibiscus (OT-Hib). Treatments were conducted 5 times a week, for 11 weeks. Difference in heart mass were determined by the ratio of ventricular weight to body weight measurement. The level of PGC-1α were measured using ELISA method.

Results: The results of this study indicates that overtraining changes the left ventricular wall mass and PGC-1α in cardiac tissue. Administration of methanol extract of Hibiscus sabdariffa Linn. changes the heart mass and PGC-1α level.

Conclusions: Overtraining causes changes in left ventricular mass and PGC-1α level in cardiac tissue. Administration Hibiscus sabdariffa Linn. extract preserve the heart in overtraining conditions.

Keywords: overtraining, hypertrophy, Hibiscus sabdariffa Linn., PGC-1α
Drug Development
Basic Science

The Effect of Hibiscus sabdariffa Linn. on IL-6 and TNF-α Level in Overtrained Adult Rat

Dewi Irawati Santoso, Sri Yunita, Nurul Paramita, Trinovita Andraini, Neng Tine Kartinah, Gulshan Fahmi El Bayani, Ermita Isfandiary Ibrahim

Introduction: This study aims to determine the effect of overtraining on interleukin-6 (IL-6) and tumor necrosis factor α (TNF-α) levels in the rat heart, as well as the changes produce on administration of Hibiscus sabdariffa Linn. It was observed in other studies that overtraining increase IL-6 and TNF-α levels in the blood. However, no studies have been conducted on the effect of Hibiscus sabdariffa Linn methanol extract on interleukin-6 (IL-6) and tumor necrosis factor α (TNF-α) levels in the rat heart in overtraining.

Methods: Thirty male adult Wistar rats aged 8-10 weeks, 200-250 grams were randomly divided into five groups: Control (C), Control Hibiscus (C-Hib), moderate aerobic training (MAT), overtraining (OT), and overtraining Hibiscus (OT-Hib). Treatments were conducted 5 times a week for 11 weeks. The levels of IL-6 and TNF-α in cardiac tissues were measured using ELISA method.

Results: The results of this study showed that overtraining changed IL-6 and TNF-α levels in the rat’s heart. Administration of methanol extract of Hibiscus sabdariffa Linn. preserved the levels of IL-6 and TNF-α.

Conclusions: Hibiscus sabdariffa Linn. maintain the levels of cardiac IL-6 and TNF-α in overtraining condition, therefore this data can be used for further research on maintaining cardiac health.

Keywords: overtraining, IL-6, TNF-α, Hibiscus sabdariffa Linn.
Phytochemistry and Antioxidant Activity of Soursop (Anonna muricata) Leaves

Fona Qorina, Ade Arsianti, Nadzila Anindya Tejaputri, Qotrurunnada Fithrotunnisa

Introduction: Soursop (Anonna muricata) is a tropical plant which has been reported utilized as folk medicines to treat many diseases including cancer, inflammation and parasitic infection. In this research, we investigated its phytochemistry properties and antioxidant activity against free radical.

Methods: Anonna muricata leaves were extracted in three different solvents; ethanol, ethyl acetate and n-hexane. Afterwards, phytochemistry test and Thin Layer Chromatography (TLC) method were used to evaluate bioactive compounds contained in the three different extracts. Antioxidant activity from the semi polar (ethyl acetate) and polar solvents (ethanol) were evaluated by DPPH method and IC50 value is regenerated by analysis of linear regression. The results were compared to ascorbic acid as a positive control.

Results: Phytochemistry test has shown that the extracts contained the metabolites of flavonoid, steroid, alkaloid, glycoside and tannin. Whereas, TLC analysis revealed that there are three until four chemical compounds contained in the extracts. The results from DPPH method is polar ethanolic extract has shown that polar ethanolic extract of soursop leaves is the most potent antioxidant activity with IC50 value of 35.51 ppm.

Conclusion: Ethanolic extract of Annona muricata could be developed as the next promising natural antioxidant source.

Keywords: Antioxidant; Anonna muricata; DPPH method; phytochemistry; soursop
Phytochemical Analysis and Antioxidant Properties of Ruellia brittoniana Flower

Nadzila Anindya Tejaputri, Ade Arsianti, Fona Qorina, Qotrunnada Fithrotunnisa

Introduction: The genus Ruellia has been widely used in traditional and Ayurvedic medicine as antioxidant. This study aims is to examine the antioxidant activity of one of the species from genus Ruellia namely Ruellia brittoniana.

Methods: In this study, Ruellia brittoniana flower is acquired from Depok, West Java, Indonesia. This flower, which has been washed and grounded to form powder, is dissolved in hexane, ethanol, and ethyl acetate solvents. These three extracts are then tested for Phytochemicals and Thin Layer Chromatography (TLC) analysis. Furthermore, ethanol and ethyl acetate extracts are analyzed for antioxidant using 2,2-diphenyl-1-picrylhydrazyl (DPPH) method.

Result: Phytochemical results from three extracts prove that Ruellia brittoniana contains flavonoids, alkaloid, tannin, glycoside, and triterpenoid. These results are consistent with the TLC results, which showed the extracts contain 4 to 5 chemical components. Furthermore, the best antioxidant activity has shown by ethyl acetate extract of Ruellia brittoniana flower with IC50 value of 68.42 ppm.

Conclusion: Ethyl acetate extract of Ruellia brittoniana flower can be used and developed as natural source of exogenous antioxidants.

Keywords: Ruellia brittoniana flower, phytochemical, antioxidant activity
Antioxidant activity and phytochemical profile of Hibiscus sabdariffa

Qotrunnada Fithrotunnisa, Ade Arsianti, Nadzila Anindya Tejaputri, Fona Qorina

Objective: Hibiscus sabdariffa, known as Roselle, is one of the herb plants that widely cultivated in Indonesia and has been consumed as a herbal drink due to its medicinal effect. The purposes of this research are to identify antioxidant activity and phytochemical profile of Hibiscus sabdariffa.

Methods: Hibiscus sabdariffa were extracted and macerated in three different organic solvents: ethyl acetate, ethanol, and n-hexane. These extracts were then analyzed by Thin Layer Chromatography (TLC) and phytochemical test to identify secondary metabolites contained in the extracts. Antioxidant activity of the etanol and ethylacetat extracts was evaluated by DPPH method, compared to vitamin C as a positive control.

Result: Phytochemistry test of Hibiscus sabdariffa extracts showed positive results for glycosides, alkaloids, steroid, triterpenoid, tannin, and flavonoids. TLC analysis revealed that the extracts containing two until three chemical components. Compared to ethylacetate extract, ethanol extract of Hibiscus sabdariffa demonstrated a stronger antioxidant activity with IC50 value of 103.62 ppm.

Conclusion: Ethanol extract of Hibiscus sabdariffa can be further developed as a potential source of natural antioxidant.

Keywords: Hibiscus sabdariffa; Roselle; phytochemical; antioxidant.
Formulation Gel Extract of Ethanol Green Bean Coffee Robusta (Coffea canephora) and Examination Anti-wrinkle Activity Using Video Dermatoscope Method

Dally Kharisma Muhammad, Patih Rajahasta, Nur Habibah

Photoaging the main extrinsic factor that causes premature skin aging. Premature aging is characterized by wrinkles on the skin. Gel dosage form used as cosmetics in facial care. Antioxidant contained in Coffea canephora is chlorogenic acid which able to reduce wrinkles on the skin. The aims of this study was to calculate the number of wrinkles on the skin by using the method of video dermatoscope. This true experiment was conducted based on usage of Coffea canephora gel extract formula within 21 days periodically in vary concentration of carbopol (Formula A, B dan C). Test results based on physical stability test, formula A, B, and C are stable in storage. While based on the diffusion test results, the highest effect in delivering the extract through the skin membrane is the formula C with 60.7784% diffused percent. The results of anti-wrinkle activity test showed the formula that most decreased the number of wrinkles on the skin of respondents was the formula C with the number decrease -0.09441.
**Molecular Dynamic Simulation of Pinostrobin and Pinocembrin Chalcone from Kaempferia pandurata Roxb. towards ER Positive and ER Negative Breast Cancer Cell**

Brenda Cristie Edina, Risya Amelia Rahmawanti, Lowilius Wiyono, Fadilah Fadilah, Aryo Tedjo, Rafika Indah Paramita

**Introduction:** Expression of receptors in breast cancer has played a role in molecular classification of breast cancer as immunohistochemistry marker, and has been a constant target of specific drug therapy development. Kaempferia pandurata, one of Indonesia’s native plant known for its anti-cancer effects, also have potential to become an alternative treatment targeting estrogen receptor (ER), progesterone receptor (PR), human epidermal growth factor receptor 2 (HER2), and vascular endothelial growth factor (VEGF) expressed in breast cancer cells.

**Method:** In this study, the interaction of pinostrobin and pinocembrin chalone as key compounds of Kaempferia pandurata towards ER and VEGF as a molecular marker of estrogen receptor positive (ER+) and estrogen receptor negative (ER –) breast cancer respectively, is simulated by dynamic simulation and molecular docking. The molecular docking is conducted using AutoDock 4.2, while the dynamic simulation using AMBER software.

**Results:** The dynamic simulation results that pinocembrin chalcone compounds have less free energy than pinostrobin. The results of analysis of the dynamics simulation result is done by considering the RMSD (Root Mean Square Deviation), RMSF (Root Mean Square Fluctuation), hydrogen bonding conditions.

**Conclusion:** Pinostrobin and pinocembrin chalcone can both interact with ER and VEGF, having a potential for specific ER+ and ER- treatment.

**Keywords:** molecular docking, molecular dynamic, pinostrobin, pinocembrine chalcone, ER, VEGF
Activity Study of Extract Kaempferia pandurata Roxb. as Anti ER (-) Breast Cancer Cell Line MDAMB 231 by Molecular Docking and MTT Assay

Risya Amelia Rahmawanti, Lowilius Wiyono, Brenda Cristie Edina, Fadilah Fadilah, Ade Arsianti, Fatmawaty, Rafika Indah Paramita Mail

Background: Endocrine therapies that target estrogen (ER) and ER signaling pathways play a critical role in the treatment of the majority of breast cancer patients. However, over a quarter of breast tumors fail to express ER (ER -) and express Vascular endothelial growth factor (VEGF) and are thus resistant to these therapies. In this regard, inhibitor VEGF agents based on natural resources, such as phenolic compounds may be an alternative strategy to negate the rising antbreast cancer drug resistance.

Method: This research is to determine cytotoxic activity of Kaempferia pandurata rhizome extract as anti-breast cancer in MDAMB 231 cell line by MTT assay, and the interaction of its compounds towards VEGF by molecular docking approach.

Results: Molecular docking shown that compared to currently developed drug, pinostrobin and pinocembrin chalcone have promising interaction towards VEGF expressed in ER - breast cancer cell line.

Conclusion: The results indicated that extract rhizomes of Kaempferia pandurata with major compound pinostrobin and pinocembrin chalcone is potent as anticancer activities to breast cancer cell line.

Keywords: molecular docking, anti-breast cancer, Kaempferia pandurata Roxb., IC50, ER -, MDAMB 231
**In Vitro Antibacterial Activity Test of Jackfruit (Artocarpus heterophyllus Lam.) Leaves Extract against Methicillin-Resistant Staphylococcus aureus (MRSA)**

Diyah Ayu Rosalinda, Ika Ningsih

**Introduction:** Infectious diseases are still a public health problem in Indonesia and Methicillin-Resistant Staphylococcus aureus (MRSA) is one of bacteria causing infections that is a concern because of the nature of resistance to various beta-lactam class of antibiotics. Vancomycin is still the drug of choice for MRSA infections but in recent years research shows that it has been found strains of MRSA that decreased sensitivity to vancomycin.

**Method:** This is an experimental study that aims to determine the antibacterial activity of jackfruit (Artocarpus heterophyllus Lam.) leaves extract against MRSA by the minimum inhibitory concentration (MIC) and the minimum bactericidal concentration (MBC). The study was conducted using in-vitro test with broth macrodilution method. Jackfruit leaves extract were used in various concentration of 1280 μg/mL, 640 μg/mL, 320 μg/mL, until 0,625 μg/mL with 2 times repetition.

**Results:** MIC and MBC of jackfruit leaves extract against MRSA was found at a concentration of 320 μg/mL and 1280 μg/mL, respectively.

**Conclusion:** Jackfruit leaves extract has the potential as an antibacteria against MRSA. However, further studies are still needed to find out which active substances have the best antibacterial effect.

**Keywords:** Antibacterial activity; jackfruit (Artocarpus heterophyllus Lam.) leaf extract; Methicillin-Resistant Staphylococcus aureus
Objective: The risk of malignancy in the form of dysplasia in inflammatory bowel disease (IBD) remains a problem due to inadequate long-term drug therapy which lead to chronic intestinal inflammation. Previous study showed that Phaleria macrocarpa has anti-inflammatory effect while chitosan could enhance inflammatory cells function. This study aims to investigate the effects of Phaleria macrocarpa leaf extract loaded in chitosan nanoparticles on reduction of colon dysplasia grade in mice.

Methods: The study used Swiss Webster mice colon samples from previous study in Hematoxylin Eosin staining. Samples divided in 6 groups: normal (N) group, dextran sodium sulfate (DSS) group, 12.5 and 25mg/kg body weight (BW) leaf extract of Phaleria macrocarpa (MD 25, MD 12.5) group, 6.25 and 12.5mg/kg BW leaf extract of Phaleria macrocarpa in chitosan nanoparticles (NPMD 6.25, NPMD 12.5) group. DSS 2% was given through drinking water (7 days) followed by water without DSS (7 days) and repeated up to 3 cycles.

Results: Dysplasia grade of MD 25 group was not significantly different with DSS group (p=0.168). However, MD 12.5 (p=0.027); NPMD 12.5 (p=0.000); and NPMD 6.25 (p=0.001) showed significant difference with DSS group. The results of mean dysplasia grade in MD 12.5, NPMD 12.5, and NPMD 6.25 were 2.15, 1.7, and 1.8.

Conclusion: Our results demonstrated reduction of dysplasia grade in mice colon by Phaleria macrocarpa leaf extract with or without chitosan nanoparticle. The highest reduction was found in dose 12.5mg/kg Phaleria macrocarpa leaf extract in chitosan nanoparticle.

Keywords: inflammatory bowel disease, Phaleria macrocarpa leaf extract, chitosan nanoparticle, dysplasia
Potential Holistic Preventive and Therapeutic Approach of Garcinia mangostana Extract or Isolates in Type 2 Diabetes Mellitus: A Review

Joanna Erin Hanrahan, Priscilla Aya Maheswari Subroto, Rahardi Prasetia Priawan, Desak Gede Budi Krisnamurti

Introduction: The need of long term medication in diabetes mellitus has lead to a search of herbal medicine as an alternative. Several studies showed that extract or isolates of Garcinia mangostana has the potency in preventing and treating type 2 diabetes mellitus.

Methods: This review is conducted by literature searching from various databases such as PubMed, ClinicalKey, ScienceDirect, and EBSCOhost. We proceeded to analyze papers with publication date of maximum five years.

Results: All pharmacological effects from extract or isolates of G. mangostana related to type 2 DM in in-vitro, in-vivo, and clinical trials were reviewed. G. mangostana was seen to suppress adipogenesis and regulate lipid homestasis thus able to improve lipid profile, preventing type 2 DM. Its hypoglycemic activity was also shown through a decrease in fasting blood glucose and a mild increment in β-cells’ population and activity. A decrease in HOMA IR showing improvement in insulin sensitivity, along with a significant decrement in HS-CRP levels were seen in mangosteen-treated group. Histopathology analysis showed less damage on pancreatic β-cells, improvement of hepatocytes and central vein, as well as fewer glomerulus and tubular epithelial necrosis in α-mangostin treated group. Moreover, the anti-oxidant effect of G. mangostana exerts protective act on micro-and macrovascular damage caused by type 2 DM.

Conclusion: Extract or isolates of G. mangostana possess a strong potential in preventing and treating type 2 DM. Further research on human study using long term-outcome biomarkers is needed to see its glycemic control capacity.

Keywords: Garcinia mangostana; mangosteen; α-mangostin; type 2 diabetes mellitus
Drug Development  
Undergraduate student

Reduction of TNF-α Expression on Mice Colonic Epithelial Cell Induced with Azoxymethane/Dextran Sodium Sulfate by Lunasin-Rich Soybean Extract

Kusmardi Kusmardi, Renata Tamara, Ari Estuningtyas, Aryo Tedjo

Background: Colorectal cancer (CRC) contributes to 9.7% of all cancer and its incidence increased by 13% in population <50 years old (2000-2014). Pathogenesis of CRC is related to chronic inflammation. There are some lacks in current cancer therapy (radiation or chemotherapy), such as low therapeutic index, high toxicity, and risk of relapse. In recent years, peptide in food becomes popular among researchers because it is cheap, easy to get, low toxicity, and a promising cancer preventing agent. Thus, we would like to investigate whether lunasin from soybean can reduce the expression of pro-inflammatory cytokine TNF-α in colonic epithelial cell.

Method: 30 Swiss Webster mice randomly allocated to six groups. One group was normal and five groups were induced carcinogenesis using azoxymethane (AOM) and dextran sodium sulfate (DSS), then was given nothing (negative control), aspirin (positive control), and lunasin-rich soybean extract in three different doses (250, 300, and 350 mg/kgBW) for four weeks. Distal colon tissue was immunohistochemically stained to detect TNF-α and then observed under light microscope with 400X magnification to count epithelial cell based on its colour intensity (blue: negative; brown: high, moderate, and low positive). Index was calculated using optical density score.

Result: Lunasin-rich soybean extract can decrease expression of TNF-α. There are statistically significant between negative control and dose 300 mg/kgBW (p=0.016) and 350 mg/kgBW (p=0.009), yet not significant with dose 250 mg/kgBW (p=0.754).

Conclusion: Reduction of TNF-α expression on colonic epithelial cell is significant with dose 300 mg/kgBW or higher. This effect is dose-dependent.
The Effect of Lunasin Enriched Soy Extract towards Histone Deacetylase Expression on AOM/DSS Induced Mice Distal Colon Epithelial Cell

Kusmardi Kusmardi, Tiffany Rosa Sudarso Tarigan, Ari Estuningtyas, Aryo Tedjo

Introduction: Lunasin peptide, with its chemopreventive and chemotherapeutic abilities, has been known to affect carcinogenesis by epigenetic regulation involving histone acetylation. This study investigated lunasin, which can be found in soy, and its effect towards histone deacetylase enzyme expression in mice model of carcinogenesis.

Method: Thirty Swiss Webster mice is grouped into normal, positive control, negative control, and experimental group. Except normal group, mice undergo carcinogenesis induction with azoxymethane (AOM) and dextran sodium sulfate (DSS) injection. Experimental mice receive lunasin enriched soy extract with 250 mg/kgBW, 300 mg/kgBW and 350 mg/kgBW dosage for 4 weeks. Distal colon sample is stained using immunohistochemistry (IHC) technique. Histone deacetylase (HDAC) enzyme expression is measured with IHC optical density score.

Result: Average HDAC expression on normal groups = 202,4%; negative control = 239,3%; positive control = 175,25%; 250 mg/kgBW dose = 202,03%; 300 mg/kgBW = 219,53%; 350 mg/kgBW = 166,68%. There is no significant difference between HDAC expression with 250 mg/kgBW and 300 mg/kgBW dose of soy extract. There is significant difference of HDAC expression with 350 mg/kgBW dose of soy extract.

Conclusion: Lunasin in soy extract with 350 mg/kgBW dose can decrease HDAC expression in colorectal cancer carcinogenesis model.
Inhibition of COX-2 Expression by Lunasin-Rich Soybean Extract on Distal Colon of Mice Induced by Azoximethane and Dextran Sodium Sulfate

Kusmardi Kusmardi, Vannessa Karenina, Ari Estuningtyas, Aryo Tedjo

**Background:** Colorectal cancer is one of the fastest growing incidences of cancer in the past decade. The biggest increase is expected to occur in developing countries due to lifestyle changes. The choice of colorectal cancer management currently available, such as surgery, radiation therapy, and chemotherapy, is known to have not been able to give the desired effect. Taking into account the availability, price and toxic effects, soybeans are one of the food ingredients that have the potential to become adjuvant therapy. This is because the active substance contained in soybeans, namely lunasin protein, is known to have anti-inflammatory and anticancer effects that are beneficial in cases of colorectal cancer.

**Method:** A total of 30 Swiss Webster mice were separated into six groups. Five of the six groups of mice were induced with azoximethane (AOM) and dextran sodium sulfate (DSS). Extracts of lunasin-rich soybean with a dose of 250 mg / kgBB, 300 mg / kgBW, and 350 mg / kgBB were given to three groups of mice for 6 weeks. Immunohistochemical staining of COX-2 was then carried out on the distal colon tissue of mice that had been sacrificed, then observed under a microscope. The results of interpretation of COX-2 expression are stated in the form of optical density score (ODS).

**Result:** There was a significant difference between the negative group and the intervention group of lunasin-rich soybean extract at a dose of 300 mg / kgBW (p = 0.047) and 350 mg / kgBW (p = 0.016).

**Conclusion:** Administration of lunacin-rich soy extracts can inhibit COX-2 expression in colorectal cancer models in dose-dependent pattern.
Evaluation of Phaleria Macrocarpa Leaf Extract-Chitosan Nanoparticles on Angiogenesis Suppression in Mice Colon Induced by Dextran Sodium Sulfate

Ari Estuningtyas, Kusmardi Kusmardi, Nur Afiahuddin Tumpu

**Background:** Uncontrolled pathologic progression of angiogenesis in inflammatory bowel disease (IBD) can enhance the risk of malignancy due to undiscovered definitive treatment with minimal side effects. Phaleria macrocarpa is an origin plant from Indonesia and has an anti-inflammatory effect. This study aims to find out the effect of Phaleria macrocarpa leaf extract in chitosan nanoparticles to suppress number of angiogenesis in mice colon tissue.

**Method:** This study used 32 colon tissue samples of Swiss Webster mice which were administered by water containing DSS 2% (7 days) and followed by water without DSS (7 days) in 3 consecutive cycles. Samples divided into 6 groups: normal (N) group, dextran sodium sulphate (DSS) group, 12.5 and 25 mg/mice Phaleria macrocarpa leaf extract (MD 12.5 and MD 25) group, 6.25 and 12.5 mg/mice Phaleria macrocarpa leaf extract in chitosan nanoparticles (NPMD 6.25 and NPMD 12.5) group. Histological examination using Hematoxylin-eosin (HE) stained samples were performed to evaluate number of angiogenesis in colon tissue.

**Result:** NPMD 6.25 group (p=0.105) and MD 12.5 group (p=0.07) showed no significant difference with DSS group in number of angiogenesis. In contrast, MD 25 group (p=0.03) and NPMD 12.5 group (p=0.02) were significantly different with DSS group. The mean result of angiogenesis number in MD 25 group and NPMD 12.5 group were 25.57 and 28.00.

**Conclusion:** The result showed reduction of angiogenesis number in mice colon tissue by Phaleria macrocarpa leaf extract. The highest reduction was found in 12.5 mg/mice dose of Phaleria macrocarpa leaf extract in chitosan nanoparticles.

**Keywords:** Phaleria macrocarpa leaf extract, chitosan nanoparticle, mice colon, angiogenesis, dextran sodium sulphate
Efficacy and Safety of Curcuma Longa Extract in the Treatment of Osteoarthritis: A Systematic Review

Alessa Fahira, Armand Achmadsyah, Allys Soraya Safitri, Rani Wardani Hakim

Introduction: Osteoarthritis (OA) is a chronic disease that is caused by inflammation of the tissue and bony structures of the joint affecting more than 235 million people worldwide, hence requiring long-term use of standard medical treatment which may cause many adverse effects. Curcuma longa extract, as a well-known natural remedy has been known to have an anti-inflammatory effect, which may impact the pathophysiology of OA—yet there is currently no comprehensive review of randomized controlled trials which showed the efficacy of Curcuma longa extract in the treatment of OA.

Methods: We conducted a comprehensive search from PubMed, Cochrane, Scopus, ProQuest, EBSCOhost, and ScienceDirect for randomized controlled trials evaluating Curcuma longa extract capsules control (placebo or other therapy). Data were extracted and summarized descriptively. Three trials were identified.

Results: Across all trials, Curcuma longa therapy was proven to significantly reduce Visual Analog Scale (VAS) and Western Ontario & McMaster Universities Osteoarthritis Index (WOMAC) scores compared to control group (placebo). The adverse effect is less likely to happen in a patient treated with Curcuma longa extract compared to other groups.

Conclusion: Curcuma longa extract was found to improve scores of VAS and WOMAC in all studies reviewed which shown potential options to be used as an alternative medication for OA treatment.

Keywords: Osteoarthritis, Curcuma longa, anti-inflammatory, VAS, WOMAC.
Cancer
The Relationship between Laryngopharyngeal Reflux Based on the Pepsin Value with Characteristic of Laryngeal Cancer Patients

Susyana Tamin, Indah Saraswati, Bambang Hermani, Ina Susianti Timan, Saptawati Bardosono

Introduction: Laryngopharyngeal Reflux (LPR) is suspected to be a risk factor for laryngeal cancer with a high prevalence according to recent studies. This study is to determine the characteristics of laryngeal cancer patient, proportion of LPR based on the pepsin value and association between LPR based on the pepsin value with the characteristics of laryngeal cancer patient.

Methods: This is an observational analytic study with 26 subjects of laryngeal cancer. All subjects were asked to collect the sputum twice (pepsin I and pepsin II) to evaluate later with ELISA. Data analysis was done using SPSS 23.0 program. Methods of analysis were including univariate for numeric and categorical data, and bivariate for assessing the relationship among each independent variables amd dependent variables with P<0.05.

Result: Twenty four out of 26 subjects were male with mean age 60.65±8.41 years, 7 subjects were severe drinkers, 12 subjects were severe smokers and 24 subjects were late stage of laryngeal cancer. All of the subjects were diagnosed with LPR and there was a significant association between the value of pepsin I (daytime/ provoked LPR) with alcohol consumption (P=0.002) and also a significant difference of the value of pepsin I in heavy and light smoker (P=0.039).

Conclusion: LPR could be considered as a risk factor together with alcohol consumption and smoking status. ELISA pepsin could be a supporting examination for LPR especially in laryngeal cancer patient as it is a noninvasive and inexpensive method.
Comparison of Pathology, Laboratory, Therapy, and Prognosis of Stage IIIB Cervical Cancer Patient with and without Renal Impairment (To Have New Classification Cervical Cancer IIIB-Plus)

Laila Nuranna

Aims: This investigative study has the main objectives as elaborating the differentiations between IIIB cervical cancer patients embedded with or without renal impairment; particularly in pathology, laboratory, therapy, and prognosis.

Method: Using the retrospective cohort technique, consecutive IIIB cervical cancer patients dated from July 2010 until July 2015 were collected. Renal impairment patients were defined by having kidney abnormalities as the effect of enlargement tumor at pelvic wall. The data retrieved were age, parity, cancer cell type, pelvic wall involvement, degree and symmetricity of hydronephrosis, urea, potassium and creatinine result, treatment modalities, post 3-months radiation treatment response, the duration of hospital stay and 1 -year survival. SPSS were used to find the p value with 95% confidence interval.

Results: Among 102 patients with renal impairment were obtained, thus as many as 204 patients without renal impairment were clustered as comparison group. The results showed significant difference in the number of patients with pelvic wall involvement (100%), degree and symmetricity of hydronephrosis (69%; 3,9%), the urea (148; 22), creatinine (8,0; 0,8), and potassium level (5,3;3,9) between cervical cancer patients with and without kidney disease simultaneously. There are also significant differences in the number of patients undergoing urinary diversion therapy (78,8%; 0,5%), dialysis and chemotherapy. For survival analysis, the hazard ratio obtained was 0.307.

Conclusion: Cervical cancer patients with renal impairment faced more advanced ordeals, e.g. worsen degree and symmetricity of hydronephrosis, higher urea, creatinine and potassium. The modalities of treatment for them are limited due to renal comorbidites thus resulting in progressive therapy response, longer hospital stay duration and lower survival. With the result obtained, further involvement of other specialists and new entity classification of cervical cancer accompanied by kidney disease, named (IIIB-plus) maybe considered.

Keywords: IIIB, cervical cancer, laboratory, pathology, renal impairment, therapy.
An Overview of Epithelial Ovarian Cancer Spreading through Peritoneal Fluid Circulation at dr. Cipto Mangunkusumo Hospital

Sigit Purbadi, Angelina Vitria

Introduction: The aim of investigating epithelial ovarian cancer spreading through peritoneal circulation as baseline data to evaluate whether surgical staging needs to be routinely performed in all clinically early-stage ovarian cancer patients.

Method: This cross sectional study used medical record data of dr. Cipto Mangunkusumo hospital from July 2016 until August 2017. The subject was clinically early stage epithelial ovarian cancer patients in whom were performed complete surgical staging from 2006 to 2016. Nonepithelial ovarian cancer cases or epithelial ovarian cancer stage IV were excluded.

Results: The proportion of epithelial ovarian cancer spreading through peritoneal fluid were 12 cases (24%), peritoneum were 10 cases (20%), and omentum were 8 cases (16%) of all subjects. The macroscopic proportion of negative nodules with positive peritoneal biopsy results were 1 out of 40 cases (2.5%) while the macroscopic proportion of negative nodules with positive omental biopsy results were 3 out of 45 cases (6.7%). The proportion of peritoneal washing with positive cytology results were 3 out of 26 cases (11.5%).

Conclusion: The peritoneal biopsy should not be performed in early stage epithelial ovarian cancer due to proportion of negative macroscopic nodules with positive biopsy results was only 1 in 40 cases with negative nodules. Further research is needed with cohort study design in order for the results of the study to be used in general.

Keywords: epithelial ovarian cancer, proportion of spreading, surgical staging
Efficacy of Silodosin Compared to Tamsulosin in Patients with Benign Prostatic Hyperplasia: A Double-Blind Randomized Clinical Trial

St Cahyo Ariwicaksono, Robertus Bebet Prasetyo, Nindra Prasadja, Nugroho Budi Utomo

Introduction: Benign Prostatic Hyperplasia (BPH) is nonmalignant enlargement of prostate related to aging. BPH can cause Lower Urinary Tract Syndrome (LUTS). Medical therapy is generally given in patients with moderate and severe LUTS symptoms using α-1 adrenoceptor antagonists (blockers). We aimed to determine whether there is difference between IPSS (International Prostate Symptom Score) and maximal uroflowmetry in patients with BPH who received either Silodosin or Tamsulosin within 12 weeks.

Methods: This study was a double-blind randomized clinical trial. Subjects were male patient age 50 or more diagnosed with BPH with IPSS Score ≥8 at Indonesian Army Hospital RSPAD Gatot Soebroto. There were 50 subjects included in this study. Patient received whether Silodosin or Tamsulosin. IPSS and uroflowmetry were assessed in initial assessment and 4, 8, and 12 weeks.

Results: The initial IPSS median in Tamsulosin is 15 and 17 in Silodosin group (p=0.808). We found decreasing of IPSS median to 9 in Tamsulosin and 10 in Silodosin group after 12 weeks (p=0.186). Initial maximal uroflowmetry median in Tamsulosin is 10,1 mL/s and 10,9 mL/s in Silodosin group (p=0.290). We found increased maximal uroflowmetry median to 12,1 mL/s in Tamsulosin and 11,9 mL/s in Silodosin group after 12 weeks (p=0.186).

Conclusions: Although there were no significant differences in IPSS and uroflowmetry within 12 weeks observation in both subjects group, there were significant difference between initial and 12 weeks assessment in IPSS and uroflowmetry as previous literature shown that alpha blocker are good for patience with BPH decrease IPSS.

Keywords: Benign Prostate Hyperplasia, Alpha Blocker, IPSS, Uroflowmetry
Cancer Clinical Research

**Proximal Colon Histopathological Changes of Mice Treated with Lunasin Extract**

Kusmardi Kusmardi, Teresa Wulandari, Salinah Salinah

**Background:** There are about 1.36 million colorectal cancer (CRC) cases worldwide. Proximal colon cancer contributes to 41.5% of these cases. Until today, complete R0 surgical resection remains to be the basis of CRC management. However, cumulative recurrence rate reaches 100% after 4 years. Palliative, adjuvant and neo-adjuvant treatments of various kinds including chemotherapy and radiotherapy come with benefits but also toxicities, side-effects and pain. In this research we would like to investigate whether lunasin, a natural peptide from soybean that to date is a promising novel cancer preventive agent, can improve a proximal colon cancer’s condition.

**Method:** 20 mice induced by azoxymethane (AOM) and dextran sodium sulfate (DSS), potent carcinogens, was used and divided into 4 groups, each treated with none, 20mg, 30mg dan 40mg per kg body weight lunasin extract dose for 6 consecutive weeks. The mice then underwent decapitation and its proximal colon tissue collected and stained using hematoxylin-eosin and observed under microscope with 400x magnification for foci amount pathognomonic features of carcinogenesis such as inflammatory cells, hyperplasia, dysplasia, angiogenesis and goblet cells. Statistical analysis was done using one-way ANOVA and Kruskal-Wallis tests.

**Results:** p=0.001, p=0.000, p=0.004, p=0.117 dan p=0.054 each for foci amount of hyperplasia, goblet cells, dysplasia, inflammatory cells and angiogenesis respectively.

**Conclusion:** Lunasin is statistically significant in improving hyperplasia, dysplasia and goblet cells foci but not significant in reducing inflammatory cells and angiogenesis foci.

**Keywords:** Proximal Colon, Lunasin, Angiogenesis, Dysplasia, Hyperplasia, Inflammation Cells, Goblet Cells
Quercetin Improves the Efficacy of Sorafenib in Triple Negative Breast Cancer Cells Through the Modulation of Drug Efflux Transporters Expressions

Melva Louisa

Introduction: This study was aimed to investigate whether quercetin is able to improve the efficacy of sorafenib in triple negative breast cancer cells (TNBC) and explore the possibility of drug efflux transporters modulation by quercetin.

Methods: We exposed MDA-MB-231, a triple negative breast cancer cell line, to several groups: sorafenib alone, quercetin alone, combination of sorafenib-quercetin and control. We determined cell viability over control weekly up to 4 weeks. At the end of fourth week, mRNA expressions of drug efflux transporters (P-glycoprotein and Breast Cancer Resistance Protein (BCRP) and MRP2 (multidrug resistance associated protein-2) were examined.

Results: Sorafenib alone was shown to maintain its efficacy only for 2 weeks, while quercetin alone was able to maintain its effect for 4 weeks. Combination of sorafenib-quercetin showed the best cytotoxicity effects compared with sorafenib or quercetin alone and able to keep its efficacy for 4 weeks. There were increased mRNA expressions of P-glycoprotein, BCRP and MRP2 after 4 weeks of treatment with sorafenib; while treatment with quercetin decreased the expression of drug efflux transporter expressions. Combination of sorafenib-quercetin decreased the mRNA expressions of both P-glycoprotein and BCRP as compared with sorafenib alone.

Conclusion: We suggest that decreased expressions of both drug efflux transporters mediated by quercetin, ameliorate the efficacy of sorafenib in TNBC. Therefore, the addition of quercetin to sorafenib might have a future in improving therapeutic efficacy of sorafenib in triple negative breast cancer.
Suppression of SOD2 Gene with Small Interfering RNA (siRNA) in Breast Cancer Stem Cell

Septelia Inawati Wanandi

Manganese superoxide dismutase (MnSOD) is considered as a potential therapeutic compound which have important in dealing with oxidative stress. This study was aimed to determined the impact of Oct4 expression from cell treated with supression MnSOD gene with small interfering RNA (siRNA). In vitro transfection of ALDH+ was performed using 66 µM specific siRNA MnSOD. After 48- and 72-hours incubation under standard culture condition, total RNA and protein were extracted from transfected cells. Cell viability was measured using tryphan blue exlclusion assay. MnSOD and Oct4 mRNA relative expression was analyzed using qRT-PCR. MnSOD activity was determined using xanthine oxidase inhibiton assay. After 48- and 72-hours siRNA treatment, BCSC viability was not affected. MnSOD expression was suprressed in 48-hours incubation (0,23-fold)\(^{(p < 0,001)}\) compared to control and rebound in 72-hours incubation (0,69-fold). Oct4 expression in treated cell was also supressed after 48-hours incubation (0,29-fold) \(^{(p = 0,001)}\), followed by reduction of Mamosphere Forming Unit (42,2 %) \(^{(p=0,01)}\) indicating low progression of tumor. After 72-hours incubation, Oct4 expression increased (0,46-fold) \(^{(p=0,020)}\). Spesific activity of MnSOD decreased 69,98 % in 48-hours incubation (from 2,16 to 0,67 U/mg) \(^{(p < 0,001)}\) and increased up to 29,52 U/mg afterwards \(^{(p< 0,001)}\). Supression of MnSOD gene after treated with siRNA-MnSOD reduced BCSC stemness, showed by decreasing of Oct4 gene expression followed by reduction of mamosphere forming unit.

**Keywords:** MnSOD, siRNA, breast cancer stem cell, gene expression, enzyme activity.
Cancer
Basic Science

Curcumin Increases the Sensitivity of Breast Cancer Cells to Anticancer Tamoxifen Through Inhibition of Efflux Transporter (MRP2)

Desak Gede Budi Krisnamurti, Septelia Inawati Wanandi, Melva Louisa

Introduction: Tamoxifen is the first line drug used in the treatment of breast cancer with estrogen receptor positive. Long-term use of tamoxifen can induce multidrug resistance (MDR) associated with decreased sensitivity of cancer cells to the drug. One of the cause of MDR is the overexpression of MRP2 efflux transporter. We aimed to investigate the effects of curcumin on the sensitivity of breast cancer cells to tamoxifen through inhibition of efflux transporter MRP2.

Methods: We use MCF-7 cells that were previously exposed with long-term tamoxifen treatment (MCF-7(T) cells). MCR-7 (T) cells were then treated with tamoxifen 1 μM, curcumin (5, 10 and 20 μM), combination of curcumin (5, 10, 20 μM) and tamoxifen 1 μM, or nevirapine 10 μM (as a known MRP2 inhibitor) for 3 days. Afterwards, the cells were harvested, counted for cell viability and evaluated for MRP2 mRNA expressions.

Results: The administration of curcumin alone or in combination with tamoxifen significantly reduced cell viability compared to control, at all curcumin dosages administered. The reduction of cell viability was accompanied with reduced level of MRP2 mRNA expressions.

Conclusion: The administration of curcumin to MCF-7 cells previously exposed to long-term tamoxifen, increase the sensitivity of cancer cells to tamoxifen therapy. The increased of sensitivity of these cells were attributed at least by the inhibition efflux transporter, MRP2.

Keywords: curcumin, tamoxifen, MRP2, multidrug resistance.
Association of Vegetables and Fruits with Nasopharyngeal Cancer: 
An Evidence-based Case Report

Dyah Astri Paramaramya, Nidya Putri Ihsan

Background: The incidence of Nasopharyngeal Cancer in Indonesia which reaches five to nine cases per one hundred thousand population per year is thought to be related to the low consumption of vegetables and fruits. The objective of this research is to find out if vegetables and fruits decrease the risk of nasopharyngeal cancer.

Methods: A search was conducted by Pubmed®, JSTOR®, and Google Scholar® which led to four relevant articles.

Results: A total 4 studies were obtained for this case report with 3 of them showed significant association between vegetables or fruits consumption and nasopharyngeal cancer. High vegetable consumption reduces the risk of developing nasopharyngeal cancer according to Jin J et al (RR = 0.67, 95% CI = 0.56-0.80). The high consumption of fruit can also reduces the risk of developing nasopharyngeal cancer according to Jin J et al (RR = 0.63, 95% CI = 0.56-0.70) and Boeing et al (RR = 0.63 95% CI = 0.42-0.96). Moreover, Uzcudun et al showed the low consumption of vegetables and fruits increased the risk of NPC (RR = 15.8, 95% CI = 2.2-17.6 and RR = 24.6, 95% CI = 12.3-48.8).

Conclusions: Consumption of vegetables and fruits reduce the incidence of nasopharyngeal carcinoma and vice versa, low consumption of vegetables and fruits increase the risk of nasopharyngeal carcinoma.
Analysis of TRAIL Expression in Glioblastoma Multiforme (GBM) Cells Treated with Conditioned Medium of Umbilical Cord-derived Mesenchymal Stem Cells

Novi Silvia Hardiany, Edward Christopher Yo, Septelia Inawati Wanandi

Introduction: TNF-related apoptosis-inducing ligand (TRAIL) expressed by cancer cell could either suppress or support tumor development depending on the interaction with its microenvironment. It is remain unclear whether secretomes of Mesenchymal Stem Cells (MSCs) as a major part of tumor microenvironment could influence TRAIL expression in cancer cells. Therefore, this study was to analyze the TRAIL expression in Glioblastoma multiforme (GBM) cells following treatment with conditioned medium (CM) of MSCs.

Methods: Umbilical cord-derived MSCs (UCSCs) were cultured on serum-free alphaMEM for 24 hours to prepare UCSC-CM. Then, Human GBM T98G cells were incubated with the UCSC-CM for 24 hours. Following this treatment, TRAIL mRNA expression was obtained from quantitative RT-PCR while TRAIL protein expression was measured using Sandwich-ELISA.

Results: TRAIL protein expression was significantly up-regulated (1.2-fold) while mRNA expression was down-regulated (0.4-fold) in CM-treated cells compared to control. This incongruity between the expression trend of TRAIL protein and mRNA might be due to there being various transcriptional and translational regulations.

Conclusion: UCSCs secretome in CM was shown to increase TRAIL protein expression in GBM cells. Further research is needed to elucidate this effect on GBM cell survival and whether MSCs derived from other anatomical origins induce similar effect.

Keywords: TRAIL, GBM cells, conditioned medium, umbilical cord-derived MSCs
Evaluation of Cancer-associated Fibroblast and Stromal Phenotype for Prognostic Determinants of Colorectal Carcinoma and Their Association with Tumor Budding

Septelia Inawati Wanandi, Noza Hilbertina, Nurjati Chairani Siregar

Introduction: Tumor microenvironment consisting stroma and extracellular matrix plays important roles on tumor progression, particularly through induction of epithelial mesenchymal transition (EMT). It has been indicated that the phenotype of cancer-associated fibroblasts (CAFs) in stroma might be correlated with the prognosis of colorectal carcinoma (CRC). The present study aimed at the evaluation of stromal and CAF types for pathological prognostic determinants of CRC and their association with tumor budding (TB) grade, which represents EMT.

Methods: Using H&E-stained paraffin sections from 23 CRC patients collected at anatomical pathology laboratory FKUI/RSCM, three stromal and two CAF phenotypes were assessed, TB was counted, as well as lymphnode metastasis and lymphvascular invasion as pathologic prognostic determinants were also analysed. Data was statistically analysis using Chi-square test.

Result: This study found that there is a significant association between CAF phenotype and TB grade (p<0.01). CRC specimens containing immature CAF have higher TB grade than the mature phenotype. Nevertheless, the significant association between stroma and TB grade could not be demonstrated in this study. Moreover, high TB grade were significantly associated with lymphnode metastasis (p<0.01) and lymphvascular invasion (p<0.01), respectively. However, there is no significant association between CAF phenotype and both prognostic determinants of CRC.

Conclusions: CAF phenotype could be considered as prognostic determinant of CRC due to its association with TB grade, indicating the role of CAFs on EMT process. Future studies are required to examine the secretomes of CAFs that play an important role on the EMT and determine the prognosis of CRC.

Keywords: cancer associated fibroblast, stromal phenotype, tumor budding, prognostic
Cancer
Basic Science

Targeting gangliosides-containing liposomes to CD169+ antigen presenting cells to induce anti-tumor immune responses

Alsya Affandi

Introduction: Pancreatic cancer forms a major cause of cancer related deaths with a very short mean overall survival of just 6-12 months. Our previous work has already demonstrated that CD169+ macrophages can stimulate superior immune responses. Using liposomes containing CD169-binding gangliosides, we hypothesized that these liposomes, could be used to target and to deliver antigen-such as pancreatic tumor antigen Wilms’ Tumor 1 (WT1)-to CD169+ antigen-presenting-cells (APCs).

Methods: We tested six liposomes containing different gangliosides and DiD for binding at 4°C and uptake at 37°C with different APCs: human monocyte-derived dendritic cells (moDC), THP1 cell line overexpressing CD169, human PBMCs and spleen. Using blocking antibody against CD169, we determined the specificity of this binding. For ag presentation, moDCs pulsed with ag-loaded ganglioside liposome were co-cultured with WT1 CD8 T cell clone.

Results: We observed that liposomes containing GM3, GD3, GM1, GD1a, GT1b, could efficiently bind and were taken up by CD169-overexpressing THP1 cells and human moDCs. moDC binding and uptake could be further enhanced by IFN-α-induced CD169 upregulation, and blocked using neutralizing α-CD169 antibody. Furthermore, ganglioside-containing liposome were taken up by blood monocytes and splenic macrophages. The levels of uptake were associated with CD169 expression. Moreover, moDCs loaded with ganglioside-liposome containing WT1 antigen could stimulate IFNγ production by WT1-specific CD8 T cells.

Conclusion: Ganglioside-containing liposomes can be used to specifically target human CD169+ APCs and to present pancreatic cancer antigen WT1 to ag-specific CD8 T cells.
The Role of HDAC2 and PCNA Expression in Decreasing of Endoxifen Sensitivity on Human Breast Cancer Stem Cells ALDH+

Syarifah Dewi, Mohamad Sadikin, Muchlis Ramli, Septelia Inawati Wanandi

Introduction: Breast cancer stem cells (BCSCs) are subpopulation of cancer cells that possess stem cell properties and ability to generate new tumors. Our previous study using breast cancer patients revealed that gene expression of HDAC2 and PCNA were significantly different after neoadjuvant therapy. This study aimed to analyze the correlation between HDAC2 and PCNA expressions with the viability of breast cancer stem cells treated by endoxifen.

Method: Samples are human primary BCSCs ALDH+ that treated with 4 μM of endoxifen for 2, 4, 6, 8, 10, 12, 14 days, respectively. Cell viability was measured using trypan blue exclusion assay and the mRNA expressions of HDAC2 and PCNA were determined using qRT-PCR.

Results: The viability of BCSCs ALDH+ was decreased after 2 days until 4 days-endoxifen treatment. It also demonstrated that mRNA expression of HDAC2 and PCNA were decreased in this period. But after 8 days-endoxifen treatment, the viability of BCSCs ALDH+ was increased. The increasing of viability was higher in 14 days-endoxifen treatment. The mRNA expression of HDAC2 and PCNA also showed increasing begin on 8 days and continued to increased until 14-days endoxifen treatment. We found the similar pattern between HDAC2 and PCNA expression and the cell viability.

Conclusion: We conclude that the HDAC2 and PCNA expression contribute the human BCSCs viability which associated with the sensitivity of endoxifen treatment.
Development of Primary 3D Cell Cultures from Colorectal Cancer Patients in Indonesia

Murdani Abdullah, Budiman Bela, Ari Fahrial Syam, Marcellus Simadibrata, Sofy Meilany, Firda Annisa, Dian Amirulloh, Dadang Makmun, Abdul Aziz Rani

**Background:** Nowadays, varieties of research related to colorectal cancer have been performed significantly including the three-dimensional (3D) cell culture models that more representative to mimic in vivo environment than conventional models or two-dimensional (2D) cell cultures. The aim of this study was to develop primary 3D cell cultures from colorectal cancer patients in Indonesia that may help in elucidating cancer pathobiology and to increase the triumph of its therapies in future.

**Methods:** The samples were freshly surgical tissues which collected from patients in Cipto Mangunkusumo hospital. There were 18 samples from male and female between 35-65 years with diagnosis was vary between neoplasma malignant and adenocarcinoma. The samples were carried to the laboratory in buffer solution contain antibiotics. All sample were digested using collagenase I for sequential 30-min periods until tissue fragments were dispersed. The cells then were grown in DMEM F12 medium supplied with antibiotic and followed by passages. Cell lines from concurrent primary tumors were established from two samples. Two primary cancers gave rise to multiple cell lines were placed in scaffold algimatrix medium for 7-10 days and identified for spheroids growing.

**Result:** The primary cell cultures showed 3D morphology or characteristics. It has spheroid shapes with different of sizes. The cells come from sample number 9 with adenocarcinoma histology and still remain until 10 days culture.

**Conclusion:** Short-term primary 3D cell cultures from colorectal adenocarcinoma cells can mimic in vivo environment to use in further research.
Identification of Cancer Stem Cells from Colorectal Cancer Patients in Cipto Mangunkusumo Hospital Indonesia

Murdani Abdullah, Budiman Bela, Ari Fahrial Syam, Marcellus Simadibrata, Sofy Meilany, Firda Annisa, Dian Amirulloh, Dadang Makmun, Abdul Aziz Rani

Background: Recently a number of studies have reported that the presence of cancer stem cells (CSCs) in colorectal cancer is responsible for cancer resistance and its recurrence after therapies, the comprehensive understanding to CSCs could assist to tackle this problem and improve the treatments. This study was aimed to identify CSCs from colorectal cancer patients in Cipto Mangunkusumo hospital in Indonesia.

Methods: The samples were freshly surgical tissues which collected from patients in Cipto Mangunkusumo hospital. There were 18 samples from male and female between 35-65 years with diagnosis was vary between neoplasma malignant and adenocarcinoma. The samples were carried to the laboratory in buffer solution contain antibiotics. All sample were digested using collagenase I for sequential 30-min periods until tissue fragments were dispersed. The cells then were grown in DMEM F12 medium supplied with antibiotics and followed by passages. CSCs identification was performed by immunofluorescence and flow cytometry using several markers such as CD44, Oct-4, Nanog, and Sox-2.

Result: The result revealed cells were positive for all markers (CD44, Oct-4, Nanog, and Sox-2) in adenocarcinoma histology. Oct-4, Nanog, and Sox-2 were the markers for common stem cells, while CD44 was marker for CSCs in colorectal cancer. Based on flow cytometry analysis, population of CSCs in colorectal cancer around 10%.

Conclusion: The present of CSCs in colorectal cancer can be considered to develop novel therapy.
Cancer
Basic Science

Tumor-Infiltrating Lymphocyte (TIL) Profile of Colorectal Cancers which Express Programmed Death Ligand-1 (PD-L1)

Dicky Kurniawan, Gita Dewi Kusumo, Akterono Dwi Budiyati, Andi Utama

Introduction: The expression of Programmed Death Ligand-1 (PD-L1) in cancer with the presence of Tumor-Infiltrating Lymphocyte (TIL) had shown better response to anti-PD-1/PD-L1 immunotherapy based on clinical study. The aim of this research was to analyze TIL profiles in colorectal cancer (CRC) samples which had been immunohistochemically investigated as PD-L1+ subset.

Methods: Immunohistochemical staining of TIL in 18 samples was done by using Cluster of Differentiation 3 and 8 (CD3 and CD8) as markers. TIL presence in PD-L1+ area and TIL density was evaluated by image analysis. Immunoscore (IS) was calculated on a scale of IS0 to IS4 according to previous study.

Results: TIL populations were detected in PD-L1+ area of all 18 samples. Based on the location, the density of CD3+TIL was 484 ± 371 cells/mm² and 794 ± 403 cells/mm² in the Center of Tumor (CT) and Invasive Margin (IM), respectively. The CD8+ TIL was 249 ± 208 cells/mm² and 424 ± 283 cells/mm², respectively for CT and IM. Based on the TIL phenotype, the density of CD3+ and CD8+ TIL were 780 ± 488 cells/mm² and 418 ± 298 cells/mm² in the CT, respectively, and 794 ± 403 cells/mm² and 424 ± 283 cells/mm² in the IM, respectively. According to the density, 33.3% of samples were categorized as IS2, followed by 11.1% IS3 and 55.6% IS4.

Conclusion: All CRC samples were indicated to have extrinsically-induced (adaptive) PD-L1 due to the presence of TIL in tumor area, with intermediate to high infiltration.
The Impact of Umbilical Cord-derived Mesenchymal Stem Cells Secretome on TRAIL Receptors Expression in Glioblastoma Multiforme (GBM) Cells

Novi Silvia Hardiany, Edward Christopher Yo, Septelia Inawati Wanandi

Introduction: TNF-related apoptosis-inducing ligand (TRAIL) – part of mesenchymal stem cell (MSC) secretome in the tumor microenvironment – promotes cancer cell death when bound to its agonistic receptor DR4 on the cell surface but becomes dysfunctional when bound to antagonistic receptor DcR1. This study aims to analyze glioblastoma multiforme (GBM) cell’s expression level of DR4 and DcR1 following treatment with MSCs secretome.

Methods: Conditioned medium of umbilical cord-derived MSCs (UCSC-CM) was generated by culturing the cells on serum-free aMEM for 24 hours. Following this, Human GBM T98G cells were treated with UCSC-CM for another 24 hours. Quantitative RT-PCR was then performed to measure mRNA expression of DR4 and DcR1. Finally, data analysis was carried out using Student’s t-test using IBM SPSS Statistics software.

Results: Both mRNA expression of DR4 and DcR1 increased in CM-treated cells compared to control, but DcR1 expression level was higher (1368.5-fold) than that of DR4 (3.5-fold). The result was statistically significant (P < 0.05 for all values).

Conclusion: Expression of DR4 in GBM cell was significantly lower than that of DcR1 following UCSC-CM treatment, suggesting that MSC secretome-based therapy for cancer could actually be less effective than claimed. Further research is needed to clarify the mechanism behind the sharp rise in TRAIL antagonistic receptor expression and its effect on GBM progression.

Keywords: Glioma, UCSC-CM, DR4, DcR1
Secretomes of Umbilical Cord Mesenchymal Stem Cells Stimulates Glioblastoma Growth via Survivin-Caspase9 Regulation

Novi Silvia Hardiany, Eko Ngadiono, Septelia Inawati Wanandi

Introduction: Aberrant expression of a molecule called survivin has been suspected to prevent apoptosis by indirectly inhibits a critical apoptosis enzyme called caspase 9, maintaining tumorigenicity of glioblastoma. Although controversial, umbilical cord mesenchymal stem cells (UCMSC) has been discovered to exert conflicting outcomes towards glioblastoma growth through distinct molecular mechanisms leading to a hypothesis stating that UCMSC secretes diverse molecules that may affect glioblastoma growth through survivin-caspase 9 regulation.

Method: UCMSCs were cultured for 24 hours in serum free αMEM to prepare for UCMSCs condition medium (UCMSC-CM). Two-fold dilution were performed to UCMSC-CM with high glucose (50% concentration) Dulbecco’s Modified Eagle Medium (DMEM). Human GBM T98G cells were treated with resulted UCMSC-CM for 24 hours. Treated GBM T98G cells were isolated and lysed. Sample solutions were mixed with PCR reagents and qRT-PCR was performed. Survivin, caspase 9 and 18s ribosomal RNA (rRNA) cycle time (CT) were measured. Livak’s method was used to calculate Survivin and Caspase 9 expression.

Results: Survivin mRNA expression increased 3.5-fold (p=0.002) while caspase 9 mRNA expression increased 1.6-fold (p=0.017) compared to control sample.

Conclusion: Our study suggests that UCMSC-CM favors GBM cells growth by modulating survivin expression. Whereas, increased caspase 9 transcription might be regulated by UCMSC-secreted-microRNAs that induce GBM cell apoptosis. In the future, it is recommended to understand intertwining molecular mechanisms of tumor-promoting-cytokines and extracellular vesicles containing tumor-inhibiting-microRNA, both secreted by UCMSC in confirming the usage of UCMSC as an advance model of glioblastoma treatment.

Keywords: Glioma, secretome, UCMSC, survivin, caspase9
Cancer
Undergraduate Student

Onosomes: Mediator of Cellular Communication and Its Potential as the Liquid Biopsy Target in Prostate Cancer

Gio Fidelito

Introduction: Metastasis responsible for the high mortality rate in the patient with prostate cancer. Cellular communication is the crucial factor that influences the tumor cells activities and characteristics. Vesicle secretion is the common cellular communication which can be mediated in the form of exosomes or microvesicles. Recent studies show the importance of another type extracellular vesicle, oncosomes, in the progression of prostate cancer.

Methods: In this review, the PubMed database was used to gather the literature by using the word “oncosomes” and “prostate cancer”. Original articles discussing the importance of oncosomes in prostate cancer were included in this review. In addition, other studies or review articles supporting the current understanding were also included to shape the overall view of the topic.

Results: Deletion of Diaphanous-related Formin 3 (DRF3) has been found to result in the formation of oncosome. Unlike exosomes, oncosomes have the size of 1-10m allowing it to carry larger molecules. Previous research has shown the phenomenon of oncosome-mediated biomolecule transfer of miR-1227, glutamic-oxaloacetic transaminase 1 (GOT1), and active protein kinase B (PKB). Furthermore, it also able to carry tumoral DNA of the cell of origin indicating its potential as the target for identifying the genetic aberrations.

Conclusion: Onosomes able to mediate the progression of prostate cancer through the transfer of its cargo. The presence of oncosomes in the circulation allows the development of liquid biopsy which is specifically targeting these oncosomes.
Review: Prospect of Immunotoxins in the Treatment of Leukemia

Jeremy Putra Gunawan, Joshua Viriyawan, Astrella Devina, Hyacintus Kenneth Hartanto, Tri Putra Dinata Giri

Background: Immunotoxins (ITs) are a form of targeted cancer therapeutics containing a cytotoxic agent fused with a targeting moiety. Leukemia is an important disease in Indonesia with approximately 15000 new cases (ranked ninth in prevalence) and 11300 (ranked fifth in mortality) new deaths in 2018 alone. In this paper, we aim to discuss the variety of targeting moieties, the incorporated cytotoxic agent and reduction of off-target toxicity.

Methods: Scientific articles were obtained by using the search term “Immunotoxin” and “Leukemia” on the title/abstract by the advanced search on PubMed. The articles were selected in accordance to the 2009 PRISMA method with the inclusion criteria of being published from 2008 and later, written in English, availability of primary, quantitative and qualitative data, relevance, and availability of full text. 41 papers are included in this systematic review.

Results: Increasing amounts of studies trying to utilize ITs in combinatorial therapy with a number of drugs such as Paclitaxel and ABT-737. Attempts to reduce off-target toxicity of ITs by selecting a more specific target protein or reduction of the secondary immune response towards ITs have also been done.

Conclusion: There has been some success in the utilization of Immunotoxins for the treatment of Hairy Cell Leukemia with Moxetumomab pasudotox (anti-CD22 IT fused with Pseudomonas exotoxin A) reaching Phase II clinical trials. Also, there are increasing amounts of study trying to repurpose ITs for other leukemia types and also the reduction of secondary immune response towards the IT itself.
An Update on Epigenetic Modulations of Glioblastoma Multiforme

Astrella Devina

Introduction: Epigenetic alterations are often highlighted as the root of cancer. Glioblastoma multiforme (GBM) is a rapidly growing form of glioma that develops from glial cells such as astrocytes and oligodendrocytes—either evolving from a lower-grade glioma or generating in a de novo manner. As brain cancer treatment is one of the hardest challenges to overcome, a deeper understanding of the pathological mechanism of its epigenetic modulations is needed.

Methods: Scientific articles were obtained by using the search term “epigenetic” and “glioblastoma multiforme” with the Title/Abstract feature on PubMed. Available literature were selected by PRISMA method, and the inclusion criteria include paper being published in 2013 and later, written in English, availability of primary, quantitative and qualitative data, relevant, and availability of the full text. All 31 papers were then compiled as a systematic review.

Results: Various models of epigenetic alteration-induced GBM have been proposed. This suggests multiple mechanisms of its involvement in the pathology of GBM, including but not limited to: DNA methylation and acetylation, histone modification, chromatin remodeling, and non-coding RNA. Evidence suggest that these alterations result in what we know as the multitude of morphological, physiological, and genetic changes leading to GBM.

Conclusion: Although studies conducted on the epigenetic alterations in GBM have been developing since then, more are still to be discovered as the exact mechanisms of some pathways are still unknown. Such discoveries could open up alleys in future research regarding epigenetics pattern as the marker for disease prognosis and possible drug target candidates.
Cancer
Undergraduate student

**Detection of Estrogen Receptor 1 (ESR1) Gene Mutation in Ligand Binding Domain (LBD) of Breast Cancer Patients Using Sanger Sequencing Method**

Ayu Nurdiantika Sari Sari

**Introduction:** Exon 8 ESR1 gene mutations in the ligand binding domain play an important role in the hormonal treatment resistance of breast cancer. Identification of exon 8 ESR1 gene mutation status is very important to determine the appropriate step of therapy. Sanger Sequencing techniques are known to be able to detect mutations of certain gene fragments with good sensitivity. This study aims to detect the exon 8 ESR1 gene mutation using Sanger Sequencing techniques.

**Method:** This study was conducted as a retrospective study using 49 samples of primary breast tumor tissue from patients given hormonal therapy. Analysis of exon 8 ESR1 gene sequencing using Sequencing Analysis v5.4 software with positive control of gBlock synthesis DNA sequences (Y537S).

**Results:** Of the 49 breast cancer patients treated with hormonal, the average age was 46.14 years, and as many as 61.2% of breast cancer patients were at stage 4. The results of mutation analysis showed that exon 8 ESR1 gene mutations were not detected in all samples.

**Conclusion:** The use of Sanger Sequencing technique was deemed incapable of detecting exon 8 ESR1 gene mutations because the percentage of ESR1 mutant alleles was very low (<5%). Therefore, more sensitive detection methods such as digital droplet PCR, or next generation sequencing are needed.

**Keywords:** breast cancer, ESR1 mutation, exon 8, sanger sequencing
Neuroscience
**Association between National Early Warning Score and Mortality of Patients with Neurological Emergencies in Emergency Room Cipto Mangunkusumo Hospital**

**Ramdinal Aviesena Zairinal, Mohammad Kurniawan**

**Introduction:** Patients admitted to emergency room (ER) with neurological emergencies often experience a devastating and critical conditions, so that prognosis needs to be identified as earlier as possible. This study aims to discover the association between National Early Warning Score (NEWS), as one of the standardized tools for assessing acute-illness severity that has been implemented in Cipto Mangunkusumo Hospital, and the outcome of these patients, namely mortality in ER.

**Methods:** This retrospective cohort study was conducted from July to December 2017 at the ER Cipto Mangunkusumo Hospital. All patients admitted to the ER and examined by neurology team in the ER were included in this study. Demographic data, initial vital signs needed to calculate NEWS, Glasgow Coma Scale (GCS), and mortality were collected from medical records. Following this, data were analyzed with IBM SPSS Statistics 20.

**Results:** From 1526 patients admitted, data about NEWS was found in 907 patients (59.4%). Mortality rate was 9.4% (143/1526). There was a significant relationship between NEWS and mortality in ER (p<0,001). Compared to NEWS category “Low”, NEWS category “High” and “Medium” increased the risk of mortality dramatically, with RR= 20.238 (8.808 - 46.501) and 6.466 (2.466 - 16.957), respectively. The cut-off point of NEWS in determining mortality in this study was 6.5, with sensitivity 0.735 and specificity 0.801.

**Conclusion:** NEWS related significantly with mortality of patients with neurological emergencies. Moreover, this assessment can be routinely implemented to predict the risk of mortality of this particular population in ER.
Introduction: There is still lack of research venturing in pornography addiction, especially in the age group most susceptible: juveniles. We aimed to investigate correlation between brain volumetry and cortical thickness of regions in prefrontal cortex of pornography addicted juveniles with pornography addiction severity.

Methods: We enrolled 15 pornography addicted juveniles (age 13.8±1.26 years old). Pornography addiction severity was determined by expert judgement, based on self-reported questionnaire and psychological assessment/interview, and evaluated in subscales derived from Skinner’s criteria for pornography addiction (tolerance, withdrawal, extensivity, persistence, time, social impact, ignorance). Brain volumetry and cortical thickness were measured using 3D-T1 3T MRI images and analyzed using FreeSurfer® for automatic cortical reconstruction and brain segmentation (recon-all command).

Results: We found significant moderate to strong negative correlations (r between 0.750 – 0.556) between volume and cortical thickness in regions of prefrontal cortex, especially caudal middle frontal gyrus, superior frontal gyrus, and caudal anterior cingulate cortex, with pornography addiction severity in juveniles.

Conclusion: Lower volume and cortical thickness in various regions of prefrontal cortex was associated with severity of pornography addiction, implying impaired top-down modulation and regulation of reward system, emotional processes and inhibitory control, attention, goal-oriented behavior, executive function, and working memory in pornography addicted juveniles. Further neuroscientific studies are warranted to find cause-and-effect relationship, but for time being, we strongly recommend that juveniles are kept away from pornographic materials and educated to do so.
Impaired Recent Verbal Memory in Pornography-Addicted Juvenile Subjects

Pukovisa Prawiroharjo, Hainah Ellydar, Peter Pratama, Rizki Edmi Edison, Sitti Evangeline Imelda Suaidy, Nya’ Zata Amani, Diavitri Carissima

Introduction: Internet pornography exposure in juveniles becomes more trending in this modern time. We aimed to find the differences in memory capabilities between pornography addicted and non-addicted juveniles.

Methods: We enrolled 30 juveniles (12-16 y.o.) consisting of 15 pornography addiction and 15 non-addiction subjects. We used Rey Auditory Verbal Learning Test (RAVLT) to measure verbal memory, Rey-Osterrieth Complex Figure Test (ROCFT) for visual memory, along with Trial Making Test A and B (TMT-A and TMT-B) for attention.

Results: We found a significant reduction in the RAVLT A6 result of addiction group (non-addiction vs addiction: 13.47 ± 2.00 vs 11.67 ± 2.44, MD = -1.80, p = 0.04), but not in ROCFT or attention tests. Analysis in sex subgroups yielded no sex-specific difference.

Conclusion: Pornography addiction may be associated with impaired recent verbal memory in juveniles, regardless of sex and without involvement of attention.
Comparison of Various Prefrontal Cortex Region Definition Models and Their Use in Distinguishing Pornography Addicted Juveniles

Pukovisa Prawiroharjo, Hainah Ellydar, Peter Pratama, Rizki Edmi Edison, Sitti Evangeline Imelda Suaidy, Nya’ Zata Amani, Diavitri Carissima

Introduction: Pornography addiction affects a brain region known as prefrontal cortex (PFC), but this region was loosely defined and there was no consensus for that definition. We aimed to use volumetry MRI in finding the defining region of PFC which would be suitable in distinguishing pornography addicted juveniles.

Methods: We enrolled 30 juveniles (12-16 y.o.) consisting of 15 pornography addiction and 15 non-addiction subjects. We proposed several models of PFC definition from mix-and-matched subregions, consisting of Broca’s area, orbitofrontal (OFC), inferior frontal gyrus (IFG) pars orbitalis, dorsolateral PFC (DLPFC), and anterior cingulate (ACC). Suitable PFC definition was defined as model which volume statistically different between both groups. Brain volumetry was measured using 3D-T1 3T MRI images and analyzed using FreeSurfer® for automatic cortical reconstruction and brain segmentation (recon-all command).

Results: We found significant differences between groups in 4 models: the classic PFC (all aforementioned subregions) without and with ACC, and the models which only consisted of DLPFC without and with ACC (p-value: 0.038, 0.028, 0.023, and 0.014 respectively; mean difference between pornography non-addiction vs addiction group, in brain parenchymal fraction per mille: -4.77, -5.22, -3.72, and -4.16 respectively).

Conclusion: The most suitable definition of PFC for pornography addiction study should consist of OFC, IFG (including Broca’s area), DLPFC, and ACC.
The Effectivity of Vitamin D Therapy on Depressive Symptoms:
An Evidence Based Case Report

Annisa Aditya Asa, Rudi Putranto

Introduction: Depression is a disorder affecting human’s mentality that is different from the usual mood instabilities. In severe cases, depression can lead to suicide. According to WHO, more than 300 million people suffer from depression, and near 800,000 people die due to suicide. With this high incidence and long-term complications that may arise, depression is a major global health issue that can’t be ignored. Studies have reported that there is a relation between vitamin D deficiency and more severe depressive symptoms. However, it is still unclear whether or not these functions relate to the occurrence of major depression.

Aims: The aim of this report is to see the effectivity of vitamin D therapy on depressive symptom.

Methods: The literature search was conducted on 3 online databases, Pubmed, Medline, and Scopus using a combination of keywords and their respective synonyms which were then selected based on specified inclusion and exclusion criteria. The literatures that had been obtained were critically appraised using criteria from the Center of Evidence-based Medicine, University of Oxford.

Results: The literature search yields 3 articles which are 3 systematic reviews that had been critically appraised. All 3 systematic reviews included in this report by Shaffer et al. (SMD = -0.14; 95% CI, -0.33 to 0.05; P=0.16), Usha et al (SMD = 0.28; 95% CI, 0.14 to 0.69; P=0.19), and Li et al (SMD = -0.14 to; 95% CI, -0.41 to 0.13; P=0.32), concluded that there was no significant reduction in depressive symptoms after vitamin D supplementation.

Conclusions: There is not enough evidence to support the effectivity of vitamin D supplementation in depressive symptoms. However, within all the limitations and considerations, this report embodies an influence to the developing literature on vitamin D and Depression that may inform the progress of future clinical trials.
Effect of Continuous Environmental Enrichment Exposure and Aerobic Exercise on Rats’ Plasma and Hippocampal Brain-Derived Neurotrophic Factor (BDNF)

Sri Redjeki Prasetyo, Kesit Ivanali, Sophie Yolanda

**Introduction:** Environmental enrichment (EE) has been shown to have positive effects on improving memory function through increased LTP and neurogenesis, which is facilitated by brain-derived neurotrophic factor (BDNF) that mediates exercise-induced structural and functional change in the hippocampus that has been shown to promote blood vessel growth, angiogenesis linked to adult neurogenesis and neuronal survival. This study aims to study the effect of environmental enrichment, aerobic exercise, and their combination on plasma and hippocampal BDNF levels.

**Methods:** An in-vivo experimental study on twenty-four adult male Wistar rats age 7 months, with weight ranging from 300 to 400 grams. The rats were randomly assigned to 4 groups: Control (C), Aerobic (A), Environmental Enrichment (EE), and combination of Environmental Enrichment and Aerobic (EEA). The treatments were given for 8 weeks. Plasma and hippocampal BDNF levels were measured by ELISA.

**Results:** Our results showed that both exercise and continuous EE exposure increased plasma and hippocampal BDNF levels in adult rats. The increase occurred more significantly in the group treated with combination of continuous EE exposure and aerobic exercise (EEA) vs. Aerobic exercise (p = 0.005) and EEA vs. control (p = 0.001). There was positive correlation (r = 0.686, p = 0.002) between the plasma and hippocampal BDNF levels.

**Conclusion:** Combination of continuous EE exposure and aerobic exercise increases plasma BDNF in adult rats with positive correlation to hippocampal BDNF.
The Association Between History of Emotional Neglect and Senior High School Students Academic Performance

Nida Hanasa

Emotional neglect is the inability of parent or primary caregiver to provide child’s emotional needs and characterized by lack of interaction between parent of primary caregiver to children. The impact of emotional neglect can affect many aspects, one of which is the child’s academic performance. Cases of emotional neglect or other maltreatment in adolescents are often undetectable caused by the lack of teenager’s openness about the unpleasant experiences that they had experienced. This research is a cross-sectional study with 209 subjects. To assess the association between history of emotional neglect and academic performance of high school students, the subjects were asked to fill out a demographic questionnaire and Childhood Trauma Questionnaire. The results of demographic data questionnaire describe the distribution of age, gender, ethnicity, parent education, parent jobs, parent income, and the number of parental dependents. Of 209 subjects, 41% subjects have experienced emotional neglect. The results show there is no statistical and analytical significance. Chi-square test between the history of emotional neglect and academic performance gave the result of p value = 0.176 and RR = 0.757 (95% CI 0.513 = 1.117). Further research is needed to find out which confounding factors that can influence high school students' achievement with a history of emotional neglect.
Neuroscience Undergraduat Student

Association between History of Physical Neglect and Academic Performance
Senior High School Student

Ni Putu Cahya Devi A

Introduction: Physical neglect is a part of child maltreatment, which means the failure of parents or other family member to support the development and welfare of a child. Physical neglect has many impacts, one of them is in academic performance at school. Compared with other age, teenagers are more susceptible to have mental disorders because they tend not to report their condition due to ignorance, fear, or shame.

Method: this is a cross-sectional study with the total of 209 subjects. Subjects answered Childhood Trauma Questionnaire and were assessed whether the subject has a history of physical neglect. Then, the researcher collected the report data of even semester in the academic year of 2016/2017 for every subjects.

Results: there are demography data from the subjects, consist of gender, age, ethnic group, parent’s academic status, parent’s jobs, parent’s salaries and the number of parental dependents. Chi-square test shows P value=0.173 and RR 0.813 (95% CI 0.616-1.073).

Conclusion: there is no association between history of physical neglect and academic performance of Senior High School student in Kecamatan Beji, Depok. Another study should be conducted to find the confounding factors of academic performance of Senior High School students.
Infectious Disease
**HIV-associated Central Nervous System Infections in Indonesia: A Cohort Study Examining Etiology, Presentation and Outcome**


**Introduction:** HIV infection leads to increased susceptibility and worse outcome of central nervous system (CNS) infections. We examined etiology and outcome of CNS infections and the effect of HIV in Indonesia, which is witnessing the second fastest growing HIV epidemic in Asia.

**Methods:** We prospectively included all adults with suspected CNS infections during 15 months in a referral hospital in Jakarta. Systematic screening included HIV testing, routine cerebrospinal fluid (CSF) examination and paired HIV-RNA measurement in blood and CSF.

**Results:** 274 patients with suspected CNS infection (median age 26, range 16-72 years). HIV infection was common, with newly (48%) and previously (52%) diagnosed. Among those with previously diagnosed HIV infection, 47% had a history of prior or current ART use. HIV-RNA was assessed using blood (59/147) and CSF (57/147). Six patients has undetected HIV-RNA in their blood and CSF. Blood HIV-RNA range was 50 - 7.26.10^6 and in CSF 50-1.69.10^6. Follow-up was 97% complete. Mortality was strongly associated with HIV infection; 37% of those with and 26% of those without HIV died during hospitalisation, and 67% respectively 45% had died after six months follow-up (p<0.01).

**Conclusions:** In this setting, patients with CNS infections present late with severe disease. HIV infection was very common, very advanced and associated with a very poor outcome. Although 50% reported ART, many showed no virological control. These data underline the need to step up efforts to improve early testing and long-term management of HIV as well as management of opportunistic infections in Indonesia.
Role of Single Nucleotide Polymorphism Vitamin D Receptor Rs228570 (Foki) and Cathelicidin Plasma with Incidence of Tuberculosis Infection on Children

Fitrisia Amelin, Fitrisia Amelin, Finny Fitry Yani, Rizanda Machmud

**Background:** Ligand of vitamin D and vitamin D receptor (VDR) mediates synthesis of cathelicidin, which has killing mechanism to Mtb, and VDR polymorphism also plays a role in susceptibility to TB infection with FokI as the most common finding in Asian region. This study aimed to examine the role of FokI and Cathelicidin Plasma towards incidence of Tuberculosis Infection on Children in Close Contact with Adult Smear-Positive Tuberculosis Patients.

**Method:** This study was a cross sectional study. Levels of 25 (OH)D, VDR polymorphism FokI and cathelicidin plasma were measured then statistically analyzed to determine their role in the incidence of tuberculosis infection on children in close contact.

**Result:** There were 332 children in close contact we studied 112 children. Of all Tuberculosis infected children, 44.6% were suffered from malnutrition. Vitamin D insufficiency were found in 71.4% of TB-infected children. Mean cathelicidin level in non-infected children and infected children are 153.42±77.81 ng/ml and 119.37± 81.20 ng/ml respectively, p=0.025 (p<0.05). SNP gen VDR FokI on infected children consist of FF (42.9%), Ff (41.1%) dan ff (16.1%), with F allele about 63.4%. FokI polymorphism was found on 83.9% infected children, but this result was statistically non-significant. Based on multivariate analysis, factors that increased the occurrence of TB infection are nutritional status and cathelicidin levels.

**Conclusion:** Cathelicidin level on TB infective children are lower than non-infective children. FokI polymorphism did not play a role in TB infection.
Infectious Disease
Clinical Research

Influencing Factors of Knowledge, Attitude, and Practice (KAP) Score Regarding Rabies in Sikka regency, East Nusa Tenggara

Lydia Imelda Theresia, Asep Purnama

Introduction: Rabies is a fatal disease in which incidence tends to increase in Sikka Regency, Nusa Tenggara Timur (NTT). To address the influencing factors of the lack of understanding about Rabies among Sikka local resident, we have conducted knowledge, attitude, and practice study in Beru primary health care as the only rabies center in Sikka Regency.

Methods: A Cross sectional observational study with consecutive sampling method was done in Beru primary healthcare, Sikka Regency, NTT. We include all respondent above 15 years old, while illiterate respondent were excluded. Data was collected by using self-administered questionnaire from 100 subjects. Descriptive statistics and chi-square test were applied. KAP score were calculated.

Results: 97% (97) of the respondent said that they had previously heard about rabies. 54% (54) among them had good KAP score. There was strong association between KAP scores and educational level (p<0.05). However, this study shows that gender, occupation, age and pet ownership was not significantly associated with KAP score (p>0.05).

Conclusion: From all respondent, there are still those who have low KAP score. The respondent’s educational level is a factor that significantly influences knowledge, attitude and practice towards Rabies, and all of those can be improved by providing proper health education about Rabies

Keywords: Rabies, Questionnaire, KAP score, Sikka regency
The Effectiveness of Triple Dose Albendazole and Mebendazole for the Treatment of Trichuriasis in Children

Saleha Sungkar

**Background:** Trichuriasis is difficult to treat by single dose anthelminthic. Higher cure rate can be obtained by treatment with triple dose albendazole and mebendazole; however the results were not consistent between studies. This study aimed to evaluate the effectiveness of triple dose 400 mg albendazole and 500 mg mebendazole against trichuriasis.

**Methods:** This study is a randomized controlled trial which preceded by a cross-sectional study to determine the prevalence. This study was conducted in a primary school in Pandeglang District, Banten Province. Data were obtained on July and August 2018. Subjects characteristics, prevalence of trichuriasis and intensity of infection, were collected. Based on sample calculation, 382 children were recruited to determine trichuriasis. Informed consent was obtained from their parents. Stools were collected and examined microscopically by Kato Katz method to identify the eggs and enumerated; those positive for Trichuris were randomized and divided into two groups. The subjects were given triple dose of 400 mg albendazole or 500 mg mebendazole. On day 14 after treatment, stools were re-examined to calculate CR dan ERR. Data were analyzed using SPSS version 20.

**Results:** The STH prevalence was 42%, consisted of trichuriasis (25.1%) and ascariasis (29.8%). There was significant difference in the intensity of infection (Wilcoxon test, p<0.01) before and after intervention with albendazole (mean EPG=131 versus 4) and in mebendazole group (mean EPG=370 versus 2). Both groups showed high CR (mebendazole was 95.2% and albendazole was 85.4%; Fisher Exact Test, p=0.125) and ERR (mebendazole was 99% and albendazole was 96%; Mann Whitney test, p=0.110) which is statistically not significant.

**Conclusion:** Triple dose albendazole was as effective as triple dose mebendazole against trichuriasis.
Effectiveness of Wet Combing Compared with 1% Permethrin Lotion in the Treatment of Pediculosis Capitis

Saleha Sungkar

**Introduction:** P.h.capitis is an ectoparasite which sucks blood of the patients. Severe infection may lead to pyoderma, ulcer and anemia. hexachlorocyclohexane is effective for treatment of pediculosis however, hexachlorocyclohexane is discontinued due to its neurotoxicity. The new pediculicide is permethrin but it is not affordable for everyone, thus the recommended method is by using wet comb, but the effectiveness is not known. The aim of the study is to evaluate the effectiveness of permethrin compared to wet combing in eliminating pediculosis.

**Methods:** This study was a randomized controlled trial (RCT) conducted in Daarul Mustaqiem Boarding School, Pamijahan Village, Bogor District and the data were taken on July-August 2018. A screening was conducted to all female students. Subjects were determined to be infested if adult lice, larvae or nymph were found, then the subjects were divided into permethrin and wet combing group. On permethrin group, the hair was wetted by permethrin lotion and left for 10 minutes. Afterwards, fine toothed comb was used to remove any lice, then the subjects instructed to wash their hair with shampoo. On day 14, subject’s head was re-examined to determine the cure rate. Wet combing group were treated as well as permethrin group but using conditioner.

**Results:** From 121 subjects, 107 were infested, thus the prevalence of pediculosis capitis was 88.4%. The proportion of lice after intervention was 34% in permethrin group and 37% in wet combing group. There was no significant difference (chi square, p=0.740) between cure rate in permethrin group (66%) and in wet combing group (63%). The relative risk (RR) was 0.953 (95% CI, 0.720 – 1.263).

**Conclusion:** The prevalence of pediculosis capitis in Daarul Mustaqiem Boarding School, Pamijahan Village, Bogor District was 88.4%. Wet combing treatment was as effective as permethrin against pediculosis capitis.
**Treatment of Scabies Using 5% Permethrin on Whole Body and Lesion Site Only**

Saleha Sungkar

**Introduction:** The treatment of choice for scabies is 5% permethrin, applied to the whole area of the body except face and neck. The use of whole body permethrin produces unpleasant side effects such as sensation of stickiness, warm skin, and itchiness. Therefore, we would like to study the use of 5% permethrin on lesion-site only compared with the whole body application.

**Method:** This randomized controlled trial was conducted in students of a boarding school in Bogor District and data collection was done on August 2018. A total of 323 subjects were needed for skin examination to diagnose scabies, then the subjects were divided into two groups randomly. Subjects with scabies were treated according to their assigned group: first group treated with whole body application of permethrin and the second group treated only on lesion site. The applied topical cream was left for 10 hours, then the subjects were instructed to take shower with soap. Evaluation was conducted on week I and week IV by observing the lesion and assessing the cure rate. Data were analysed using SPSS version 20 software and tested with chi square.

**Results:** The cure rate at the end of week IV of the whole body application method was 96% and in the group treated only on lesion site was 92%. Chi square test give p value 0.163 meaning there is no significant difference between the group.

**Conclusion:** In the treatment of scabies, the use of 5% permethrin on lesion-site only was as effective as the whole body application.
Abdominal Tuberculosis in Children with Umbilical Discharge Manifestation and Role of Laparotomy as The Treatment in Rural Area: A Case Report

Beryllana Maya Anisa

**Background:** Abdominal tuberculosis (TB) is a rare manifestation of extra pulmonary TB in children. Lack of pathognomonic findings and diverse manifestations can delay the diagnosis in rural area which has limited modality.

**Case Report:** A 13 years old boy came to Emergency Room with umbilical discharge as his chief complain. He also felt abdominal pain since two months ago which became worse in last one week. The patient also experienced fever in last one week and significant weight lost. Patient did not get BCG vaccination. In physical examination, the nutritional status is below 3rd percentile. The abdomen is distended, bowel sounds decreased, umbilical, right lumbar and hypogastric tenderness and chessboard phenomenon. Lungs examination within normal limits. Laboratory result showed leukocytosis, microcytic hypochrome anemia, thrombocytosis and procalcitonin increased. In ultrasonography findings, there were ascites, multilocus, fistula to umbilical, and multiple mesenteric lymphadenopathy. Patient was performed laparotomy afterwards because there was no laparoscopy available on the site. Tubercle in intestinal wall and peritoneum were found. After that, the biopsy result showed tuberculous granuloma inflammation. Patient clinically get better after given anti-tuberculosis drugs.

**Conclusion:** Abdominal tuberculosis should be considered as differential diagnosis in pediatric patient with chronic non-specific abdominal symptom especially umbilical discharge. Limited modality in rural area must be supported with related parties to provide facilities which can make earlier diagnosis. In peripheral area, specific anamnesis, good physical examination, basic laboratory can help to build the diagnosis. Furthermore, laparotomy can be performed as the treatment in abdominal tuberculosis with complication like this case.
The Use of van Brakel Scale to Assess Skin Lesion and Nerve Function: a Therapeutic Guideline in Severe Reversal Reactions

Astri Adelia

Introduction: Reversal reactions (RR) play a substantial role in the leprosy morbidity, however various results with existing therapies as well as inavailability of criteria regarding drug dosage adjustment warrants an objective guideline. Van Brakel scale (VBS) is a method to assess the severity of RR based on the skin lesion (A score) as well as sensory (B score) and motor (C score) nerve functions.

Methods: This single-blind randomized controlled trial was conducted at the Dermatovenereology Clinic, Cipto Mangunkusumo Hospital since December 2017 until June 2018. Twenty two subjects with severe RR were consecutively selected, all of whom had never received treatment. The first group received adjusted methylprednisolone dose based on changes in total VBS score. Meanwhile, the second group received adjusted dose based on changes in A score of VSB, which follows the WHO guidelines on corticosteroid treatment for RR. Observation was performed every two weeks for three months. Study outcomes were analysed using non-parametric tests and results were considered significant if p-values were <0.05.

Results: Changes in methylprednisolone dose as well as total VSB score at the beginning and end of observation were significantly different. However, they were not significantly different between the two groups.

Conclusion: Adjusting methylprednisolone dose in severe RR based on assessment of changes in skin lesion and nerve function was not proven to be superior to assessment solely based on changes in skin lesion. The use of VSB may allow for earlier detection of nerve function abnormalities. Thus, further therapy regimen may be adjusted immediately.

Keywords: leprosy, reversal reactions, van Brakel scale, methylprednisolone
Delays in Treatment of Pulmonary Tuberculosis and Its Associated Factors in Pelaihari District, South Kalimantan

Beryliana Maya Anisa, Dinda Larastika Riyanto, Inayah Syafitri, Muhammad Reza Yunusi, Nizma Permaisuari, Nur Aisyah Rahmawati

Introduction: Treatment delay in pulmonary tuberculosis (TB) due to both patient and health care provider results in increasing bacterial transmission, making Indonesia ranked second in tuberculosis incidence worldwide. This study aimed to investigate the delayed in time to TB treatment and the associated factors.

Methods: This was a cross-sectional observational study conducted in Pelaihari-Angsau Public Health Center. Subjects were all pulmonary tuberculosis patients (total sampling), initially treated from August 2016-July 2017. Data were collected from TB 01 Form and questionnaire-based direct interview during home visit. Analyzed data were sociodemographic and clinical characteristics, median total delay, and health-care seeking behaviour.

Results: The total of 49 subjects were registered in this study with median age of 43 (16-77). The median total delay in tuberculosis treatment was 90 days (1-730 days). Most patients (77.6%) reported productive cough as their first symptoms (p=0.007), nevertheless hemoptisis was counted as the most frequent chief complaint for health care visit (p=0.213). Only 20 subjects were directly seeking medical consultation compared to the other who did self medication or ignored the symptoms (p=0.059). The first health care providers consulted including general physician, specialist, and other health care provider with specialist visit having the longest median delay time (p=0.027). The more number of health care visit associated with longer median delayed time (p=0.035).

Conclusion: The total tuberculosis treatment delay in Pelaihari district was longer compared to other reported studies. First symptoms, number of visits to health care provider, and first consultation were statistically significant with the duration of treatment delay.

Keywords: pulmonary tuberculosis; treatment delay; suburban area
Correlation of Knowledge, Attitude, and Community Practice to Rabies Prevention with Demography Analysis in Population of Busungbiu Village, Buleleng, Bali

Sarah Chairani Zakirah, Putri Chairani Eyanoer

Rabies virus outbreak was reported in 2008 and expanding in 2010, especially on Karangasem and Buleleng district in densely populated rural areas. This is an observational analytic research with cross-sectional design. This study conducted in order to gain descriptions and correlations between knowledge, attitude, and practice to rabies prevention in community of Puskesmas Busungbiu I, Busungbiu Village, Buleleng District on July 2018 with total sample 175 respondents. Sample selection using consecutive sampling method. Data was taken using modified and validated questionnaire with bivariate analysis using chi-square/fisher’s exact test and kruskal-wallis test. Gamma correlation test showed significant (p<0.10) and strong correlations (r>0.3) between knowledge, attitude, and practice. Knowledge level in accordance with attitude and practice of respondents, where there is a tendency of moderate level of knowledge will have moderate attitude of 61% and good practice of 69% respondents. Respondents who have good attitude will have good practice of 30%. However, there are some respondents who have good level of knowledge but with bad practice of 26%. Optimization of health promotion programs through increasing the frequency of counseling, increasing the coverage of the participating community, and evaluating after counseling and rabies education need to be improved.
Validity Assessment of Checklist as a Screening Tool for Ocular Involvement in Leprosy

Vania Vashti Lasrindy, Sri Linuwih Menaldi, Shannaz Nadia Yusharyahya, Yunia Irawati

**Introduction:** Ocular leprosy needs early detection to prevent blindness, meanwhile, early detection tools for ocular leprosy varies, thus it is important to develop a valid and sensitive screening tool that can easily be used by general practitioner and doctor other than ophthalmologist who treat leprosy. This study aims to test the validity of an early-detection checklist for ocular involvement in leprosy.

**Methods:** A checklist was designed according to signs and symptoms of ocular leprosy, based on suggestions from dermatovenereologists and ophthalmologists. Leprosy patients in the Dermatology and Venereology Outpatient Clinic of Cipto Mangunkusumo General Hospital were examined by a general practitioner (non-ophthalmologist) using the checklist as a screening tool, and re-examined by an ophthalmologist as gold standard. Data analysis was conducted to determine the validity and sensitivity of the screening tool.

**Results:** The checklist has good validity and reliability with a correlation value of 0.664 (p<0.05), Cronbach’s α of 0.715, 85.42% sensitivity, and 73.33% specificity. The prevalence of ocular involvement in this study was 77%, with dry eyes, cataract, madarosis, lagophtalmos, and glaucoma as the most common ocular complications found.

**Conclusion:** The validity and sensitivity of the screening checklist in this study are sufficient to detect ocular involvement in leprosy.
**Risk Factors toward Development of Multidrug-resistant Tuberculosis among Relapse Patients in West Papua, Indonesia: A Descriptive and Analytical Study**

Mohammad Anom Wijayanto, Raihan Arlan Arnanda, Edo Prabudi Thamrin

**Introduction**: Indonesia as a top country with high burden of multi-drug resistant tuberculosis (MDR-TB) accounts 6800 new cases of MDR-TB annually, a previous report identified curative rate of 51%. This study aimed to identify profiles and risk factors that affect the development of MDR-TB in distinguished population of West Papua.

**Methods**: A case control study was conducted in Sorong Regency Regional Hospital as a referral center for MDR-TB in West Papua. Data was obtained from medical record of patients with relapse tuberculosis between January 2014 to September 2017. Extracted data includes demographic characteristics, family history, medication history (history of category medication and duration), smoking habit, supporting examination (acid fast bacilli sputum test/AFB and radiologist interpretation of thoracic x-ray), and comorbidities (HIV and Diabetes Mellitus)

**Results**: Among 549 patients suspected with MDR-TB, 45 were diagnosed with MDR-TB which defined as case group compared to 45 relapse patients who were drug sensitive tuberculosis defined as control group. Majority of patients in both case and control group (44.4 and 57.8%) were loss to follow-up patients. A bivariate analysis of chi-square test found AFB test of +3 (OR : 5.33, 95% CI 1.76 – 16.09), diabetes mellitus (OR : 6.14 95% CI 1.26 – 29.89), and passed intensive phase category I tuberculosis medication (OR : 3.25, 95% CI 1.04 – 10.07) to be associated with MDR-TB.

**Conclusion**: These clinical variables in MDR-TB population provides initial understanding of MDR-TB in West Papua and help clinicians in related population to manage patients with these risk factos.
The Comparison between Prophylaxis Antibiotics and Combination of Prophylaxis and Post Operative Antibiotics in the Prevention of Surgical Site Infection in Ears and Nose Reconstructive Surgery

Trimartani Koento, Rangga Rayendra Saleh

Surgical site infection is a harmful problem both for the operator or the patient. Commonly, antibiotics is used irrationally to prevent surgical site infection. In the other hand, irrational use of antibiotics might lead to microbial resistency. Plastic reconstructive surgery of the ears and nose is classified into clean or clean contaminated surgery which only requires prophylactic antibiotics. The aim of this study is to acquire supporting data for a rational use of antibiotics in plastic reconstructive surgery in ENT-HNS Department FMUI - CMH. This study is a pilot study with negative trial design which includes 12 subjects. Subjects are randomly divided into prophylaxis antibiotic only and combination of prophylaxis antibiotic and post operative antibiotic. This study found 1 subject form the prophylaxis antibiotic only group with surgical site infection. There was no surgical site infection in the control group. There is no significant difference between the two groups. The use of post surgery antibiotic is not neccesary in plastic reconstructive surgery to prevent surgical site infection. Further study is required to support findings of this study.
Factors Influencing in the Delay and Misdiagnosis of Leprosy by General Practitioners in Indonesia

Keiko Yolanda Gunardi

**Background:** Leprosy is a leading cause of preventable disability worldwide. Delay in diagnosis increases rate of infection, and allows a more severe progression of disease, therefore factors that hinders patient from getting treatment and doctor’s delayed treatment should be identified.

**Case Illustration:** A 34 year old male presented with an erythematous lesion on the left hand, was painless and itches. The lesion then increases in size, and appears in the patient’s face, accompanied with loss of sensation on the lesion, and loss of eyebrow hair. The patient was given only anti-fungal ointment, which shows no effect towards the lesion.

**Discussion:** Identified factors associated with the delay in diagnosing leprosy are 1) patient’s education level, 2) social stigma, 3) limited of health facility and 4) GP’s lack of early stage diagnosis of leprosy.

**Conclusion:** In conclusion, the need for patient education regarding leprosy symptoms and the reduction of stigma should be reinforced. High rate of misdiagnosis suggests the need to increase clinician suspicion of leprosy.

**Keywords:** Leprosy, General Practitioner, Delayed diagnosis, Clinical diagnosis
Pharmacokinetics of Primaquine When Given in Combination with Piperaquine: an In Vivo Study in the Rats

Melva Louisa

Introduction: The aim of this study is to determine the pharmacokinetics of primaquine when administered in combination with piperaquine compared to that when given alone.

Method: This was an in vivostudy in Spraque-Dawley rats. The rats were given single dose of primaquine only or in combination with piperaquine. Dosages given were 1x, 5x, 25x or 50x human equivalent dose. Plasma samples were taken at 0, 30, 60, 90, 120, 180 and 240 minutes after drug administration. Determination of AUC, Cmax, Tmax and concentration of primaquine in the liver were done on the groups administered the highest dose. Primaquine concentrations were determined using High Performance Liquid Chromatography (HPLC) on Photodiode Array Detector (PDA).

Results: We did not find any concentration difference between the two groups when given at 1x or 5x of human equivalent dose. Primaquine plasma concentrations, AUC, Cmax and Tmax when given at doses equal to 25X and 50X of human doses were significantly lower in the groups receiving combination primaquine-piperaquine than in the group receiving primaquine alone. Primaquine concentration in the liver at doses equal to 50X of human doses were significantly lower in the group receiving combination primaquine- piperaquine than in the group receiving primaquine alone.

Conclusion: This study shows that administration of combination of primaquine and piperaquine in single dose does not affect to the pharmacokinetics of primaquine at human equivalent dose.
Infectious Disease
Basic science

Evaluation of Freeze-Dried Human Amniotic Membrane Transplant in Corneal Ulcer Healing: Expression of TNF-α, MMP-9 and TGF-β in Tear and Corneal Stromal

Made Susiyanti, Rendy Hosea, Isabella Kurnia Liem, Septelia Inawati, Ratna Sitompul

Introduction: Bacterial corneal ulcer is a major cause of visual impairment and blindness worldwide. In moderate and severe cases, treatment by Amniotic Membrane Transplant (AMT) shows significant improvement. Several inflammation components and growth factors are involved in corneal ulcer, particularly TNF-α, MMP-9 and TGF-β, which exist in cornea and might be present in tears. This study aims to investigate mRNA expression of those components in tears and corneal tissue after AMT.

Methods: Randomized, unmasked, prospective laboratory trials were conducted on six groups: corneal ulcer, AMT, non-AMT, normal cornea, normal tears, and amniotic membrane. Three samples of tears and corneal tissue were collected from each group. All specimens underwent mRNA expressions of TNF-α, MMP-9 and TGF-β examination using quantitative Reverse Transcriptase-Polymerase Chain Reaction (qRT-PCR).

Results: mRNA expressions of TNF-α, MMP-9, TGF-β1 dan TGF-β2 were higher in corneal epithelium-stromal compared to tears during active ulceration and healing process. TNF-α mRNA expression was high in AM(91.835 ± 6.58) but drastically reduced after 2 weeks because inflammation process had deceased. MMP-9 was high in AMT group(66.698 ± 23.73) due to higher expression by destructive epithelial cells and keratocytes. TGF-β1 expression increased in AMT group(34.425 ± 9.44) due to increased production from epithelial host cells and amniotic membrane. TGF-β2 was found higher in non-AMT group(58.242 ± 18.55) due to excessive expression by host corneal epithelial cells.

Conclusion: AMT in bacterial corneal ulcer showed decreased expression of TNF-α, increased expression of MMP-9, TGF-β1, and TGF-β2 in corneal tissue. mRNA expression in tears inaccurately predicts corneal mRNA expression.
Gametocyte Rate during a Mass Screening and Treatment in Malaka Regency, West Timor, Indonesia

Ayleen Alicia Kosasih, Cristian Koepfli, Decy Subekti, Dwi Ari Pujianto, William A Hawley, J Kevin Baird, Frank H Collins, Neil F Lobo, Inge Sutanto

Introduction: A Mass Screening and Treatment (MST) trial was conducted in West Timor, Indonesia, to assess the impact of 3 rounds (MST3) versus 2 rounds MST (MST2) within three months - the MST3 arm demonstrated 75% reduction in the odds of P. falciparum prevalence at the end of intervention (OR & 95% CI 0.25, 0.21-0.31), but not so in P. vivax (OR & 95% CI 0.87, 0.54-1.40). This study looked at intervention arm specific gametocyte rates for both species.

Method: Plasmodium falciparum and P. vivax infected samples from the MST trial were tested for gametocytes using RT-qPCR for RNA markers (pfs25 and pvs25). Light microscopy (LM) and/or polymerase chain reaction (PCR) were utilised to select samples. Gametocyte rates were compared between the MST3 and MST2 study arms.

Result: Proportion of infections harboring gametocytes between the two arms were relatively similar throughout the study. Pre-intervention, gametocyte rate for P. falciparum was 56% (14/25) vs. 36% (8/22) in MST3 and MST2, respectively, while at the end of intervention, it was 64% (9/14) vs. 50% (14/28). Similarly, in P. vivax, the gametocyte rate prior to intervention was 40% (31/77) vs. 35% (22/62) in MST3 and MST2, respectively, against 31% (20/65) vs. 47% (27/58) at the end of intervention.

Discussion: Three rounds of MST did not reduce gametocyte rate of Plasmodium falciparum or Plasmodium vivax significantly. Conceivably, alternative strategy targeting wider individuals such as Mass Drug Administration (MDA) or combination of MST with vector control might result in a more favorable impact.
A Case of Hypersensitivity Syndrome due to Oral Antituberculosis

Odalia Jovita Jusuf Fantoni¹, Elly Esther Christy Oroh²

¹ General Practitioner, Eka Hospital BSD
² Dermatovenerologist, Department of Dermatology and Venerology, Eka Hospital BSD

Background: Drug eruption due to antituberculosis drugs occur as much as 5.1% in Indonesia. WHO reported Indonesia as high burden country for tuberculosis with other 14 countries.

Methods: This study is a single case report of a man at inpatient department.

Results: A 30-year-old man presented with complaints of rashes throughout the body from 3 days before hospitalized. Patients were treated with rifampicin, isoniazid, pyrazinamide and ethambutol for 1.5 months as therapy for tuberculosis. Rashes developed from neck, chest and generalized throughout the body, followed by fever and odynophagia. Vital signs were stable. Dermatological manifestations showed maculopapular erythema lesions, neither mucosal involvement nor epidermolysis was detected. There were lymphadenopathy and hepatomegaly. Laboratory studies showed eosinophilia and transaminitis, with 8-9 fold increase in AST and ALT. A striking 2.5 fold enhancement of total bilirubin was noted. Cessation of antituberculosis was initiated and treated with methylprednisone, fexofenadine, Monoammonium glycyrrhizinate, Ursodeoxycolic acid, Lecithin, Silymarin, Schizandra extract, Vitamin E 5IU, mixture of 0.1% mometasone furoate anhydros cream and 2% mupirocin cream. After being treated for 10 days, the lesion showed improvement. Drug reactions to antituberculosis occurs 2-5% against pyrazinamide, 1.2-2% against rifampicin, 1-1.2% against isoniazid and 0.3-1.4% against ethambutol. Moreover, the patient was planned to undergo skin patch test to find the suspected drug.

Conclusion: Drug hypersensitivity in antituberculosis is important to be acknowledged. Antituberculosis which commonly cause hypersensitivity are pyrazinamide and rifampicin. The administration of corticosteroid 1-4 mg/BW/day is recommended for severe allergic drug eruptions.
Effectiveness of Double Dose Mebendazole in Treating Soil-transmitted Helminths Infections on Children Aged 2-15 Years Old in Perokonda, Southwest Sumba

Yusuf Ananda Fikri

Perokonda is one of the villages located in the district of Southwest Sumba, East Nusa Tenggara. Most of its inhabitants are accustomed to unsanitary behaviors, such as open defecation and not washing hands neither before nor after eating, having difficult access to improved water source and they also have low socioeconomic status, all of which are risk factors for soil-transmitted helminths (STH) infection. The purpose of this experimental study is to determine the effectiveness of 2x500 mg (double dose) mebendazole to eradicate STH infection in children aged 2-15 years old in the village of Perokonda. This study was conducted in October 2016. Effectiveness of mebendazole is measured by its cure rate and egg reduction rate of STH on stool. Stool samples were collected twice, before and after the administration of mebendazole. Stool samples were then examined using microscopes to detect eggs and larvae. The worm egg counting was performed using Kato-Katz method. 71 in total of 89 subjects were positive for STH infections (80%), and administration of double dose mebendazole succeeded to lower the prevalence to 39%. McNemar tests on prevalence of STH infections in general, A. lumbricoides, and T. trichiura infections before and after intervention gave the result of p < 0.001. No hookworm infection was found on this study. Double dose mebendazole is considered effective enough as the treatment for A. lumbricoides (CR = 95%; ERR = 97.98%), whereas it is not yet effective in eliminating T. trichiura infections (CR = 49%; ERR = 69.73%).
Introduction: Dihydroartemisinin-piperaquine (DHP) have been used to treat uncomplicated falciparum and vivax malaria in Indonesia. Artemisinin and its derivative resistant parasite strain influenced the need for resistant parasite early detection through six polymorphisms (M448, T517, F519, I568, S578 and D605) in Plasmodium vivax pvk12 gene that correlates to artemisinin resistant vivax parasite.

Methods: Jambi Province is used as study location due to the existance of uncomplicated vivax malaria that uses DHP as treatment. Nested PCR and sequencing are used to detect polymorphism in 41 P. vivax isolates collected between 2017—2018. Sequencing results are analyzed manually using MEGA7 software to detect single nucleotide polymorphism (SNP).

Result: The result of this study shows no polymorphism on six analyzed P. vivax codons, but one isolate shows polymorphism on codon S564Y.

Conclusion: DHP still shows high efficacy for P. vivax in Jambi.
Production of Polyclonal Antibody against Indonesia Chikungunya Virus Isolate for Diagnostics Development

Sandiego Himawan, Kholis Abdurachim Audah, Sabar Pambudi, Rahma Fitri Hayati, Dionisius Denis, Benediktus Yohan, R. Tedjo Sasmono

Introduction: Chikungunya (CHIK) is a viral disease caused by CHIK virus (CHIKV). Clinical symptoms of this disease is quite similar with dengue fever so that misdiagnosis often occurs. Good performance of CHIKV diagnosis is important since the sensitivity of the available CHIK diagnosis vary depends on the geographical area and viral isolate used for antibody production. Hence, the development of sensitive and specific diagnosis against CHIK is critical. Therefore, production of antibodies to Indonesia CHIKV isolate may offer starting material for new diagnostic kits development.

Methods: Indonesia local CHIKV isolates were propagated in Vero cell line, purified and UV-inactivated for several time points. Protein virus characterization and total protein virus were conducted by performing SDS-PAGE and Bradford protein assay. Six to eight weeks old female BALB/c mice were immunized intraperitoneally with 10, 30, and 50 µg of inactivated CHIKVs with and without adjuvant, one week apart for four times. Serums were analysed using antigen based in-house indirect ELISA.

Results: Crude CHIKV as immunogen was obtained by using ultrafiltration method to increase viral concentration followed with one-hour UV inactivation. A total of 119.27 µg/µl CHIKV protein was obtained and a band of approximately 60 kDa detected in SDS-PAGE as CHIKVs protein. Immune response in mice was induced by the immunization and was detected using in-house indirect ELISA.

Conclusion: Polyclonal antibodies to Indonesia CHIKV isolate can be generated by immunization and confirmed by in-house indirect ELISA. Further monoclonal antibody production is currently in progress for the development of CHIKV diagnostic kits.
The Role of Treatment with High-Dose Corticosteroids in Severe Leptospirosis with Pulmonary Complications

Maria Satya Paramitha, Suna Sutri, Myra Puspitasari

Introduction: Leptospirosis is an acute infection caused by Leptospira spp. The severity mainly depends on virulence and toxins of the pathogen, as well as immune responses of the host. Acute Respiratory Distress Syndrome (ARDS) often occurs due to loss of integrity of epithelium or endothelium and release of cytokines. As a result, the use of drugs that can decrease immune-mediated reactions, such as corticosteroids, has been evaluated in a considerable number of studies.

Objectives: To investigate the effectiveness of high-dose corticosteroids in patients with severe leptospirosis, especially in reducing the morbidity and mortality rates of the patients.

Methods: Literature searching was conducted from Pubmed® and SCOPUS®. One systematic review and one systematic review with meta-analysis were selected from three chosen studies.

Results: The systematic review from Rodrigo C., et al. only included qualitative synthesis from four interventional studies. Early administration of methylprednisolone can be beneficial; however, a few studies and poor methodological quality of the studies contribute to questionable validity of this systematic review. Duggal, et al. stated that there was no significant difference in therapeutic effects of early high-dose corticosteroids (p>0.05; 95%-CI: 0.81-1.37), early low-dose corticosteroids (p>0.05; 95%-CI: 0.3-1.03), and late low-dose corticosteroids (p>0.05; 95%-CI: 0.11-2.52). Limited number of studies and high statistical heterogeneity, however, are the main drawbacks for this review.

Conclusion: Evidences about the role of high-dose corticosteroids in severe leptospirosis patients with pulmonary complications, especially their benefits, are still limited. More randomized controlled trials with adequate statistical power are still necessary to be conducted.
Prevalence of Intestinal Protozoan Infection and Its Association to The Availability of Improved Water Source in South West Sumba

Vicco Primadhasta Putra

**Background:** Perokonda and Perobatang Village, located in South West Sumba, are two village which have very different condition of improved water source. Perokonda Village has better improved water source, while Perobatang Village has only 1 water source. This cross-sectional study aimed to know the prevalence of intestinal protozoan infection and its association to the availability of improved water source in those 2 villages.

**Methods:** Stool sample collection were obtained from Perobatang’s and Perokonda’s villagers with informed consent. The subjects were given pot for stool collection which returned to researcher on the next day. Stool samples were stained with lugol staining and examined under the microscope. Data were processed by SPSS version 20 and analyzed with chi-square.

**Results:** From 291 stool samples collected, 58 samples (20% prevalence) have intestinal protozoan infection, 23.4% (30/128) positive infection were found in Perokonda Village and 17.2% (28/163) positive infection in Perobatang Village.

**Conclusions:** There was no significant difference between the availability of improved water sources and intestinal protozoan infection in 2 village. (p value = 0.185).
First Line Anti-tuberculosis Drugs Adverse Reactions as a Risk to Pulmonary Tuberculosis Treatment Default in Dr. Cipto Mangunkusumo National General Hospital

Stefanus Imanuel Setiawan, Purwantyastuti Ascobat

Introduction: Tuberculosis (TB) is one of top infectious diseases killer and remains as a major health problem worldwide. Moreover, the TB treatment adverse effects are able to escalate the treatment default. This study aimed to evaluate the correlation between anti-TB drug adverse reactions and treatment default.

Methods: A cross-sectional study was performed with a total of 172 medical record data of adult pulmonary TB patients who were treated with first line anti-TB drugs in Dr. Cipto Mangunkusumo National General Hospital during 2014 and experienced adverse reaction.

Results: 127 patients (73.8%) were experiencing minor adverse reaction and 45 patients (26.2%) were experiencing mayor adverse reaction. The adverse reaction was dominated by gastrointestinal disorders (34%) and drug induced hepatitis (60%). There was a significant correlation between adverse reactions of anti-TB drug and the treatment default cases (OR, 9.33; 95%CI, 4.20-20.72; p<0.001) and the multivariate analysis result showed that TB treatment outcome is affected by the adverse reaction (OR, 10.91; 95% CI, 4.62-25.75; p<0.001), concomitant disease drugs (OR, 3.03; 95% CI, 1.30-7.05; p:0.01), and type of anti-TB used (OR, 2.41; 95%C1, 0.99-5.83; p:0.045).

Conclusion: Based on the result, this study showed that adverse reactions of anti-TB drug could affect the treatment outcome and become a risk factor to treatment default.
Evaluasi Kejadian Efek Samping Obat Anti Tuberkulosis pada Pasien Putus Berobat yang Mendapat OAT Kategori 1 di RS Islam Cempaka Putih Jakarta Periode 2016-2017

Indri Anti

**Background:** Treatment of tuberculosis has been known to be associated with various types of drug side effects (ADR). The aim of this study was to evaluate the incidence of side effects anti tuberculosis drugs in drop out patients at Cempaka Putih Islamic Hospital, Jakarta.

**Method:** Method of study was observational analytic with cross sectional. Study population was category 1 pulmonary tuberculosis patients who were treated at the Lung polyclinic of Cempaka Putih Islamic Hospital in Jakarta for period of January 2016-December 2017.

**Results:** Of the 173 study subjects there were 80 patients had history of ADR and 93 patients did not have history of experiencing ADR. The comorbidities had a statistically significant relationship with the incidence of side effects ($p=0.000$, $RP=0.257$, $95\%IK=0.132-0.501$). Age factor ($p=0.000$, $RP=0.257$, $95\%IK=0.132-0.501$), and type of side effects ($p=0.001$, $RP=5.333$, $95\%IK=1.402-20.28$) were risk factors for drop out of treatment. Factors of management side effects ($p = 0.073$, $RP=0.403$, $95\%IK= 0.307-0.528$) and therapy according to guidelines ($p = 0.073$, $RP=0.403$, $95\%IK= 0.307-0.528$) did not have a statistically significant relationship with drop out of treatment.

**Conclusion:** Patients who have concomitant disease have 1.9 times risk to experience side effects. Patients aged 41-60 years are at 0.2 times risk of having drop out treatment compared to other ages. Patients with mild side effects are at 5 times risk of having drop out treatment. ESO management and ESO treatment according to guidelines showed a non-beneficial relationship ($p>0.05$)

**Keywords:** Tuberculosis, anti-tuberculosis drugs, ADR, drop out of treatment.
The association of adverse drug reaction and Tuberculosis treatment drop out in Cempaka Putih Hospital, Jakarta, 2016-2017

Asril I,¹ Soetikno V,¹ Purwantyastuti¹

¹ Department of Pharmacology and Therapeutic, Faculty of Medicine, University of Indonesia
*Corresponding author: Vivian Soetikno

Background: Treatment of tuberculosis (TB) has been known to be associated with various types of drug side effects (ADR). The aim of this study was to evaluate the incidence of side effects of anti tuberculosis in patients TB drop out at Cempaka Putih Islamic Hospital, Jakarta.

Method: A cross-sectional study was conducted, which was based on the medical record of patient TB treatment drop out who were treated at the Lung polyclinic Cempaka Putih Islamic Hospital in Jakarta between January 2016-December 2017.

Results: Of the 173 study subjects there were 80 patients had history of ADR and 93 patients did not have history of ADR. We found a statistically significant relationship between incidence of ADR and patient’s characteristics (p=0.000, RP=0.257, 95%IK=0.132-0.501) including age (p=0.000, RP=0.257, 95%IK=0.132-0.501), and type of ADR (p=0.001, RP=5.333, 95% IK=1.402-20.28). However, management of ADR based on guidelines (p = 0.073, RP=0.403, 95% IK=0.307-0.528) did not have a statistically significant relationship treatment TB drop out.

Conclusion: The analysis showed that age and type of ADR were significantly influenced the increased prevalence of treatment TB drop out patients at Cempaka Putih Islamic Hospital in Jakarta.

Keywords: Tuberculosis, anti-tuberculosis drugs, ADR, drop out of treatment.
**CRISPR-Cas9 Based Strategies towards HIV Eradication: A Systematic Review of Biomolecular Studies**

Adriana Viola Miranda, Lowilius Wiyono, Luthfian Aby Nurachman

**Introduction:** Despite Human Immunodeficiency Virus (HIV) becoming a major global health issue, its management still focuses only on controlling HIV transmission and progressivity. One of the major challenges in HIV treatment is the presence of latent HIV reservoirs. On the other hand, the development of Clustered Regularly Interspaced Palindromic Repeats/Cas9 (CRISPR/Cas9) has made genome editing possible, thus could be used to completely treat HIV.

**Aim:** This paper aims to systematically review the use of CRISPR-Cas9 in treating HIV.

**Method:** This paper was conducted based on PRISMA statement. Seventy-four articles were found through initial Pubmed database searching. Publications that did not meet our inclusion criteria were eliminated (n = 50). There are 24 full-text articles retrieved and assessed for eligibility. Seventeen articles were selected as our final research database after assessments using exclusion criteria.

**Results:** The CRISPR-Cas9 system can be utilized to disrupt HIV-1 gene to inhibit its reproduction and virulence. This system can be optimized further by combining several CRISPR/Cas9 techniques. However, the use of CRISPR-Cas9 has also lead to gRNA resistance. It also has never been utilized in vivo, thus needing more research before it could be implemented widely. Limitation of our study is the lack of numerical data in some of the studies that they could not be analyzed further.

**Conclusion:** While the utilization of CRISPR-Cas9 to cure HIV seems promising, further researches regarding CRISPR-Cas9 quality, development of gRNA-resistant HIV-1 strain and in vivo experiment of the techniques are needed in order to develop path toward HIV eradication.
Infectious Disease
Undergraduate Student

The Effectiveness of Insecticide-Treated Bed Nets Program
in Reducing Malaria Prevalence in Kori Subdistrict, Southwest Sumba

Saleha Sungkar

Introduction: Malaria is endemic in Indonesia especially in East Nusa Tenggara (ENT). To reduce its prevalence, the Ministry of Health RI has launched insecticide-treated bed nets (ITNs) program to protect people from mosquito bite especially in endemic area such as Kori Subdistrict, Southwest Sumba, ENT. The aim of the study is to evaluate the effectiveness of ITNs in reducing malaria prevalence in Kori Subdistrict.

Methods: This cross-sectional study used secondary data from Kori Primary Healthcare Center. Data consisted of patients who had been diagnosed with malaria according to rapid diagnostic test, before and after the distribution of ITNs. The data was analyzed with chi-square test using SPSS version 20.

Results: The prevalence of malaria in 2014 was 51.1% consisted of P. falciparum 30.6%, P.vivax 19.5% and mixed infection 1.0%. After the distribution of ITNs in 2015, the prevalence decreased to 41.3% consisted of P. falciparum 20.5%, P.vivax 19.8%, and mixed infection 1.1%. There were significant differences (chi-square test, p<0.001) between the prevalence of malaria and the distribution of ITNs, also between the distribution of ITNs compare to age and gender.

Conclusion: ITNs program was effective in reducing malaria prevalence in Kori Subdistrict, Southwest Sumba.
Infectious Disease
Undergraduate student

**Effectivity of 23-valent Pneumococcal Polysaccharide Vaccine (PPV-23) as Prevention Therapy of Pneumonia in Elderly Patient: an Evidence-based Case Report**

Dianita Susilo Saputri, Nurul Ratna Mutu Manikam

**Background:** Pneumonia is remaining a major cause of mortality and morbidity in elderly patients. Prevention efforts are being developed, including vaccination with 23-valent pneumococcal polysaccharide vaccine (PPV-23). Previous studies have shown a divergent result regarding the clinical efficacy of the vaccine.

**Objective:** Assessing the effectiveness of PPV-23 to reduce the incidence of pneumonia in elderly patients.

**Method:** The literature search was conducted in Pubmed, Scopus, Springer-Link, Cochrane, Science Direct, Proquest, and Clinical Key databases based on inclusion and exclusion criteria. One study of meta-analysis and systematic review was found and critically appraised.

**Result:** Based on the result of critical appraisal, the selected study has good validity, importance, and applicability. The study showed the effectiveness of PPV-23 in decreasing the incidence of pneumonia in elderly patients.

**Conclusion:** The PPV-23 vaccine is quite effective to reduce the incidence of pneumonia in elderly patients.
Infectious Disease
Undergraduate student

Knowledge, Attitude, and Behavior Prevention of Diphtheria in Pulogadung District 2017: a Community Diagnosis

Dianita Susilo Saputri, Anasthasia Devina Sutedja, Lily Raudah Putri, Kevin Lazuardy, Naufal Andalu, Dhanasari Vidiawati Sanyoto

Background: In 2017, diphtheria became an outbreak in several parts of Indonesia, including Pulogadung district. This extraordinary event was caused by the low immunization coverage. There were some families who refuse the usage of vaccine for several reasons. Therefore, a community diagnosis is necessary to assess the knowledge, attitude, and behavior of Pulogadung society on the prevention of diphtheria.

Objective: To identify factors influencing low immunization coverage in the community of Pulogadung district in 2017.

Methods: This community diagnosis used cross sectional design by collecting data on knowledge, attitude, and behavior of Pulogadung district community about the prevention of diphtheria using questionnaire. The number of samples used in this community diagnosis were 100 respondents.

Results: From the total of 100 respondents involved in this community diagnosis, 43 respondents had above average knowledge, while 57 others had below average knowledge. In terms of attitude, majority of respondents agreed with the statement given. In addition, among 100 respondents, 61 respondents had good behavior, while 39 other respondents had bad behavior.

Conclusion: The knowledge of Pulogadung district community about diphtheria disease, and diphtheria vaccine is not really good. However, the attitudes and behavior regarding immunization, diphtheria disease, and diphtheria vaccine are good enough.
Medical Technology
Effectiveness QL Block Compares to Epidural Block as Postoperative Pain Management on Laparoscopic Nephrectomy: Study on interleukin-6 on Renal Transplant

Rahendra Rahendra

Objective: To compare interleukin-6 (IL-6) as immunology cellular response between quadratus lumborum block (QL) and epidural block as postoperative pain management in patient who underwent laparoscopic nephrectomy.

Methods: Patients were randomized to receive epidural block (n=15) or QL block (n=14) for intraoperative analgesia during laparoscopic nephrectomy and as postoperative pain management. Blood drawn three times, before surgery started, after surgery and twenty-four hours after surgery. All bloods will be processed at laboratory to know IL-6 concentration.

Result: There were no significant differences in interleukin-6 before surgery, after surgery, and 24 hour after surgery between epidural block group and QL block group (p = 0.516; p = 0.982; p = 0.397).

Conclusion: This research is an on-going study and still collecting sample until 62 subjects completed. Even though, in twenty-nine subjects there were no significance differences in interleukin-6 between two groups.

Keywords: quadratus lumborum block; epidural block; interleukin-6; laparoscopic nephrectomy
Comparison of the Efficacy and Safety of Supine versus Prone Position in Percutaneous Nephrolithotomy for Kidney Stones

Rio Rahmadi

Introduction: The study aims to compare the efficacy and safety of supine versus prone position in PCNL for kidney stones. Several studies have investigated the efficacy and safety of supine versus prone position in PCNL; however, no such studies have been conducted in Indonesia.

Methods: A single-blinded randomized controlled trial was conducted in patients had been planned for PCNL during the period of February to May 2018. The sample size for supine group was 19 subjects and for prone group was 19 subjects, resulting in total of 38 subjects for the study. Study outcomes were compared operative time, length of stay (LOS), stone-free rate, blood loss, conversion to open surgery, blood transfusion, and the presence of complications, and were analyzed using the Mann-Whitney U test and Chi-square test.

Results: There was no significant difference found in demographic and stone location on both groups. The median of the operative time, LOS, blood loss and blood transfused was not statistically different. A higher stone-free rate found in the supine group compared to prone group (70.0% vs. 47.4%, p = 0.151). Subjects transfused was larger in the supine group (30.0%) than in the prone group (15.8%), but the difference was not statistically significant (p = 0.292). The only complication found was infundibular laceration that occurred in 20% of subjects in the supine group and 15.8% of subjects in the prone group (p = 0.732).

Conclusion: This study showed that both supine and prone positions in PCNL had similar efficacy and safety outcomes.
**Video versus Direct Laryngoscopy for Conditions Associated with Difficult Intubation: A Systematic Review**

Annisaa Yuneva, Luther Napitupulu, Rori Alfath, Aida Rosida Tantri Mail

**Introduction:** Intubation as one of the cornerstones of airway management presents various challenges, especially in visualizing the larynx. Poor visualization interrupts the continuity of the process. Video laryngoscopy is thought to offer better vision of the larynx. Thus, this review aimed to compare the efficiency between video and direct laryngoscopy, especially in conditions associated with difficult intubation.

**Methods:** We searched Pubmed, ScienceDirect, and EBSCOhost. We included published full text RCTs in adults who were intubated using video and/or direct laryngoscope with conditions associated with difficult intubation. The conditions are as follows: obesity, Mallampati score of 3-4, and cervical immobilization. Exclusion criteria were studies in pregnant women, children, and mannequins. All included studies should have ethics committee approval and consent.

**Results:** After screening, we identified eleven studies (1015 participants) that met the criteria. The assessed outcomes were C/L (Cormack-Lehane) score, time parameters, complications, and intubation successful parameters. The evidences in all studies showed that video laryngoscopy was consistently superior to direct laryngoscopy in showing better vision of the larynx based on C/L score. However, there was no assurance that video laryngoscopy took less time and had better successful rate. Further investigations with standardized protocol are needed.

**Keywords:** airway management, intubation, laryngoscopy
Rare Case Report: Caesarean Ectopic Scar Pregnancy

Andi Darma Putra, Seprializa seprializa liza, Rryan hari kurniawan

Caesarean scar ectopic pregnancy is the rarest form of ectopic pregnancy. Such a pregnancy is prone to complications including uterine rupture, life-threatening hemorrhage, and hypovolemic shock. We reported a case of 28-year-old female with Caesarean scar ectopic pregnancy treated with exploratory laparotomy and resection of the mass.
Comparison of Standard, Tubeless, and Totally Tubeless Approach Following Uncomplicated Standard Percutaneous Nephrolithotomy without Residual Stone

Putu Angga Risky Raharja

Aim: To compare the clinical outcome between standard, tubeless, and totally tubeless approach following uncomplicated standard percutaneous nephrolithotomy (PCNL) without a residual stone.

Methods: From January 2000 to December 2017, a total of 766 patients with kidney stones who underwent uncomplicated PCNL without residual stones were retrospectively evaluated. We divided patients into standard PCNL (group 1; 350 patients), tubeless PCNL (group 2; 189 patients), and totally tubeless PCNL (group 3; 227 patients). Patients’ demographic characteristics, stone-related factors, perioperative and postoperative parameters were compared and statistically analyzed.

Results: Demographic and stone-related characteristics were comparable between the three groups. There was no significant difference in mean operative time, complication rates, postoperative hemoglobin change, creatinine change, blood transfusion, and fever. The mean postoperative hospitalization period was shorter in group 3 (3.19±2.2 days) compared with group 1 (4.12±2.4 days; p<0.001) but not with group 2 (3.44±2.8 days; p=0.680). The mean postoperative pain score was lower in group 3 (3.24±1.1) compared with both group 1 (6.36±1.7; p<0.001) and group 2 (4.85±1.1; p<0.001). Urine leakage complication was lower in group 3 (0.4%) compared with group 1 (2.9%, p=0.038) but not with group 2 (0.5%, p=0.897).

Conclusion: Totally tubeless and tubeless approaches are effective and safe procedures for uncomplicated PCNL without residual stone. Totally tubeless approach is associated with decreased pain, hospitalization time, and urine leakage complication compared with standard PCNL.

Keywords: kidney stone, percutaneous nephrolithotomy, totally tubeless, tubeless
Medical Technology
Clinical Research

**Telangiectases in Melasma: Could It Be a Potential Clinical Severity Marker To Add Treatment Options**

Melyawati Hermawan, Irma Bernadette, Tjut Nurul Alam Jacoeb

**Background:** Melasma is a common acquired symmetrical hypermelanosis characterized by irregular light to dark brown macules and patches on sun-exposed areas of the skin. This disease is often found in Indonesian people, whose mostly have darker skin types. The pathogenesis of melasma is still poorly understood. Recently, interaction between skin vascularity and melanocytes has been proposed to have influence in melasma pigmentation.

**Objectives:** To investigate whether vascular factors that represented by telangiectasis score, influences pigmentation severity of facial melasma skin. We investigated whether increased pigmentation severity of facial melasma skin was associated with measurement of telangiectases scores.

**Methods:** A total of 48 women with melasma were included in this cross-sectional observational study. They were selected based of consecutive sampling method. The face of each subject were examined and divided into 4 regions: forehead, left malar, right malar, and chin area. Pigmentation severity of facial melasma skin was evaluated using the pigmentation score of Melasma Area and Severity Index (MASI). Telangictasia score was assessed using a validated 5-point dermoscopic scale with the aid of a hand-held non-contact polarized dermoscope. Statistical analyses were performed to assess the association between pigmentation severity and telangiectasia score.

**Results:** Of the women enrolled, 6.2% presented phototype III, 87.5% phototype IV, and 6.2% phototype V. Based on phenotype, 45.8% presented a centrofacial melasma, 52.1% a malar, and 2.1% a mandibular type. About 66.7% developed melasma after thirty, with mean age at onset was 32.06 years. The overall women with family history of melasma was 45.8%. Most of the women reported hormonal contraception as a triggering factor and sun exposure as an aggravating factor. Using dermoscope, we found telangiectases with various severity in 35.4% of the subjects. Of the total 192 facial areas examined, 124 of which have melasma, pigmentation. Of these, 29 pigmentation areas had telangiectases. There was significant relationship between telangiectases and pigmentation in melasma, as increased pigmentation was correlated modestly with telangiectasies score ($r^2 = 0.474$, $p < 0.0001$).

**Conclusions:** This study showed that telangiectases can be found as one of clinical finding in some lesions of melasma. Increased pigmentation severity was positively associated with the presence and severity of telangiectases. It might be one of the factors that influence the severity of melasma These results emphasize the feasibility to apply vascular-targeted therapy in addition to the main treatment in treating melasma, especially in those patients with marked telangiectases.
Health Provider Perspectives for Improving Maternal Health Service in Jakarta: JAKPROS Smart Mobile Application

Ilonna Putri Pertiwi

In the face of pregnancy, good communication is needed between health provider and patient. Patient must be well educated about their pregnancy and health provider have to educate and monitor patient regularly. Unfortunately, manual health care methods has several limitations in communicating, educating, and monitoring patients. In this day, internet is widely used by Indonesian people to access information about health. Mobile health application is useful to help health provider in daily services, especially for pregnant women. The aim of this study was to analyse and explain health provider perceptive of Jakpros application impact for improving maternal health services. The sample consisted of 16 health care providers subjects from two sub-district general hospital in Jakarta. We were using descriptive and qualitative approach method. We collected data by indepth interviews and observation in a focus group sharing discussion. We found almost of the participant admit Jakpros application helps for facilitating communication and education to patient. Furthermore, this application helps increase knowledge of pregnant women independently. Health care provider could monitor maternal patients condition and decided appropriate actions also prevent unwanted things. Jakpros application has positive benefits and helps doctor to provide best services for patients during pregnancy. In the next days, we have to socialize the use of Jakpros application. We hope Jakpros application is more widely used for daily activities in many other hospitals and will decrease Maternal Mortality Rate in Indonesia.

**Keywords:** Health application, JAKPROS, Jakarta Reproduksi Sehat, Mobile Application, Pregnancy
The Challenges of Medical Laboratory Technology towards Precision Medicine in Indonesia

Rajahasta P,¹,² Winarti Y,¹ Rukmi A¹,³

¹ Poltekkes Kemenkes Bandung
² Pertamina Central Hospital
³ Pakar Biomedika Indonesia

In disruption era, precision medicine promises solution for health problems in worldwide. The way of treatment from generalization concept evolves to be more specific by considering the individual genetic profile and the environment. It will be challenges for medical laboratory technology which has very important role in supporting the prevention, diagnosis and treatment of diseases. Medical laboratory technology will be able to provide molecular approach testing to determine the risk factors of diseases as prevention. In the diagnosis stage, various developments are carried out such as: proteomic and genomic-based examinations are developed to obtain more sensitive and specific results; and the development of micro-sample multiplex tests provide an efficient process; the application of Artificial Intelligent (AI) aims to simplify and accelerate the diagnosis of diseases by recognizing human decision. The innovation in the medical laboratory technology certainly gives the ease of diagnosis for the physicians, nurse and other health care professional to encourage the right treatment for the right patient. However, these advantages will be followed with other challenges such as Human Resources, Cultural Lag of technology, data security and insurance coverage regulation. Therefore, we intend to discuss opportunities that will be faced by medical laboratory in Indonesia in precision medicine era. In brief, we able to accelerate the development of health care services towards fostering Global Health.

Keywords: Challenges, Medical Laboratory Technology, Precision Medicine
I-THS-1908: A Big Data Electronic Health Record Platform for Patient Care Management and Analytics

Ahmad Hidayat, Areif Hasani

**Introduction:** The application of Big Data as an electronic health record for patient care management and analytics is one of the disruptions in the health care sector of the Industry 4.0 era. I-THS-1908 is an innovative Big Data electronic health record platform with the industry-standard by using Fast Healthcare Infrastructure Resources (FHIR) and equipped with machine learning and data streaming that has potential to be used for patient care management and analytics.

**Methods:** I-THS-1908 is tested by using the extensive data, approximately 15 Gigabytes, from FamiLinx to demonstrate the volume and velocity capabilities using Metrics from Dropwizard. Of 1,460 synthetic patients from Synthea are used to elaborate the functionality of FHIR, machine learning, “near real-time” visualization for patient care management and analytics.

**Results:** Of 86,124,645 data sets from FamiLinx, data ingress of the velocity processing shows the average of 200,009.37 events per second. Of data set from 1,460 synthetic patients from Synthea with the volume of 286,022,898 bytes, I-THS-1908 can process the data within 31.545 seconds and 46.28 files per second. The application of machine learning and “near real-time” visualization is also disclosed.

**Conclusion:** The I-THS-1908 is capable of establishing its capability as an electronic health record to tackle the large volume of data with high velocity and complex variety of patient data by providing the value to the patient care management and analytics. The further development of I-THS-1908 opens the opportunity to use the electronic health record for patient care management and analytics for all type of health conditions.
Laparoscopic Diagnosis of Peritoneal Tuberculosis in Woman with Abdominal Enlargement due to Ascites of Unknown Origin

Purnomo Hyaswicaksono, Herbert Situmorang, Riyan Hari Kurniawan

Background: Peritoneal tuberculosis often can be misdiagnosed with other disease. Patient often came with unspecific complain. 40% came with chronic pelvic pain, other symptoms such ascites, abdominal enlargement can also present with or without the classical symptomps of pulmonary tuberculosis.

Case Report: Ms. S, 25 nulligravida came to outpatient gynaecology clinic refered from her previous hospital due to suspected ovarian cancer with chief complain abdominal enlargement and discomfort since 3 months before admission. Patient didn’t complain on any symptomps of pulmonary TB eghemoptoe, fever. A history of weight loss was positive on this patient. Her menstrual cycle is still regular. On our physical examination we didn’t find any specific mass coming from the adnexa, and only present with ascites. We decided to perform puncture of the ascites, and the result no malignant cell was found. On her ultrasound examination shows accumulation fluid from the adnexa suspected coming from adnexitis. We took our next approach to have this patient underwent laparoscopic exploration of abdominal cavity to search for the possible cause of ascites. On laparoscopic view seen serous fluid filled entire abdominal cavity the ascites was reduced and examined for microbiologic test. On further explorer there were granulomatous tissue, beaded-like tissue on all over anterior abdominal wall, uterus, both tube, and ovaries highly suggestive for peritoneal tuberculosis. We decided to perform peritoneal biopsy and still waiting for the result.

Conclusion: peritoneal tuberculosis could often misdiagnosed or undiagnosed because of unspecificsymptomps and overlapped with symptomps mimicking other disease. Conventional examination sometimes could still be normal in peritoneal tuberculosis cases.A laparoscopic approach could be made if there were still hesitancy making diagnosis of peritoneal tuberculosis. We have overlooked previous cases with peritoneal tuberculosis, the laparoscopic findings, such granulomatous tissue, inflamed tube, were matched from previous cases of peritoneal tuberculosis.

Keywords: tuberculosis, abdomen, laparoscopy
An Efficient Foot Tumor Detection Algorithm Using Watershed & Thresholding Based Segmentation

Ashok Kumar

Detection of foot tumour has always been a little tedious as it is generally confounded with other diseases of the foot. Hence, the method of detecting foot tumour is of utmost importance. Though image processing techniques have replaced the original biopsy method, these classical methods are still attributed to a few drawbacks. In this paper we have proposed an efficient methodology to detect the exact size and location of tumour region in the foot using threshold and watershed segmentation algorithms and applying morphological operators. After the scanned MRI is enhanced using segmentation, the tumour can be detected effectively.
Mini Percutaneous Nephrolithotomy versus Flexible Ureterorenoscopy for Kidney Stone Burden Smaller than 20 mm

Fakhri Rahman

Introduction: This study tried to explore efficacy between mini percutaneous nephrolithotomy (mini-PCN) and flexible ureterorenoscopy (F-URS) for kidney stone burden smaller than 20 mm.

Methods: This is a retrospective study which data was collected through medical record. Subjects were patients who underwent mini-PCN or F-URS procedure during January 2017 – August 2018 periods and suffered from less than 20 mm kidney stone burden. Stone free rate, operative time and length were outcome measure from this study. SPSS ver. 23 was used for analyzed the data.

Results: Nineteen patients (mini-PCN) and 17 patients (F-URS) were included in this study. There was no difference in stone size between this two group of patients (p=0.798). Mini-PCN and RIRS had stone free rate of 100% and 82.4% respectively (p=0.059). F-URS group of patients had a significant (p<0.001) lower intraoperative bleeding (ml) than mini-PCN group [50.00 (5.00-250.00) and 1 (1.00-10.00)]. Operative time (minutes) was similar between this two groups [60.00 (45.00-170.00) and 60.00 (42.00-130.00) p=] for mini-PCN and F-URS respectively. Shorter length of stay (days) was found in RIRS group [2.06 (1.00-9.00)] compared to F-URS group [2.78 (2.00-4.00)] (p=0.001).

Conclusion: For treating kidney stone of < 20 mm, mini-PCN and RIRS are comparable. Mini-PCN had a better stone free rate than RIRS. Meanwhile RIRS have lower intraoperative bleeding and shorter hospital length of stay.
Occupational and Environmental Health
Occupational & Environmental Health
Clinical Research

Association between Level of Education with Knowledge and Attitude of Husbands towards Family Planning Program in Puskesmas Kecamatan Pulogadung

Dina Rahmatika, Maria Satya Paramitha, Nindyasari Laksmita Putri, Kadek Aditya Darma Yoga, Hasna Sholihah, Hariyono Winarto

Background: Indonesia holds the fifth position of the country with the largest amount of population; which leads to the continuous search for an appropriate method to tackle this problem, including family planning program and contraceptive methods. The role of husbands is critical for the implementation of these programs because, from the cultural point of view, a husband is still considered as the strongest decision maker in the family.

Method: This study was conducted with cross-sectional design. Data collection was performed in Puskesmas Kecamatan Pulogadung from November 21st until November 25th, 2016. All participants were given a questionnaire with 18 questions related to identity of the patients, as well as their knowledge, experience, and attitude towards family planning program and contraceptive methods. Data analysis was performed with SPSS version 21 with Fischer-Exact test.

Results: There was no statistically significant relation between level of education with knowledge (p-value = 0.530) and attitude (p-value = 0.361) of husbands in Puskesmas Kecamatan Pulogadung towards family planning program. Higher amount of participants who answer the right questions about contraceptive methods, as well as more eagerness to recommend family planning program to their wives, were observed in husbands with higher level of education.

Conclusion: Level of education does not appear to be related to the knowledge and attitude of husbands in Puskesmas Kecamatan Pulogadung towards family planning program. A lot of work still needs to be done in order to gain more understandings on how the role of husbands affects the decision taken by the family.
Risk Factors of Dry Eye Syndrome in Soekarno Hatta Airport’s Air Traffic Controllers

Syougie Ali\(^1\), Dewi Friska\(^1\), Soemardoko Tjokrowidigdo\(^2\)

\(^1\) Department of Community Medicine, Faculty of Medicine, Universitas Indonesia
\(^2\) Saryanto Aviation and Aerospace Health Institute (LAKESPRA)

**Introduction:** Based on a study conducted in Jakarta in 2017, it was found that the prevalence of dry eye syndrome (DES) in air traffic controllers (ATC) was 60.3%. The aim is to identify determinants of DES in ATC of Soekarno Hatta Airport.

**Methods:** Cross sectional study was done on 126 ATC of Soekarno Hatta Airport that met inclusion and exclusion criteria. Data collected using questionnaires on subject characteristics performed after completion the work. The data were processed and analyzed using SPSS version 20.0. The test for multivariate analysis is cox regression test.

**Results:** Variables were associated with DES: age over 30 years (RR, 2.04; CI, 1.30-3.19) and work service over 10 years (RR, 2.00; CI, 1.25-3.20). After adjusting all significant variables, the independent risk factor for DES were age over 30 years (p=0.002; RR, 3.33; CI, 1.58-7.01). Non significant variables included gender, smoking habits and use of contact lens.

**Conclusion:** The results suggest several factors, such as age over 30 years and work service over 10 years that could be studied for preventive with age over 30 years for independent factor.

**Keywords:** air traffic controllers, dry eye syndrome, age over 30 years.
The Correlation between Elderly with Presbycusis Who Live at Home and Decreasing of Quality of Life in Indonesia

Indra Zachreini

Introduction: In the elderly, the aging process will cause degenerative change in the body function, both physically and emotionally. One of the physical changes that affect the hearing, causing a specific hearing decreased function and called as presbycusis. Presbycusis impact to disturb interaction and communication with the other people where they live and then it influences their quality of life.

Method: This research is an observational description to find out correlation between elderly with presbycusis who live at home and decreasing of the quality of life in Indonesia based on Hearing Handicap for Elderly Screening (HHIE-S) questionnaire using cross sectional study.

Result: Based on the results of the study, has found significance correlation between elderly with presbycusis who live at home and decreasing of the quality of life in Indonesia, which p value 0.023, OR: 0.804 and CI: 0.669-0.966.

Conclusion: There is correlation between elderly with presbycusis who live at home and decreasing of the quality of life in Indonesia.

Keywords: Elderly, Presbycusis, Decreasing of quality of life
Survival among Workers with Silicosis

Ardi Artanto, Dewi Sumaryani Soemarko, Indah Suci Widyahening

Sandblast workers are at risk of silica dust exposure that can cause silicosis and lead to death. This evidence-based case report aims to determine survival among workers with silicosis. The literature search was done through PubMed and Scopus and the selection was done according to the keyword. The total articles obtained are three relevant and most appropriate articles approached to PICO.

After critically reviewed, all three articles were declared valid. Three cohort studies were done in Genoa, Sardinia, and Turkey but only a study in Turkey could describe five years survival rate among workers with silicosis specifically was 69%.

Based on one article found, 5 years survival rate in workers with silicosis was still quite high.

Keywords: silicosis, survival, mortality
Can Ergonomic Working Desk Chair Reduce The Lower Limb Discomfort Scale and Improve Productivity in Female Tapis Cloth Workers?

Winda Trijayanthi Utama, Retno Asti Werdhani, Suryo Wibowo, Astrid Sulistomo, Zarni Amri

**Background:** The process of making tapis cloth is done by sitting cross-legged on the floor resulting in discomfort of lower limb and affecting the productivity. This aims of this study were to get an ergonomic working desk-chair and assess its effect on decreasing the scale of lower limb discomfort and increasing productivity after the intervention in tapis cloth workers.

**Method:** This study was an experimental one-group pre-post intervention by creating an ergonomic working desk-chair as an intervention media. Samples were taken by using cluster sampling method at tapis cloth companies. The lower limb discomfort visual analogue scale (VAS) and the length of embroidery at the end of workday were collected. The data were analyzed by using SPSS Statistics 20.0 statistics program.

**Result:** The median of lower limb discomfort VAS before the intervention was 7.0 (4.5-8.5). The median of lower limb discomfort VAS after the intervention was 1.0 (0.5-1.5). The median of difference in lower limb discomfort VAS between pre and post-intervention measurement was 6.0 (3.0-7.5) (p<0.001). The median of productivity before the intervention was 347.6 (205-523) cm. The median of productivity after the intervention was 794.9 (562-1167) cm. The median of difference in productivity between pre and post-intervention measurement was 447.3 (220-697) cm (p<0.001).

**Conclusion:** There was a significant decrease in lower limb discomfort VAS by 86% and an increase in productivity by 129% after the intervention of the ergonomic working desk-chair.
Occupational & Environmental Health
Clinical Research

**Comparison of Medical Supplies Use in Package and Separated as a Cost Efficiency in RSCM**

Mardhatillah Fuady

**Introduction:** Pharmaceutical preparation, medical devices and medical supplies spend 35-40% for service cost in the Hospital based on the sale of receipt and medical supplies use. According to the frequencies/volume of procedures, nursing procedures is the most in Cipto Mangunkusumo General Hospital (CMGH). Those are Intravenous (IV) Administration Techniques, Wound Toilet, Naso Gastric Tube (NGT) Insertion, Urine Catheterization Insertion and Stoma Care in Adults.

**Methods:** Samples of research in nursing procedures was taken by purposive sampling for 4 months. This research was held by taking control system sampling and total of IV administration, insertion and NGT care, wound toilet, Urine Catheterization Insertion and Care and Stoma care in Adults. This research was held in Inpatient room in Building A CMGH, 4th and 7th Floor.

**Results:** Total of the procedures was 468 in Control Group and 581 in Intervention. Total cost in 7 Nursing procedures in Control Group spent Rp 706,067,45 more than in Intervention Group. Comparison in Medical Supplies use in amount of 7 nursing procedures overall has significant difference in Control and Intervention which is more in Control Group than Intervention (p=0,000)

**Conclusion:** Control Group has more cost than Intervention because the medical supplies use has no gold standard in using medical supplies for every procedure, these make nurses who do these use the medical supplies freely without any restrictions while in Intervention Group has gold standard for using medical supplies for every procedure that makes using medical supplies more efficient.
The Relationship of Diet Patterns to Manufacturing Workers in Indonesia Against Workers’ Fitness Status

Muhammad Ilyas

Introduction: Workload on manufacturing workers is classified as medium category based on Compendium Daily Activities 2011. Therefore, nutritional intake becomes important for meeting the workload of manufacturing workers. Deficiency Nutritional intake can affect health conditions, activity and work productivity.

Method: The sample selection uses cluster random sampling technique. Six regions were chosen, namely Medan, Bandung, Semarang, Surabaya, Samarinda, and Makassar. Each area of production take 20 people. The frequency of food intake was calculated using the Food Frequency Questionnaire (FFQ) and the quantity of food was calculated Food Recall. Assessment of fitness using a 6-minute walk test. The results of the measurement of nutritional intake are compared to the Regulation of the Minister of Health of the Republic of Indonesia.

Result: The frequency of carbohydrate consumption was 8.46 (3.57-20.89) times with the amount of intake 533.22 (233.87-3534.75) gr. The frequency of protein consumption is 6.55 (1.2-45.71) times with the amount of intake 101 (26.84-723.94) gr. The frequency of fat consumption was 2.75 (0.29-22.5) times with the amount of intake 57.14 (12.84-430.14) gr. Statistical test results show that the amount of protein intake can affect the fitness of manufacturing workers with a value of p=0.02. Different results with the amount of fat and carbohydrate intake does not affect the level of fitness with p = 0.12 and p=0.934.

Conclusion: Inadequate protein intake can affect the fitness of manufacturing workers.

Keywords: Diet Patterns, Fitness status, FFQ, Food Recall, Manufacturing workers
The Relationship between Work Stress and Job Satisfaction on Marketing and Sales Representative at X Pharmaceutical Company in Jakarta

Nusrat Numeiri

Background: Psychosocial stressors on workers can cause various health problems such as work stress, depression and other chronic diseases, which impact on work performance and job satisfaction. The purpose of the study to know the level of job satisfaction, the relationship of work stress to job satisfaction, age, gender, position, employment, stress outside the workplace to job satisfaction on marketing and sales representative at X pharmaceutical company in Jakarta.

Methods: Analytical study with comparative cross sectional design is used for this research. 71 samples of 112 workers at marketing and sales. Use questionnaire SDS, job satisfaction, and the measurement of cause and level of stressor with Holmes and Rahe methods.

Result: Every job stressor has medium stress level. The level of stress is most commonly found in overload qualitative stressors which is amounting to 85.9%. Prevalence of job satisfaction is 66.2%. Distribution of respondents based on the characteristics of work stressors has no significant relationship to job satisfaction with p value > 0.05.

Conclusion: Job satisfaction level for employees who work on marketing and sales representative department at X pharmaceutical company in Jakarta is 66.2%. There is no relationship between work stress and job satisfaction. The research hypothesis is not proven. While age, gender, position, years of service, and stressor out of the job have no significant relationship to job satisfaction.

Keywords: Work stressor, job satisfaction, stress outside the workplace, marketing, sales representative
Diabetes and Prediabetes are a Considerable Threat in Taxy Driver

Tri Juli Edi Tarigan, Imam Subekti, Abdullah Shidqul Azmi Mail

Background: Drivers are professional jobs that are affected by body health. Health problems can affect the driver and increase the risk of accidents, and become a burden for the company. This study aims to determine the prevalence of dysglycemia and metabolic risk factors that affect the population of taxi drivers as initial information and prevention of type 2 diabetes mellitus (T2DM) in specific occupation.

Methods: This study was a cross-sectional study involving 106 male subjects from the population of taxi drivers. All drivers underwent general anamnesis, complete physical examination, and oral glucose tolerance test (OGTT). Bivariate analysis was performed by using chi-square analysis. Multivariate logistic regression was also performed to find the dominant factor that cause dysglycemia.

Result: Prevalence of dysglycemia in driver taxi population was 54.7% (29.2% prediabetes and 25.5% diabetes). Most subjects with prediabetes and T2DM had an waist circumference > 90 cm, and become a risk factor for dysglycemia p: 0.032, 95% CI(1.071-5.492). In multivariate analysis waist circumference was observed to be a dominant factors that affect of dysglycemia after controlled by age as a potentially confounding factor (0.8(1.01-5.26), p: 0.048).

Conclusion: Prevalence of dysglycemia is high in the taxi driver population. Healthy life style and prevention programs specific for taxi driver community must be prepared to prevent glucose disorders.
Evidence Base Case Report: Survival Among Workers With Silicosis

Ardi Artanto, Dewi Sumaryani Soemarko, Indah Suci Widayhening

Sandblast workers are at risk of silica dust exposure that can cause silicosis and lead to death. This evidence-based case report aims to determine survival among workers with silicosis. The literature search was done through PubMed and Scopus and the selection was done according to the keyword. The total articles obtained are three relevant and most appropriate articles approached to PICO. After critically reviewed, all three articles were declared valid. Three cohort studies were done in Genoa, Sardinia, and Turkey but only a study in Turkey could describe five years survival rate among workers with silicosis specifically was 69%. Based on one article found, 5 years survival rate in workers with silicosis was still quite high.

Key words: silicosis, survival, mortality
Exogenous Ochronosis: Dermoscope as An Aid in Early Diagnosis, Confirmed by Histopathological Examination

Melyawati Hermawan, Irma Bernadette, Sondang Pandjaitan Sirait

Introduction: Hydroquinone (HQ) is the most frequently used topical skin whitening agent. One of the side effects of its chronic use is exogenous ochronosis (EO). It is difficult to diagnose clinically and also difficult to treat. In this report, we concluded that dermoscope is a valuable tool that might help dermatologists to make an early diagnosis to prevent worsened condition.

Case Report: A 51-year-old female, Fitzpatrick’s skin phototype IV, presented with a history of long term brown-blue black spot on the face since 10 years ago. She has been treated with topical combination regimen from different physicians and dermatologists. Each regimen were claimed to lighten or diminished the pigmentation. About 2 months ago, she complained of progressive worsening of the pigmentation. Dermatological examination showed symmetrical hyperpigmentation with erythematous zone over the malar region. On dermoscopic examination, multiple red-brown short arciform structures were observed, along with the melasma dermoscopic features of an accentuation of the normal skin pseudorete. No systemic involvement in this patient. Histopathological examination was in accordance with stage II exogenous ochronosis, as it revealed ochre-coloured “banana shaped” structures and prominent solar elastosis in the upper dermis, without epidermal hyperpigmentation.

Discussion: HQ is commonly used in the treatment of melasma and other skin hyperpigmentation problem. It is found in many over-the-counter (OTC), physician dispensed, and prescription skin lightening preparations. Prolonged use of HQ may cause EO. EO presents as asymptomatic blue-black macules in the area of HQ application, which is basically a more permanent form of hyperpigmentation. Topical HQ products are thought to provoke this pigmentation by inhibiting the homogentisic acid oxidase enzyme in the skin. This results in the local accumulation of homogentisic acid that then polymerizes to form ochronotic pigment seen in histopathological examination. The exact incidence of EO is unknown. In Indonesia, there is only one published report describing 4 cases of clinically diagnosed EO. Unfortunately, EO is not easy to diagnose. It is believed that this condition is underdiagnosed, especially in Asia, where skin lightening products use is very common. Dermoscope is an in vivo method, used to improve clinical visual inspection of skin lesion. This tool has been reported to give a better sight and help dermatologists to identify signs of disease progression towards EO.
Internet Gaming Disorder: The Conceptual Controversy between ICD 11 or DSM V

Kristiana Siste Kurniasanti, Hans Christian, Karina Kalani Firdaus, Noorhana Setyawati Winarsih, Tjhin Wiguna, Martina Wiwie Nasrun

Internet has become an essential part of life crossing between generations enforced by the fact that the web has become a main source of information, communication, and entertainment, specifically in the form of internet gaming. In some cases, gamers tend to play compulsively, recurrent and persistent that can potentially risk their academic, career or social function caused by the amount of time spent in which the condition can be related to internet gaming disorder (IGD). American Psychiatric Association stated that certain pathways in the brain of gamers are triggered in the same direct and intense way accompanied by a neurological response that influences feelings of pleasure and rewards similar to substance abusers. Based on the similarities to addictive behaviour of substance addiction, IGD has recently been re-classified in Diagnostic and Statistical Manual of Mental Disorders (DSM-5) and in the revision of International Classification of Diseases 11th revision (ICD-11).

Both DSM-5 and ICD-11 defined that IGD was persistent or recurrent gaming behaviour with a duration of ³ 12 months that may be shortened if clinically severe and must result in significant impairment. But, because ICD-11 had certain aspects such as the requirement of all criterions to be fulfilled that may decrease overdiagnosis and evaluation of more specific aspects (i.e, impaired control and increasing priority) without including doubtful criteria (tolerance, withdrawal, preoccupation, deception, escapism), ICD-11 shows more suitability for clinical use.
The Effect of Stretching on Neck Pain Management among Woman Workers in Small Scale Food Factory

Muchammad Arief Gunawan

Background: Muscle disorders are the most common occupational diseases in the world, from World Health Organization (WHO) data in 2003 there was musculoskeletal disorder reaching 60% of all occupational diseases, in Indonesia according to data from the Ministry of Health of the Republic of Indonesia in 2005 as many as 40.5% of workers in Indonesia have complaints of muscle pain. In PT X fish processing factory has been conducted initial survey on 64 respondents and found 48% of the respondents complained of neck pain. One way to reduce pain is to doing a stretching. This study aims to see the effect of stretching on the decrease of the neck pain.

Methods: Analytic studies with Pre-Post Test design. Analyze the value of pain with the help of Visual Analog Scale (VAS) before stretching compare to after stretching twice a day for 5 days in a week with a 2-week research period.

Result: The prevalence value of cervical pain was 78.3% and there was significant difference of pain value before stretching (VAS = 5 (3-6)) with pain value after stretching (VAS = 2 (0-3)), no change which are related to individual factors in terms of age, nutritional status, education, exercise habits, smoking habits and work-time factors.

Conclusion: By stretching 2 times daily for 5 days in 1 week for 2 weeks can decrease the value of neck pain measured by Visual Analog Scale (VAS).

Keywords: Simple Excercise, Neck Pain, Visual Analogic Scale
Effectiveness of Office Ergonomics Program for Computer Workers Using Standard Occupational Safety and Health Management System in Company X Jakarta

Yoana Periskila Winarto

**Background:** Health Risk Assessment (HRA) in 2016, revealed that musculoskeletal disorders among in computer workers in Company X was 73.28%. To control this, Company X started to implement an Office Ergonomic Program, which has not been evaluated yet. This study aims to evaluate the effectiveness of the ergonomic program by using standard OSH Management System checklists as a reference.

**Method:** The design of this study is cross sectional using mix methods (quantitative and qualitative). In depth interviews were conducted with the company management and ergonomic program managers and also relevant documents were reviewed. The effectiveness of the program was conducted by interviewing worker who participated in the HRA in by 2016.

**Results:** The program was successful and effective in significantly reducing musculoskeletal disorders by 37.7%. A significant association was found between implementing stretching exercises (OR 6.53 95% CI 1.74-24.57) and ergonomic working positions (OR 6.93 95% CI 2.08-23.01) with decreased musculoskeletal disorders. Implementation of standard OSH Management System to implementation of program, achieved 81.08% for input element (good category), 74.02% for process element (good category) and 85.7% for output elements (satisfactory category). Consultation with worker representatives before implementation, adequate distribution of laptop support facilities, and program supervision are the key factor of the program to have higher success rate.

**Conclusion:** The Ergonomic Office program succeeded decreasing musculoskeletal complaints in 37.7% of the workers. The implementation of standard OSH Management in program consultation, provision of program facilities and supervision are the factor which influenced the success of the program.

**Keywords:** Office Ergonomic Program, Musculoskeletal Disorder, Standard Occupational Safety and Health Management System
Biomonitoring of Cadmium as Vascular Toxicant in Young Indonesian Adults: An On-going Study

Cimi Ilmiawati, Mohamad Reza, Dina Arfiani Rusjdi, Mefri Yanni

Introduction: Cardiovascular disease (CVD) is a top contributor of mortality in Indonesia. Apart from traditional risk factors, environmental toxicant exposure, such as cadmium (Cd), is now believed to play a role in the pathogenesis of atherosclerosis—the underlying process of many CVDs, as shown from biomonitoring in the developed countries. Exposure pattern in developing countries may be different to those in developed countries. However, there is no study linking Cd exposure with the marker of atherosclerosis in Indonesian population.

Objective: The aim of this study was to assess Cd body burden in young Indonesian adults and to examine its association with carotid intima-media thickness (CIMT) as the marker of atherosclerosis.

Methods: Young adults (age 18-22) were recruited and interviewed to collect sociodemographic information, followed by physical examination. Blood samples were collected for Cd, cotinine, lipids, glucose and hemoglobin analysis. Blood Cd will be analyzed by ICPMS and serum cotinine by ELISA method. CIMT will be measured by B-Mode ultrasonography. Multiple linear regression analysis will be performed to obtain predictor of CIMT.

Results: We have recruited 138 volunteers and currently we are analyzing their blood samples for Cd and other parameters. CIMT ultrasonography is also underway. We expect to present the results shortly as the first attempt on Cd biomonitoring in the context of vascular toxicant in Indonesian subpopulation.

Keywords: atherosclerosis, cadmium, carotid intima-media thickness, Indonesia
Advancements in medical science have rendered most of the findings of Ancient Greek and Roman physicians obsolete. The dominant ancient idea of the four humours has stepped aside in order to allow modern scientific theories to pass through. This is what textbooks and popular narrative tell us. However, this is only partly true. Truth is, the ideas from ancient times still resound today, especially in medicine. Ideas like homeostasis, prognosis, balance, diet, etc., all have ancient origins rooted in the idea of the four humours. This paper aims to explore the medical tradition set by Hippocrates and extended by Galen to investigate what they can tell us about our modern practices and recover insights and lessons that today's medical community can use in its pedagogy and practice. The discussion will be divided into three segments: 1.) the doctor as philosopher; 2.) the geometry of disease; and 3.) health as personal and social.
The 3rd International Conference and Exhibition On Indonesian Medical Education and Research Institute (ICE on IMERI)

Occupational & Environmental Health
Basic Science

The Dissemination of the Fish Mugil dussumieri and Water in Mangrove Muara Teluknaga, Tangerang, Banten

Nur Hidayah Fitria Rahmawati, Mufti Petala Patria

The contaminant in the waters of plastic trash can be accumulated a long time that called microplastic (particles > 5 mm). Microplastic become a trigger for biological effects especially if ingested. The fish Mugil dussumieri is food resource used as bioindicator to investigate the presence of microplastic in Mangrove Muara Teluknaga, Tangerang, Banten. Based on the sample was fish Mugil dussumieri and the water had ingested microplastic. The most type of microplastic is the fibers. The fibers can be found in the fish and water. When the water and fish contain microplastic, so that it can be said that the waters have been polluted.

Keywords: microplastic, the fish, mangrove, food source
Occupational & Environmental Health
Undergraduate student

**Validity and Reliability Study of the Indonesian Empathy Quotient–Systemizing Quotient for Children (EQ-C/SQ-C)**

Yudi Reza Phallaphi, Tjhin Wiguna, Eloisa Nathania, Kamila Ratu Chaidir, Kindah Mahdiyyah

**Background:** Empathy and systemizing skill are very important for strengthening children's pro-social behaviour. However, the EQ-C/SQ-C questionnaire was originally framed in the English language and has not been translated into the Indonesian language. Therefore, this study aims at validating and analysing the reliability of the EQ-C/SQ-C in the Indonesian version.

**Method:** The study used a cross-sectional design that included 752 primary school students and their parents. They were selected randomly in accordance with their willingness to participate in the study. The parents were asked to fill the EQ-C/SQ-C questionnaire. The educational background of the parents was at least secondary high school. The analysis included content validity, construct validity, and internal consistency reliability test. All analyses were run on SPSS for Mac version 21.

**Result:** The age of children ranged between 4–14 years, with mean (SD) being 10.07 (0.07). The educational background of parents was mostly above the high school degree. The content validity analysis showed that four statements of the EQ-C/SQ-C Indonesian version were not validated by the expert judgment; thus it was deleted. After deleting 7 items of EQ-C and 6 items of SQ-C, the requirement for principle component analysis was accomplished. Principal component analysis of EQ-C/SQ-C items extracted three components with eigenvalue >1. These two components justified 64.39% of the total EQ-C/SQ-C variance. Internal consistency was good with Cronbach’s alpha 0.979.

**Conclusion:** Indonesian EQ-C/SQ-C had a shorter version with 38 items. It is a valid and reliable questionnaire to measure the empathy and systemizing skill among Indonesian children.

Validity and Realibility Study of the Indonesian Empathy Quotient – Systemizing Quotient for Children (EQ-C/SQ-C)
Case Series of Psychocutaneous Disorders with Multi-Disciplinary Approach

Lusiana, Rizky Lendl Prayogo, Shannaz Nadia Yusharyahya, Kusmarinah Bramono, Irma Bernadette Simbolon Sitohang

Introduction: The incidence of psychocutaneous diseases, a group of skin abnormality associated with psychosomatic factor, are increasing recently. About 20-40% patients with skin symptoms have concurrent psychiatric problem which often difficult to diagnose and treat. Koblenzer classified psychocutaneous diseases into two major groups: primary psychogenic and primary dermatology abnormality. This classification could be used for effective treatment in each patient which involves multi-disciplinary approach, including dermatology, psychiatry and other discipline if necessary.

Case: The first case, was a 39 year-old unmarried female with anemia and dermatitis artefacta occurred as wound due to blade cuts. Patient with schizo-affective depressive type and was not under regular treatment. The second case was a 61 year-old male referred with unresolved prurigonodularis since 30 years ago. After in-depth assessment, there were delusional parasitosis and dermatitis para-artefacta. The third patient was a 50 year old female admitted with recurrent ulcer on her face. She was aware that the lesions were intentionally manipulated by her own fingers when she is depressed.

Discussion: All patients were classified as primary psychocutaneous disease with varied skin manifestation. Symptoms usually occurred when the patient was in the depression state or low compliance for the psychotropic drugs. Patients generally had poor insight and refused to be associated with psychiatric factors.

Conclusion: Dermato-veneerologists are expected to do early detection and treat this disease. It is important to approach psychocutaneous disease in multi-disciplinary manner, especially with the psychiatrist

Keywords: psychocutaneous, dermatitis artefacta-para-artefacta, delusion of parasitosis
Effect of Nitrox II in Single Decompression Dive on eNOS expression and FMD among Trained Male Divers

Ika Rahma Mustika Hati

Introduction: Nitrox II is associated with high oxygen partial pressure induces an increase in reactive oxygen species (ROS), which can interfere with the activity of endothelial nitric oxide synthases (eNOS) causing endothelial dysfunction and lower flow-mediated dilation (FMD). This study aims to know the influence of Nitrox II to eNOS expression and FMD as marker of endothelial function.

Methods: Double blind approach made among 39 trained male divers are divided into 2 groups with blocks of randomization, i.e. the control group using air compression and intervention group using Nitrox II. They did a single decompression dive 28 msw, bottom time 50 minutes in hyperbaric chamber. Expression of eNOS was measured using the technique of quantitative ELISA and FMD was conducted using LDF Periflux 5000 on regio brachii, before and after the interventions.

Results: There was decrease of eNOS (p=0.029) and FMD (p=0.001) on air group. The increased of eNOS (p=0.018) and FMD (p=0.023) on Nitrox II group. The average difference of eNOS and FMD on Nitrox II greater than Air Group (p<0.05). There was no significant correlation between eNOS and FMD.

Conclusion: Nitrox II prevent endothelial dysfunction on a single decompression dive 28 msw bottom time 50 minutes proved by the increase to FMD through increased expression of eNOS.
Is There Any Empathy and Systemizing Skills Discrepancies among Primary School Children Based on Their Gender Differences in Indonesia?

Kamila Ratu Chaidir, Eloisa Nathania, Kindah Mahdiyyah, Tjhin Wiguna

Introduction: Empathy might be influenced by gender because of brain structural differences among boys and girls. Therefore, supporting empathy skills among boys and girls should be tailor made based on their gender. This research was conducted to identify whether there are any discrepancies in empathy skills between boys and girls in elementary school in Indonesia.

Methods: This study used cross-sectional design. The Empathy Quotient-Children and Systemizing Quotient-Children (EQ-C/SQ-C) Indonesian version was used to identify the brain type of the children. The questionnaires were distributed through online survey and parents were asked to fill in. The minimum requirement of parent’s education was junior high school and having children in elementary school. There were 620 parents and their children that participated on the study. The sample was analyzed using Chi-square test on the SPSS for Mac version 21.

Results: Boys and girls had differences based on their brain type but the differences were not statistically significant (p>0.05). The proportion of extreme-E brain type was 53% in girls and 47% in boys; Meanwhile the E brain type was 58% in girls and 42% in boys; the B-brain type was 55% in girls and 45 % in boys. Meanwhile the S-brain type was 56% in girls and 44% in boys; and the Extreme-S- brain type was 83% in girls and 17% in boys.

Conclusion: This study found that were no significant association between gender and empathy skills in elementary school children in Indonesia therefore creating a stimulating environment that supporting empathy skills could be generating for all gender in elementary school.
Empathy, Prosocial Behavior, Peer Relationships, and Emotional Problems in Elementary School Children in Indonesia

Kindah Mahdiyyah, Eloisa Nathania, Kamila Ratu Chaidir, Tjin Wiguna

Introduction: Empathy is essential attributes to cope in social life such as soft skills in the form of good prosocial behavior management, ability to build peer relationships and regulate emotion. One of the most serious and prevalent childhood mental health problems are antisocial behavior that comes because of lack of soft skills in performing good social interaction. This study aims to determine whether there is any relationship between empathy and prosocial behavior, peer relation and emotional problems in elementary school children.

Method: This was a cross-sectional study included 620 parents and their children that collected through online questionnaire. The sample selections depend on their willingness to participate on the study by signing the informed consent through the online survey. The study used EQ-C/SQ-C that has been validated in Indonesian version that filled out by parents. The inclusion criteria was parents with a minimum educational background of junior high school and filled the EQ-C/SQ-C questionnaire completely. The Chi-Square and Fisher’s exact test on SPSS for Mac version 21 was used to analyze the data.

Results: Empathy skills were found to have a significant statistical relationship with prosocial behavior and peer relations in boys, girls and the whole sample (p<0.05). At the same time, the relationship between empathy skills and emotional problems showed a significant statistical relationship in girls and the whole sample (p<0.05), but is not significant in boys (p>0.05).

Conclusion: Children need a good empathy to gain better soft skills in their daily living. Therefore creating an educational environment that support the development of empathy skills is necessary nowadays.
The Association between Socio-Demographic Profile and Mental Disorders in Children Who Experienced Sexual Violence

Cherry Chaterina Silitonga, Fransiska Meliana Kaligis, Nurmiati Amir, Noorhana Setiawati Winarsih

**Introduction:** Children who experienced sexual violence have greater risk of experiencing mental disorders and socio-demographic factors are considered to influence this condition. The aim of this study is to know the socio-demographic profile of children who experienced sexual violence and to see the association between socio-demographic profile and mental disorders.

**Method:** It was a cross sectional analytic study, conducted from February 2017 to July 2018, involving 101 children in Cipto Mangunkusumo Hospital and the Integrated Service Center for Women and Children Empowerment (P2TP2A) Jakarta. The data was collected by using demographic questionnaires, SPM, CPM, MINI-KIDS. Data analysis would be done by SPSS for windows.

**Result:** The study show sexual violence occurred 40.6% at school age and 35.7% had below average intellectual capacity. Most common type of sexual violence (64.3%) is penetration contact. Most psychopathology is adjustment disorder (45.2%) while posttraumatic stress disorder is 4.8%. Adjustment disorders occured when child faces another stressor after sexual violence. The age and intellectual capacity of children, unemployed father, type and frequency of sexual violence are some factors that are positively correlated with mental disorders.(p <0.01)

**Conclusion:** There is an association between some of socio-demographic profiles with mental disorders in children who experienced sexual violence.

**Keywords:** children, sexual violence, mental disorders
Effect of Active Isolated Stretching (AIS) on the Reduction of VAS Average and Improvement of Flexibility Average Rate among Campus Bus Driver in Jakarta

Nur Fauziah Sembiring, Dhanasari Vidiawati Sanyoto

**Background:** Musculoskeletal disorders (MSDs) contribute 42-58% of total occupational illnesses and 40% of total occupational healthcare costs globally. There were high numbers of MSDs among workers, those need special treatment for therapy and prevention, especially of shoulder pain among bus drivers. To reduce work related illnesses and to increase productivity rate, active isolated stretching (AIS) was selected to be applied in every day. By systematic trainings and observations to do AIS every day, the study among campus bus drivers proved to reduce the pain and to increase the shoulder flexibilities.

**Method:** This research was a quasi-experiment. The study was conducted in a campus of University in Jakarta for 8 continuously weeks. Started to collect the data before did the AIS (T1), 18 campus bus drivers as study subjects were trained and observed by trained nurse to do AIS regularly before start the day. Data were collected every 2 weeks by trained medical doctors (T1-T5). The data collection procedures was done by an observation check list, questionnaire, neurological examination and interview.

**Result:** There were 18 bus drivers who had average VAS (Visual Analogue Score) of T1 (initial VAS average) was 5.5 and reduce gradually to 2 (0-6) at week 8th (p<0.05). The results of average Apley Scratch Test (AST) of T1 was -9,122 (11302) and became better gradually to -3,833 at T5 (9,133) p<0.05. All shoulder ROMs have a significant improvement from T1 to T5. On Flexion there is an average increase from 166,22 (7,697) to 177,94 (2,838), Abduction from 165 (160-180) to 177 (165-180), Abduction of endorotation from 168.5 (150-165) to 180 (170-180), Abduction of exorotation from 162.56 (4,605) to 173,39 (5,521), Extension from 42,11 (6,747) to 54,89 (8,366), Adduction from 25 (20-40) to 39 (30-45), Endorotation from 62,67 (8,717) to 80,67 (10,738), The exorotation from 71.28 (9.670) to 89.22 (5.694) p<0.05. There was also significant correlations between ages group with shoulder endorotation ROM p<0.05 and r -0.474 and abduction of shoulder exorotation with p <0.05 and r-0.477.

**Conclusion:** The analysis results showed that there was a decrease of average VAS and an increase of average ROM and average Apley Scratch Test. These results suggest that AIS is best used as a therapy and prevention of shoulder pain, but further research on other working populations is needed.

**Keywords:** AIS, Apley Scratch Test, ROM, VAS
Prevent and Reduce Indoor Air Pollution (IAP) Effect in Children

Feri Andriani, Charisma Hilda Dewi

Indoor Air Pollution (IAP) is a key contributor to the global burden of disease mainly in developing countries. The use of solid fuel for cooking and heating is the main source of IAP in developing countries, accounting for an estimated 3.5 million deaths and 4.5% of Disability-Adjusted Life Years in 2010. Other sources of IAP include indoor smoking, infiltration of pollutants from outdoor sources and substances emitted from an array of human utilities and biological materials. Children are among the most vulnerable groups for adverse effects of IAP.

The aim of this study is to increase citizen awareness about how to prevent and reduce IAP effect in children. The method used in this research is descriptive method with the literature study design. Some health effects may show up shortly after a single exposure or repeated exposures to a pollutant. Children have a differential ability to metabolize, detoxify, and excrete environmental agents thereby making them prone to more harm. A higher resting metabolic rate of oxygen consumption per unit body weight in children due to the larger surface area per unit body weight and rapid growth, as compared to adults, makes them more vulnerable. Studies show that in individuals with low anti-oxidant levels, dietary supplements could be used as a promising approach to reducing susceptibility to air pollution, and providing an alternative strategy for neutralizing the effects of pollutants on health. If air pollution levels were reduced, the incidence of asthma, other respiratory diseases, and global burden of disease can reduced.
Impact of Ergonomic Chair – Table to Reduce Shoulder Discomfort in Tapis Weaving Female Workers at Bandar Lampung

Anggun Rizki Nurhani, Retno Asti Werdhani, Suryo Wibowo, Setyawati Budiningsih, Slamet Ichsan

Background: Tapis weaving is an informal sector industrial Lampung Province with a traditional method which need a high accuracy in a work process. It has needed 1–3 months for made every sheet of tapis weaving. Weaving process doing by sitting without arm and back rest. The duration of working is about 4-6 hours per day, which caused a shoulder discomfort symptom. This study was to design a chair – table for tapis weaving by the ergonomic approach, aiming to reduce shoulder discomfort among female tapis weaving workers at Bandar Lampung.

Methods: One group pre-post test examination design, intervention using chair-table tapis weaving for 2 days in 6 hours/day. Cluster sampling method data (n=22) from 2 industrial sectors of tapis weaving in May–June 2018.

Results: Pre intervention mean of Visual Analog Scale (VAS) score for shoulder discomfort is 5.48 ± 0.64, and mean post intervention is 0.77 ± 0.21. Means of VAS score decreased 4.71 ± 0.73 (p<0.001).

Conclusion: There was significant reduction of VAS score using the intervention of tapis weaving chair-table in 2 days intervention.
**The Relationship between Child Sexual Abuse and Academic Performance**

Rizky Saputra Telaumbanua, Fransiska Kaligis, Martina Wiwiek

**Introduction:** Child sexual abuse (CSA) causes physical, emotional, behavioral, and cognitive impairment, thus affecting children’s performance, including academic performance. The objective of this research is to analyze relationship between history of CSA and academic performance. Subjects are senior high school students in Beji District, Depok.

**Methods:** This research was a cross sectional study, which had done by distributing demography and childhood trauma questionnaire to participant, and then collecting their school report score. There were 209 subjects, whom were students from SMAN 11 Depok, SMAIT Al Qudwah, SMA Muhammadiyah Beji, and SMA Tarbiyah Islamiyah. Childhood trauma questionnaire has 45% sensitivity and 93% specificity in diagnosing CSA.

**Results:** From the 209 subjects, 35 subjects had experienced CSA. In this group, 20 subjects had school report score below the class average. Meanwhile, of the 174 people who have not experienced CSA, 89 subjects had school report score below the class average. In positive sexual-abuse-experienced group, 25 subjects had experienced slight to moderate CSA with mean score is 7,23 ± 0,35. Chi-Square test between history of CSA and academic performance have p = 0,517 with RR = 1,27 (95%CI 0,61-2,64).

**Conclusion:** The study shows that there is no statistically significance association between history of CSA and academic performance.
Wellness Program Implementation’s Effect on the Aerobic Physical Exercise Adherence and Blood Lipid Profile Change of the Government Employee

Dina Tri Amalia, Indah Suci Widyahening, Imran Agus Nurali, Ambar Wahyuningsih Roestam, Dewi Sumaryani Soemarko

**Background:** Lack of physical activity is a risk factor for dyslipidemia. Office workers are jobs with low physical activity. Wellness programs are known to increase physical activity and cardiorespiratory in the workplace. This study aims to know the effect of a wellness program implementation on the aerobic physical exercise adherence and blood lipid profile change of the government employee.

**Methods:** This study is randomized controlled trial (RCT) design that was conducted for 6 weeks. A total of 30 subjects who are government employees was divided into 2 groups. Intervention group (n=15) received the intensive wellness program while the control group (n=15) only gets an education. Adherence to exercise and lipid profile levels between two groups were compared.

**Result:** Intervention group were more adherent to do aerobic exercise than the control group (OR=42.2 CI95% 5.1-346.9). There was a significant mean difference of total cholesterol level after intervention between intervention group (181.4±23.1) and control group (183.5±25.3) with p-value=0.011. There were no significant mean difference (p>0.05) in High Density Lipoprotein, Low Density Lipoprotein and triglyceride levels after intervention in both groups.

**Conclusion:** Wellness programs can enhance aerobic physical exercise adherence and decrease the blood total cholesterol level.
Combination of Physical Activity Level and Sleep Duration toward Cardiometabolic Risk Factor among Medical Students of Yarsi University

Karina Ajeng DA Ridwan

Background: Sleep is one activity for humans to rest the body. Several studies have shown that sleep deprivation (SD) is associated with degenerative diseases such as obesity, incidence of type 2 diabetes mellitus and cardiovascular disease (CDV). Sleep deprivation can decrease energy metabolism resulting in decreased leptin and increased adipocyte cell inflammation which is a risk factor for Obesity. The occurrence of Obesity affect the value of Body Mass Index (BMI) and Waist Circumference (WC). In addition, SD may cause an increase in central nervous system (CNS) which may lead to increased insulin resistance and decreased insulin sensitivity so that insulin can not function properly circulating blood sugar (BS) causing an increase BS in circulating. And increase of Blood Pressure (BP) which is a risk factor for CDV. Besides that, increased CNS dan decrease the stimulus to the effector cause an increase Reaction Time (RT) lead to slowing respon. Physical activity (PA) can increase energy metabolism so as to prevent cardiometabolic risk factors for degenerative diseases.

Method: This research used pre and post test control trial for 6 weeks aimed to know the effect of SD and quantity of PA on risk factor of degenerative diseases such as BMI, WC, BS, and BP value. A total of 60 students of Medical Faculty University Yarsi, consisting of 30 peoples SD chronicles and good activity (To campus on foot) and 30 peoples SD Chronicles less activity (using the vehicle to campus). Measurements of variables BMI, WC and BS are done in the morning as much a 2 times the measurements (week 2 and week 5).

Result: Subjects with Good physical activity got the difference value (delta) for BMI ie 3.14, WC value: 1.9, and BS value: 1.03. In the subject of physical activity less obtained BMI value, WC and BS respectively: -0.15, and 0.33, and 5.97. On Subjects enough physical activity, BP: -1.367 mmHg (systolic), -1.80 mmHg (diastolic) and RT: -0.00393 s. Subjects less physical activity BP: -0.96 mmHg (systolic), -2.23 mmHg (diastolic) and RT: 0.001467 s.

Conclusion: After 6 weeks, the difference in the value of BMI, WC, BS and BP (Cardiometabolic risk factors) was greater in subjects with good physical activity. However, the result of RT on students enough physical activity is decreases and increases on students less physical activity It shows that physical activity has a positive effect on SD effects.

Keywords: Sleep Deprivation, Cardiometabolic, Waist Circumference, Body Mass Index, Blood Sugar, Blood Pressure, physical activity.
Sport Studies
Differences in Hormone Levels of Cortisol and Interleukin 5 after Asthma Exercise on Allergic Status In Atopic Asthma

Rahmaya Nova Handayani, Faisal Yunus, Iris Rengganis, Ermita Ibrahim Ilyas

**Background:** Asthma is a chronic airway inflammation that can interfere with activity and quality of life. The interaction of several hormone and mediators that will cause asthma symptoms. This study aims to study identify differences in the hormone cortisol and interleukin 5 after following asthma exercise in atopic asthma.

**Methods:** This research is an experimental study with post-test group design. 39 respondents, as the samples of this study, were taken based on medical records at Prof.Dr. Margono Soekarjo Regional Public Hospital of Purwokerto and history based on GINA 2017 (Global Initiative For Asthma) with sample inclusion criteria. Interleukin 5 test taken from Peripherial Blood Mononuclear Cell (PBMC) and cortisol hormone taken from plasma were done by ELISA. All parameters were tested after doing asthma exercise for 4 times per week in 8 weeks with a duration of 60 minutes. The analysis used was Mann Whitney analysis test.

**Results:** There was a significant difference between cortisol hormone levels and Dermatophagoides pteronyssinus Skin Prick Test (SPT) status after attending asthma exercise with p value: 0.034. While there is no difference between interleukin 5 and SPT status of Dermatophagoides pteronyssinus after taking asthma exercise with p value: 0.174

**Conclusions:** There was a difference between cortisol hormone and Dermatophagoides pteronyssinus SPT status after taking asthma exercise and there was no difference between interleukin 5 and Dermatophagoides pteronyssinus SPT status in atopic asthma who performed asthma exercise.

**Keywords:** Cortisol Hormone, Interleukin 5, Dermatophagoides pteronyssinus Skin Prick Test status, Asthma exercise
The Effect of Asthma Exercise on Cortisol Hormone, Systemic Inflammation and Bronchial Hyperactivity in Asthmatic Persistent

Rahmayna Nova Handayani,1 Faisal Yunus2

1 Doctoral Program In Biomedical Sciences, Department of Medical Physiology, Faculty of Medicine of Indonesia University, Jakarta, Indonesia.
2 Department of Pulmonology and Respiratory Medical Physiology, Faculty of Medicine of Indonesia University, Jakarta, Indonesia.

Background: Asthma is a chronic inflammation of the respiratory tract with limited air flow during expiration. Inflammatory respiratory tract involves the interaction of several cell types and mediators that will cause asthma symptoms. Interleukin-5 is a major cytokine in the pathogenesis of allergic responses that inhibit cortisol and lipid mediators damaging cells and resulting in bronchial hyperresponsiveness and mucus hypersecretion. This study aims to study the effect of Asthma Exercise On Cortisol Hormone, Interleukin 5 In Asthmatic Persistent.

Methods: This research is an experimental study with pre-post-test group design. 39 respondents, as the samples of this study, were taken based on medical records at Prof. Dr. Margono Soekarjo Regional Public Hospital of Purwokerto and history based on GINA 2017 (Global Initiative For Asthma) with sample inclusion criteria. Interleukin 5 test and cortisol hormone were done by ELISA. All parameters were tested before and after doing asthma exercise for 4 times per week in 8 weeks with a duration of 60 minutes. The analysis used was Wilcoxon and spearman analysis.

Results: There was a significant effect before and after asthma exercise increasing cortisol levels and decreasing interleukin 5 with p: 0.000. There was no relationship between the increase of cortisol hormone levels and the decrease of interleukin 5 with p value: 0.989 with r value = -0.002.

Conclusions: Asthma exercise can increase cortisol hormone levels and reduce interleukin 5. However, there is no correlation between the increase levels of cortisol hormone and the decrease of interleukin 5.

Keywords: Cortisol Hormone, Interleukin 5, Asthma exercise
The Effect of Aerobic Interval Training versus Aerobic Continuous Training on Actin and Myosin Levels in Adult Rats Skeletal Muscle

Ermita Isfandiary, Ibrahim Ilyas, Nurul Paramita, Sari Tri Yulianti, Dewi Irawati, Delima Engga Maretha, Sri Widia Jusman

Introduction: Various types of exercise have potential benefits to help maintain and improve muscle mass in adult, particularly in contractile protein, therefore it is necessary to determine which type of exercise and what intensity that yields maximal benefits. This study aims to compare the effect of aerobic interval training (AIT) and aerobic continuous training (ACT) on actin and myosin heavy chain (MHC) levels in adult wistar rats gastrocnemius muscle.

Methods: Twenty male Wistar rats aged 12 months were divided into 4 groups: (1) control group as pre intervention control (C1) decapitated on the first day of study, (2) control group as post intervention control (C2) decapitated after eight weeks of study without intervention, (3) AIT group, which consisted of 4 min running interspersed by 1 min of active rest, 4 times of repetitions, (4) ACT group, which consisted of 40 min continuous running. The treatments were given for 8 weeks. Actin and MHC gastrocnemius muscle levels were measured by ELISA.

Results: There were significant differences in actin and MHC levels between control and training group (AIT and ACT) and there were significant differences in actin and MHC levels between AIT and ACT group.

Conclusions: Aerobic exercise increase actin and MHC levels in adult wistar rats skeletal muscle, and AIT was more effective than ACT.

Keywords: aerobic interval training (AIT), aerobic continuous training (ACT), actin, aging, myosin heavy chain (MHC), sarcopenia
The Effect of Aerobic Continuous and Interval Training on PGC-1α and LDHB Levels in the Heart of Aging Rats

Ermita Isfandiary, Ibrahim Ilyas, Dewi Irawati, Trimar Handayani, Delima Engga Maretha, Nurul Paramita, Sri Widia Jusman

**Introduction:** Aging process can reduce heart function including mitochondrial biogenesis which is affected by peroxisome proliferator-activated receptor gamma coactivator-1α (PGC-1α) that can be induced through physical exercise. Lactate produced during exercise can be used as an energy source in heart that will be converted by Lactate Dehydrogenase B (LDHB). This study aims to compare the effects of aerobic continuous training (ACT) and aerobic interval training (AIT) on heart energy metabolism of adult rats.

**Method:** Twenty male wistar rats (12 months) are divided randomly into 4 groups: control 1 (decapitated on first day), control 2 (decapitated after 8 weeks), ACT group, exercised for 40 minutes, AIT group, 4 minutes exercise, with an active rest interval of 1 minute, 4 repetitions. The speed was gradually increased every week. Exercise were given 5 times/week for 8 weeks. PGC-1α and LDHB of heart levels were measured by ELISA.

**Results:** There were increase levels of PGC-1α and LDHB in the myocardium of adult male winstar rat both ACT and AIT compared to controls that more significantly in AIT.

**Conclusions:** ACT and AIT can increase PGC-1α and LDHB levels in adult rats myocardium, and AIT better than ACT.

**Keywords:** ACT, AIT, PGC-1α, LDHB, myocardium
The Effect of Interval and Continuous Training on PGC-1α and LDHB Level in The Heart of Adult Rat

Ermita Isfandiary, Ibrahim Ilyas

**Introduction:** Mitochondrial biogenesis which is affected by peroxisome proliferator-activated receptor gamma coactivator-1α (PGC-1α), can be induced through physical exercise. In the heart, lactate produced during exercise can be used as an energy source that will be converted by Lactate Dehydrogenase B (LDH B). This study aims to compare the effects of continuous training and interval training on PGC-1α and LDH B level in the heart of adult rats.

**Method:** Twenty male adult Wistar rats (12 months) are evenly and randomly assigned into 3 groups: (1) control group (C group), (2) continuous training group (CT group), (3) interval training group (IT group). Training was conducted using rodent treadmill, 5 days/week for 8 weeks. For CT group the duration was 50 minute. For IT group training consist of 4 minute exercise, an active rest interval of 1 minute, 4 repetitions. The speed was gradually increased each week. After 8 weeks of training the rats were sacrificed and the level of PGC-1α and LDH B in the heart tissue were measure using ELISA method.

**Results:** There were no significant differences, in the level of PGC-1α (p=0.54) and LDH B (p = 0.114) between groups. Level of PGC-1α and LDH B was higher in CT group compared to IT group.

**Conclusions:** In the heart, continuous training has a different pathway in providing energy compare to interval training. The mechanism is still unclear and future research is needed.

**Keywords:** continuous training, interval training, PGC-1α, LDH B, heart
The Effect of Interval versus Continuous Training on Actin and Myosin Heavy Chain Levels in Adult Rats Skeletal Muscle

Ermita Isfandiary, Ibrahim Ilyas

**Background:** Various types of exercise have potential benefits to help maintain and improve muscle mass, particularly in contractile protein. Therefore, it is necessary to determine which type of exercise and what intensity that yields maximal benefits. This study aims to compare the effect of interval training and continuous training on actin and myosin heavy chain (MHC) levels in adult wistar rats gastrocnemius muscle.

**Method:** Twenty male Wistar rats aged 12 months were evenly and randomly divided into 3 groups: (1) control group (2) interval training group, which consisted of 4 min running interspersed by 1 min of active rest, 4 times of repetitions, (3) continuous training group, which consisted of 40 min continuous running. The treatments were given for 8 weeks, 5 days/week. Actin and MHC gastrocnemius muscle levels were measured by ELISA.

**Results:** The result showed that there were significant differences in actin levels between continuous training group and interval training group (p=0.039), but there were no significant differences in MHC levels between continuous training group and interval training group (p=0.231). We found significant differences in actin levels between control group and continuous training group (p=0.016) but there were no significant differences between control group and interval training group (p=0.624). In the other hand, the mean levels of MHC in continuous group was highest than in control and interval training group, but the differences was not significant.

**Conclusion:** In conclusion, we found that continuous training was more effective to stimulate myofibrillar protein than interval training.

**Keywords:** interval training, continuous training, actin, aging, myosin heavy chain (MHC), sarcopenia
Epidemiology and Evidence Based Medicine
Epidemiology and Evidence Based Medicine
Clinical Research

Treatment of Orbital Cellulitis with Unilateral Rhinosinusitis
A descriptive study with literature review

Umar Said Dharmabakti, Yulia Azizah

Background: Orbital cellulitis is one of complication from rhinosinusitis. Although the prevalence in adult is less common than in children, the morbidity is higher. An appropriate treatment for this case should be given to avoid morbidity. The treatments consist of systemic antibiotic and sinus surgery.

Method: This study is a retrospective descriptive study that conducted in Dr. Cipto Mangunkusumo Hospital for six-month. Adult patients with orbital cellulitis as rhinosinusitis complications were enrolled in this study. We evaluate several parameters such as age, signs, involvement of sinus, antibiotic and surgical timing. Literature reviewed also performed by using Ebscohost, Pubmed and Scopus using specific keyword, inclusion and exclusion criteria.

Result: There are 4 cases reported. Range 26-57 years old. All cases had eyelid swelling, two cases had limitation eye movement, and two cases had visual deterioration. Ethmoid sinus is the most common sinus affected. All cases were treated with broad-spectrum antibiotic and metronidazole. Orbital decompression was performed in two cases.

Conclusion: Appropriate treatments such as the use of systemic antibiotic and surgical were needed to decrease the morbidity.
The Relationship between Self-related Adherence, Asthma-related Quality of Life and Asthma Control in Adult Patients in Indonesia

Elida Zairina, Gesnita Nugraheni, Gusti Noorrizka Veronika Ahmad, Arie Sulistyarini, Yunita Nita, Ahmad Bachtiar, Muhammad Amin

Introduction: Medication non-adherences mostly occurs in patients with a wide range of disease severities including asthma. The aim of the study was to assess the self-reported adherence to asthma treatment and to investigate the relationship between adherence and asthma control.

Methods: The study was a cross-sectional study in which participants were recruited at outpatient department, Universitas Airlangga Hospital, Surabaya. Patients (aged ≥ 18 years) with a physician’s diagnosis of asthma who had used any regular asthma medications were included. The standardised questionnaires including Juniper’s Asthma Control Questionnaire (ACQ), Adherence to Refills and Medications Scales (ARMS) and Juniper’s Asthma Quality of Life Questionnaire (AQLQ) were used.

Results: The results of this study is based on a randomised controlled study to evaluate the effectiveness of education management by pharmacist hat is currently on going. Participants’ mean age was 54.16 ± 11.86 years (n=60). About 44 (73.3%) of participants were females, 27 (45%) participants were using Budesonide inhaler and 50 (83.3%) never smoked. The mean of ACQ, AQLQ and ARMS scores were 1.9±1.38, 4.6±1.19 and 17.16±3.66, respectively. Out of 60 patients studied, 35 (58.7%) had “not well-controlled asthma” and more than 90% participants both showed “non-adherence” to asthma therapy and low quality of life related to asthma. There was a significant association between ACQ and AQLQ (p<0.01), whereas no statistically significant association was found between ACQ and ARMS.

Conclusions: The majority of patients at Universitas Airlangga hospital reported non-adherence on asthma medication use. The poor asthma controlled was associated with lower asthma related quality of life.
Continuous versus On-demand Proton Pump Inhibitor Therapy for Laryngopharyngeal Reflux Associated with Lingual Tonsil Hypertrophy: A randomized clinical trial

Susyana Tamin, H.A. Aziz Rani, Adang Bachtiar

Introduction: This study was aimed to ensure the response of continuous and on-demand Proton Pump Inhibitor (PPI) treatment, through improvement in laryngopharyngeal reflux (LPR) associated with lingual tonsil hypertrophy (LTH).

Methods: A prospective cohort study participated by 52 LPR patients associated with LTH. Improved LPR patients after PPI therapy, continued the treatment for 2 months and randomly divided into continuous and on-demand group for further 6 months treatment. Symptoms was scored by Reflux Symptom Index (RSI), while laryngeal inflammation was scored by Reflux Finding Score (RFS), and LTH was assessed using endoscopy.

Results: PPI treatment (lansoprazole 30 mg) twice a day for 6 months gave significant improvement reflected by decreasing RSI (p<0.001). There were no significant differences in mean RSI (p=0.518) and mean RFS (p = 0.393) between continuous groups and on-demand group. PPI treatment for the first and second 8 weeks showed significant improvement. However, no significant improvement in treatment for the next 8 weeks (p>0.05). Improvement with PPI treatment after 6 months, reflected in the continuous decrease in RFS (p<0.001). In grade II LTH, there was significant improvement after PPI treatment continued for 6 months (p<0.001), although there is no improvement after first 2 months continuous treatment. For grade III LTH, PPI treatment for the first 2 months and also 6 months did not show significant improvement.

Conclusion: 6 months of PPI treatment gave improvement in RSI, RFS, and LTH grades although there is no difference between continuous and on-demand treatment.

Keywords: Proton pump inhibitor, laryngopharyngeal reflux
**Outcome of Pregnancy with Intrauterine Device (IUD) in Situ: A Meta-Analysis**

Eka Rusdianto Gunardi, Raymond Surya, Muhammad Dwi Priangga, Riyan Hari Kurniawan, Cepi Teguh Pramayadi, Herbert Situmorang

**Introduction:** Intrauterine devices (IUDs) has the second most used method worldwide. Pregnancy in the presence of IUD results to obstetric complication. This study aims to review the outcome of intrauterine pregnancy among IUD removed, IUD retained, and no IUD.

**Methods:** There were 89, 8, 52 studies found in Pubmed®, Cochrane Library®, and Ovid® database. We included cohort or case-control studies consisting of minimally two groups such as, no IUD and IUD retained or IUD removed and retained. Several outcomes were assessed including preterm birth, miscarriage, premature rupture of membrane (PROM), placental abruption, placental previa, intrauterine growth restriction, chorioamnionitis, and caesarean delivery. The analysis of this meta-analysis used review manager 5.3.

**Results:** There were 7 studies included due to language barrier and accessibility of article. Pregnancy with IUD in situ increased the risk of miscarriage (RR 6.50; 95% CI 4.56-9.28), PROM (RR 1.88; 95% CI 0.98-3.62), placenta previa (RR 2.33; 95% CI 1.14-4.73), placental abruption (RR 4.51; 95% CI 2.82-7.20), chorioamnionitis (RR 6.07; 95% CI 3.91-9.42), caesarean delivery (RR 1.33; 95% CI 1.03-1.71). Meanwhile, IUD removed decreased the risk of miscarriage (RR 0.51; 95% CI 0.39-0.66) and preterm birth (RR 0.57, 95% CI 0.38-0.86) compared with IUD retained.

**Conclusion:** Conceiving with IUD in pregnancy increases the rate of miscarriage, placenta previa, abruption, chorioamnionitis, and caesarean delivery. Meanwhile, IUD removed early in pregnancy decreases the rate of miscarriage and preterm birth.
The Relationship between Body Mass Index and Blood Pressure in Patients Undergoing Chronic Hemodialysis: A Reverse Epidemiology in Jakarta, Indonesia

Lucky Aziza Bawazier, Wicenius Sianipar, Ignatius Stanley, Aria Kekalih

Introduction: In general population, obesity is positively correlated with hypertension. On the other hand, there was hypothesis of “reverse epidemiology” in the relationship between body mass index and blood pressure of hemodialysis patients. This study aimed to investigate the “reverse epidemiology” of the relationship between the two variables in Jakarta, Indonesia.

Methods: Cross-sectional study was conducted at Cipto Mangunkusumo Hospital, Koja District Hospital, and Cengkareng District Hospital in July 2018. Total sampling was performed with a total of 525 hemodialysis patients aged ≥18 years. All data were analyzed from the medical records.

Results: Of 525 patients, 27.4% were obese. The post-hoc analyses showed that the obese patients had significantly lower post-hemodialysis systolic blood pressure (p = 0.006) and diastolic blood pressure (p = 0.004) than the normal weight patients. The chi-square analyses showed that significant associations with post-hemodialysis hypertension were found in the overweight group (OR = 0.53; 95% CI 0.31 – 0.87; p = 0.011) and the obese group (OR = 0.63; 95% CI 0.40 – 0.97; p = 0.038). Being obese was a strong predictor for reduced blood pressure (coefficient β = -0.02; p = 0.031).

Conclusions: Body mass index is inversely associated with blood pressure in patients undergoing chronic hemodialysis.
Association between Small Intestinal Bacterial Overgrowth (SIBO) with Non Alcoholic Fatty Liver Disease (NAFLD) Evaluated with Controlled Attenuation Parameter (CAP) Transient Elastography (TE)

Cosmas Rinaldi Lesmana, Yoga Fitriakusumah, Marcellus Simadibrata, Juferdy Kurniawan, Rino Alvani Gani

Introduction: Multiple hit theory recently known as the pathogenesis of non-alcoholic fatty liver disease (NAFLD) in which small intestinal bacterial overgrowth (SIBO) hypothesized to have important role in NAFLD progression. This study aims to find the association between SIBO and NAFLD.

Methods: An ongoing cross-sectional study performed at RSUPN Cipto Mangunkusumo Hospital. Subjects with ≥1 NAFLD risk factors (diabetes mellitus (DM), obesity, dyslipidemia) are recruited. Exclusion criteria were: Irritable Bowel Syndrome, hepatitis B/C/autoimmune/drug induced, hepatocellular carcinoma, gastrointestinal surgery history, vitamin E, Pioglitazone, Amiodarone, Tamoxifen and Ursodeoxycholic Acid consumption. Subjects underwent glucose breath test (Gastro+™ Gastrolyzer), ultrasonography (GE Healthcare Logiq P6) and transient elastography-controlled attenuation parameter (TE-CAP) (FibroScan® 502 Touch). Statistical analysis (SPSS version 23) was done using bivariate and multivariate analysis.

Results: Of 219 subjects, 124 included in the analysis. Subjects characteristics are 62.9% female median age of 60 years old. There are 77.4% NAFLD subjects and 32.3% of them have SIBO. Comorbidities among NAFLD subjects are 76.7% DM type 2, 80.2% obesity, 80.6% dyslipidemia, 78.3% metabolic syndrome, and 78.3% central obesity. Bivariate analysis showed no significant association between SIBO and NAFLD (p=0.735). Presence of SIBO also did not show any association between non-significant hepatic fibrosis group and significant hepatic fibrosis group (p=0.638). However, the presence of central obesity has statistically significant association with SIBO (p=0.001). Multivariate analysis showed no significant association between SIBO, obesity, dyslipidemia and NAFLD.

Conclusion: SIBO is not associated with NAFLD development and progression, however obesity might play an important role in SIBO related to NAFLD.
Alternative Management of the Rare Cases Recurrent Non-Traumatic Chylothorax: A Systematic Review

Pandu Tridana Sakti

Objective: Chylothorax is a potentially life-threatening disorder because it persistently causes loses of chyle which resulting to malnutrition, weight loss, immunologic consequences, and septicemia. Chylothorax is so unlikely condition, there are no prospective or randomized trial studies have been performed to evaluate the best rule to treat non-traumatic chylothorax.

Method: This study used systematic review method, the literature searched in the Cochrane Library, EMBASE, and PubMed databases with keywords of non-traumatic chylothorax management in adults. The selection literature was based on validity, importance, and applicability standardized by MOOSE guidelines (Meta-analysis of Observational Studies in Epidemiology).

Results: Thirteen articles were selected and reviewed. Five studies reported the conservative management of non-traumatic chylothorax using thoracocentesis, dietary restriction (low-fat diet, Medium-Chain Triglyceride diet, free fat diet, and Total Parenteral Nutrition), octreotide, and chemotherapy with success rate 24-100%. Six studies reported the surgical management using pleurodesis, Thoracic Duct Ligation, and Tunneled Indwelling Pleural Catheter showed the success rate 50-100%. Four studies reported the interventional radiology management using Percutaneous Thoracic Duct Embolization or Percutaneous Needle Disruption of Lymphatic Pathway showed the success rate 66-83%.

Conclusion: Preliminary management of chylothorax can begin with conservative management, if it failed or there was recurrent chylothorax, can be thought of for surgical management and interventional radiology management.
Comparison between Albumin, Prothrombin Time, and Fibrinogen Profile in Staging of Liver Cirrhosis based on APRI Score Classification

Yusra Yusra, Claudio Agustino

Background: Cirrhosis is an end stage of chronic inflammatory disease with the destruction of liver tissue and fibrosis that impairs its function to synthesis albumin, prothrombin, and fibrinogen. Cirrhosis can be detected and classified into 3 groups with non-invasive diagnostic technique by using APRI score.

Objectives: This study aims to find out the significant difference between albumin, prothrombin time, and fibrinogen profile within cirrhosis stages based on classification from APRI score.

Method: Design of the study is cross sectional with 60 patients which meet the criteria from the medical records in the Clinical Pathology Laboratory and center of medical record of RSCM.

Results: The results of the study were analyzed with Kolmogorov Smirnov test showed albumin level, prothrombin time, and fibrinogen (median 2.91, 11.8, and mean 273.7) , Anova or Kruskal Wallis test showed significant difference between these three components based on score APRI classification. ( all p<0.05).Then, Post hoc test (Bonferroni for Anova, Mann Whitney for Kruskal Wallis) of albumin’s profile showed significant difference for comparison between group APRI score less than 0.5 and more than 2. Post hoc test of prothrombin time showed significant difference from all comparisons. Post hoc test of fibrinogen profile showed significant difference from comparison between group APRI less than 0.5 and more than 2 ; APRI 0.5 – 2 and more than 2.

Conclusion: As a results, there are significant difference from comparison between albumin, prothrombin time, and fibrinogen profile in staging of liver cirrhosis based on classification from APRI score.
Liver cirrhosis is defined as end-stage of chronic liver diseases, marked by fibrosis and alteration of liver’s architectural, from normal to nodular. Liver cirrhosis can disrupt the function of liver, causing alteration of liver function marker. APRI score has used as one of non-invasive methods to diagnose and to classify liver cirrhosis’ progression. The aim of this study is to assess some of the liver function test’s profile (ALP, bilirubin, and GGT) and to determine the comparison of them in liver cirrhosis classification based on APRI score. This study use cross-sectional design in 60 patients, classified into three stages based on APRI score i.e. stage with APRI score less than 0.5, between 0.5 and 2.0, more than 2.0. Data were obtained from medical record of the Laboratory Clinical Pathology RSCM. The profile of ALP, bilirubin, and GGT were analyzed using Kruskal-Wallis test to know the comparison of ALP’s profile in liver cirrhosis classification based on APRI score (p>0.05 = not significant difference) and bilirubin and GGT’s profile in liver cirrhosis classification based on APRI score (p<0.05 = significant difference). Post hoc test (Mann-Whitney Test) of bilirubin’s profile showed significant difference when comparing stage with APRI score between 0.5 and 2.0 to APRI score more than 2.0 and APRI score less than 0.5 to APRI score more than 2.0 (p<0.05). Post hoc test of GGT’s profile showed significant difference when comparing stage APRI score less than 0.5 to APRI score between 0.5 and 2.0 (p<0.05). This study conclude that there are significant difference of bilirubin and GGT’s profile in liver cirrhosis stage based on APRI score. However, there isn’t significant difference of ALP’s profile in liver cirrhosis stage based on APRI score.
Epidemiology and Evidence Based Medicine
Clinical Research

The 3rd International Conference and Exhibition On Indonesian Medical Education and Research Institute (ICE on IMERI)

The Configuration, Degree and Obstruction Level Differences of Upper Airway Obstruction in Patient with Sleep Disordered Breathing: Examinations Using Drug Induced Sleep Endoscopy, Muller Manuver and Polysomnography

Niken Ageng Rizki

Background: Upper airway is a dynamic and collapsible anatomical structure which support breathing in human. Evaluation of upper airway need an objective examinations to evaluate the configuration, degree and obstruction level in patient with Sleep Disordered Breathing (SDB). Obstruction of the upper airway can cause SDB. Other than history taking and physical finding, objective examinations of SDB need to be investigated. The configuration pattern, degree and obstruction level of upper airway was found to be different during sleep and when awake.

Purpose: Describing the differences of configuration, degree and obstruction level of upper airway in patient with SDB using Drug Induced Sleep Endoscopy (DISE).

Method: Retrospective data from patients with SDB whom undergone objective examinations of Muller Maneuver (MM), polysomnography (PSG) and DISE was taken to compare the findings.

Results: DISE is the actual observation of upper airway obstruction during sleep which shows a collapsibility breathing pattern of an active airway reflex. DISE can evaluate level th obstruction which cannot be seen in MM. DISE shows dyanamicity of upper airway in real time during sleep

Conclusion: DISE evaluation explains a better understanding of airway obstruction mechanism in SDB thus can give more comprehensive management plan other than MM alone.

Keywords: breathing pattern, drug induced sleep endoscopy, Muller’s maneuver, level of obstruction, obstructive sleep apnea, polysomnography, sleep disordered breathing, upper airway obstruction
Predictors of 3-Month-Mortality of Elderly Patients Visiting Emergency Department in Indonesia

Syafitri Yuliani, Aulia Rizka, Ceva Wicaksono Pitoyo, Muhadi Muhadi

Introduction: Previous studies have documented failure to thrive in elderly after admission to Emergency Departement (ED) which leads to early mortality. None have been known about the predictors of 3-month-mortality in elderly patients visiting ED in developing country such as Indonesia, in which most patients come with severe infection.

Methods: A retrospective cohort study using secondary data of elderly visiting ED of Cipto Mangunkusumo Hospital, a national referral hospital in Jakarta from September 2016 to January 2017. The 3-month-mortality was determined from medical records or phone interviews. We analyzed functional status decline, cognitive function impairment, polypharmacy, delirium, frailty, hypoalbuminemia, malnutrition risk and Rapid Emergency Medicine Score (REMS) in bivariate analysis using Chi-square or its alternative test. Multivariate logistics regression analysis was performed to identify independent predictors of mortality.

Results: From 501 patients, 36 (7.2%) patients were loss to follow up. There were 465 patients evaluated with median age 67 years old (range 60-89 years old). The 3-month-mortality of elderly in ED was 32.5%. The independent predictors of 3-month-mortality in multivariate analysis are functional status decline (OR 3.05; 95% CI 1.63–5.73), polypharmacy (OR 2.65; 95%CI 1.74–4.04), delirium (OR 2.01; 95%CI 1.26–3.21), and hypoalbuminemia (OR 1.89; 95%CI 1.02–3.50).

Conclusion: Functional status decline, polypharmacy, delirium, and hypoalbuminemia are independent predictors of 3-month-mortality among elderly in ED.

Keywords: predictors; 3-month-mortality; elderly; ED
The Relationship between Blood Flow Rate and Quality of Life in Twice-weekly Hemodialysis Patients

Pringgodigdo Nugroho, Jeremia Immanuel Siregar, Rudi Putranto, Cleopas Martin Rumende

Introduction: A low quality of life (QoL) in hemodialysis (HD) patients was related to increased risk of mortality. However, there was no study reported the direct relationship between BFR and QoL in twice-weekly HD patients.

Methods: This cross-sectional study was conducted at the Hemodialysis Unit in Ciptomangunkusumo Hospital, Jakarta. The QoL was assessed using KDQOL-SF™ questionnaire, which was divided in physical (PCS), mental (MCS) and kidney disease-related (KDCS) scores. Patients were divided into group 1 (BFR > 250 ml/min) dan group 2 (BFR ≤ 250 ml/min) for further analysis.

Results: A total of 132 patients were included in the analysis. Patients in group 1 had a significant association with PCS scores ≥ 44 (Prevalence Ratio/PR 1.86; 95% CI 1.15-2.99), as well as KDCS scores ≥ 52 (PR 1.41; 95% CI 1.03-1.92). After multivariate analysis, BFR values of patients in group 1 were still significantly associated with better PCS scores (adjusted PR 1.75; 95% CI 1.12-2.36) and KDCS scores (adjusted PR 1.31; 95% CI 1.04-1.49). Subgroup analysis for patients age ≥ 60 years also showed significant association between BFR > 250 ml/min and PCS scores ≥ 44 (PR 3.08; 95% CI 1.03-9.24).

Conclusion: The BFR values > 250 ml/min had a significant relationship with PCS and KDCS scores in twice-weekly HD patients, as well as better PCS scores in patients aged ≥ 60 years.

Keywords: quality of life; twice-weekly hemodialysis; blood flow rate; KDQOL-SF™.
Correlation between Genital Hiatus (Gh), Perineal Body (Pb), Summation (Gh+Pb) of POP-Q Examination and Maximum Levator Hiatal Area of Ultrasound Examination from Symptomatic Pelvic Organ Prolapse

Kukuh Wibowo Kustarto, Fernandi Moegni

**Background:** to provide data on the correlation of levator hiatus area measurements in symptomatic POP using 3D / 4D Ultrasound with clinical examination of Gh, Pb and summation (Gh+Pb).

**Methods:** Secondary data analysis of 160 POP patients examined from January 2012 to April 2017 at the Urogynecology Clinic RSCM, Jakarta. Taken data on patient characteristics, maximum 3D / 4D Ultrasound measurement of Levator Hiatus Area, and clinical measurement results using pelvic organ prolapse quantification system (POP-Q)

**Results:** There was a positive correlation between clinical examination and measurement of hiatal area area using ultrasound with r = 0.43 for Gh length, and the medium correlation on the sum of Gh and Pb with r = 0.51. No correlation for Pb length with r = 0.23. The optimal cut to differentiate degrees 2 by 3 is 7.5 cm / 29.7 cm2 and degree 3 by 4 is 8.3 cm / 32.1 cm2.

**Conclusion:** Clinical examination by summing the lengths of Gh and Pb may be consider reflects the examination of the hiatal area by using transperineal ultrasound to see the strain on levator ani called “ballooning” in an area with limited resources.

**Keywords:** genital hiatus, levator hiatus area, pelvic organ prolapse, perineal body.
Challenging Treatment of Bilateral Toxic Optic Neuropathy Secondary to Alcohol Intoxication

Nizma Permaisuari, Nur Aisyah Rahmawati, Husni Thamrin

Introduction: Alcohol poisoning, including methanol, could cause toxic optic neuropathy leading to irreversible blindness. This article aims to report a case of bilateral toxic optic neuropathy secondary to alcohol intoxication in remote area with limited resources.

Methods: This is a case report.

Case: A 35-year-old male presented to the emergency room complaining of sudden visual loss in his both eyes with a history of aldurated alcohol consumption. At physical examination, the visual acuity was no light perception in both eyes. Intraocular pressures in both eyes were within normal limits. Ocular movements were normal. Both pupils were mydriasis and no response to light. Fundus examination showed bilateral disc edema with the blurring of disc margins. Hemodialysis and ethanol were not available in our medical centre. Patient then received 250 mg intravenous methylprednisolone every 6 hours, 1000 mg intravenous citicoline, and timolol 0.5% twice daily for the first day. For the next 4 days, patient was treated with 125 mg intravenous methylprednisolone every 6 hours and followed by oral methylprednisolone. Visual acuity remained unchanged after initial treatment. Patient is lost to follow-up after discharge.

Conclusion: Ingestion of even small amount of aldurated alcohol containing methanol can cause irreversible blindness. Unsatisfactory treatment outcomes in this case highlight that management of methanol-induced optic neuropathy is still challenging; thus further study is needed to determine the effective treatment regimens, especially in remote area.
Outcomes and Complications of Cataract Surgery in Indonesia: a Multicenter Study

Nur Aisyah Rahmawati, Randy Sarayar, Annisa Nindiana Pertiwi, Herdanti Rahma Putri, Arnes Tasya Citra Anggini, Nizma Permaisuari, Gabriella Chandra, Andrew John Widya Sieman, Cynthia Viryawan, Muhammad Khoirul Huda, Dyah Astri Paramaramya, Yeni Dwi Lestari Mail

Introduction: Cataract is the leading cause of blindness worldwide and the only treatment is surgery. This article aims to report the outcomes and complications of cataract surgery in 6 hospitals in Indonesia.

Methods: This was a cross-sectional study of 193 eyes diagnosed with cataract and treated surgically from August 2017 to March 2018. Data on socio-demographic characteristics, pre and postoperative visual acuity (VA), types of surgery, and complications were recorded from medical record, then analyzed bivariately. Postoperative VA was defined as best-corrected visual acuity (BCVA) on the last visit.

Results: Out of 193 eyes included in the study, only 170 were analyzed. Phacoemulsification, manual small-incision cataract surgery (SICS), and extracapsular cataract extraction (ECCE) were performed in 77 (45.3%), 87 (51.2%), 6 (3.5%) eyes respectively. Preoperatively, 119 (70%) were blind, 15 (8.8%) had severe visual impairment (SVI), 29 (17.1%) had moderate visual impairment (MVI), and 7 (4.1%) were normal. Postoperatively, 133 (78.2%) were normal, 26 (15.3%) had MVI, 4 (2.4%) had SVI, and 7 (4.1%) were blind. There were 159 (93.5%) eyes with visual improvement. Blindness conversion rate was 94.95%. The overall complication rate was 15.3%, mostly due to corneal edema (7.1%), intraocular lens dislocation (1.8%), and endophthalmitis (1.2%). There was no significant difference in postoperative visual outcome between phacoemulsification and non-phacoemulsification group (p=0.279), but complication events were significantly higher in phacoemulsification group due to corneal edema (p<0.001).

Conclusion: Any types of cataract surgery significantly improved VA, but complication rate was higher in phacoemulsification group mostly due to corneal edema.
Lower Urinary Tract Symptoms in Anuric and Non-anuric Adult Patients after Renal Transplantation: A Comparative Study

Maulidina Medika Rahmita, Harrina Erlianti Rahardjo, Arry Rodjani, Nur Rasyid

Introduction: A defunctionalized bladder before renal transplantation (RT) might lead to the development of a low capacity and poorly compliant bladder. This study aims to investigate lower urinary tract (LUT) symptoms in anuric and non-anuric individuals after RT.

Methods: LUT function and symptoms were assessed in subjects who had undergone RT at Cipto Mangunkusumo Hospital, Jakarta, Indonesia from November 2016 to June 2017. A case control study was conducted. Subjects were divided into anuric and non-anuric groups. We excluded patients that could not undergo uroflowmetry.

Results: Thirty-two (21 male, 11 female) subjects were recruited in this study. The anuric subjects were younger than the non-anuric ones (47 ± 12.82 vs. 51.31 ± 16.33, p < 0.001). There were no significant differences in the International Prostate Symptoms Score (IPSS), Overactive Bladder Symptoms Score (OABSS), maximum urinary flow rate (Qmax), and post-void residual (PVR) and voided volume between anuric and non-anuric subjects (6.5 ± 3.67 vs. 6.25 ± 2.95, p = 0.567; 4.06 ± 2.01 vs 4.12 ± 2.39, p = 1.000; 20.32 ± 9.04 vs. 22.32 ± 10.31, p = 0.956; 41.12 ± 37.63 vs. 47.62 ± 38.63, p = 0.361; 227.88 ± 112.30 vs 251.06 ± 126.75, p = 0.588, respectively). IPSS-voiding symptom, IPSS-storage symptom and OAB symptom did not differ significantly between both groups (p > 0.05). Thirteen (81.3%) and seven (43.8%) subjects of the anuric and non-anuric group were both pleased with their quality of life, respectively.

Conclusions: LUT symptoms do not differ between anuric and non-anuric patients.
The 3rd International Conference and Exhibition On Indonesian Medical Education and Research Institute (ICE on IMERI)

Epidemiology and Evidence Based Medicine
Clinical Research

Efficacy of High-Dose Intravenous Steroid as a Treatment of Methanol-Induced Optic Neuropathy: A Systematic Review

Nizma Permaisur, Nur Aisyah Rahmawati

Introduction: According to American Academy of Clinical Toxicology, patient presenting with ocular manifestations, should be treated with fomepizole, ethanol, or hemodialysis, which are not always available in all health-care facilities in rural areas in Indonesia. This article aims to examine the existing literature of high-dose intravenous steroid efficacy for the treatment of patients with methanol-induced optic neuropathy.

Methods: Literature searching was conducted using keywords and MeSH headings specifically chosen to identify published articles on Pubmed, Cochrane, Science Direct, EBSCO, and Google Scholar. Articles included were full-text observational study or randomized controlled trial in English.

Results: Four case series and 1 case report of methanol-induced optic neuropathy were found in bibliographic databases. We identified 74 patients with bilateral optic neuropathy due to methanol ingestion who were initially treated with 1000 mg intravenous methylprednisolone, single or divided doses for 3-4 days or intravenous dexamethasone for 1 week followed by oral prednisolone. Thirty five out of 68 patients from 4 articles showed visual improvement. In other article, there was statistically significant difference of best-corrected visual acuity between before and after treatment (p=0.008 and p=0.005 respectively for right and left eye). Literature searching was conducted using keywords and MeSH headings specifically chosen to identify published articles on Pubmed, Cochrane, Science Direct, EBSCO, and Google Scholar. Articles included were full-text observational study or randomized controlled trial in English.

Conclusions: Intravenous high-dose steroids may have benefit in visual status of patients with methanol optic neuropathy. However, further study with larger sample size is needed to determine the characteristics of patients who may benefit most from this regimen.
**Effectiveness of Music Therapy to Improves Sleep Quality in Elderly Patients with Sleep Disorder: An Evidence-Based Case Report**

Rudi Putranto,1 Sarah Annadya2

1 Division of Psychosomatic and palliative care Department of Internal Medicine Cipto Mangunkusumo Hospital/Faculty of Medicine, Universitas Indonesia
2 Faculty of Medicine, Universitas Indonesia

**Background:** Currently one-tenth of world population consists of elderly (>60 years old). Most of elderly suffer from physical illness and mental disorders, including sleep disorder that cause functional impairment for them during the day. Music in known to be an effective and safe method to improves the quality of sleep in elderly. The Aim of study is to find the effectiveness of music therapy to improves sleep quality in elderly patients with sleep disorder.

**Method:** Searching the evidence was done with three major scientific database consisted of Pubmed, Cochrane Library, and Science Direct resulted three relevant article. Articles were reviewed critically based on Center of Evidence-Based Medicine of Oxford University to appraise the validity, importance, applicability, and level of evidence.

**Results:** Study conducted by Chan M et al (2010) showed significant difference among the four time points for sleep quality level (p = 0.001) compared with the control group (p = 0.252). 3 months intervention done by Wang et al (2016) showed the intervention group demonstrated continous improvement in sleep quality based on the global PSQI score at each time point (p = 0.020; 0.012; 0.001). A meta analysis by Wang CF et al involving ten randomised controlled trial study, the sleep quality was improved significantly by music (standard mean difference : –0.63; 95% CI : –0.92 hingga –0.34; p < 0.001)

**Conclusion:** Music intervention is an effective and safe non pharmacological approach for improving sleep quality among elderly patients. Adjustment to each patient those with different characteristics is required in providing music therapy.

**Keywords:** sleep quality, elderly, music
Diagnostic Performance of Calf Circumference to Estimate Muscle Mass as a Component of Sarcopenia in Elderly Outpatients

Purwita Wijaya Laksmi, Siti Hapsari Mitayani

**Background:** Sarcopenia is one of the geriatric syndromes that leads to poor outcomes. A simpler method than Bioelectrical Impedance Analysis (BIA) or Dual Energy X-ray Absorptiometry (DXA) is needed to measure muscle mass as essential component of sarcopenia. Previous studies have shown calf circumference (CC) as surrogate marker of muscle mass. However there has been no study on the role of CC in estimating muscle mass in both gender of elderly outpatients.

**Objectives:** To investigate the diagnostic performance of CC to estimate muscle mass in elderly outpatients.

**Methods:** A cross sectional study was conducted at Geriatric Outpatient Clinic of Cipto Mangunkusumo Hospital Jakarta during April – June 2018, using DXA as a reference test for measuring muscle mass. Asian Working Group of Sarcopenia (AWGS) criteria was used to classify muscle mass as normal or low.

**Results:** Of the 120 subjects, 46 subjects were male (38.3%) and 74 were female (61.7%). The optimal cut-off for CC that indicate low muscle mass was 34 cm for male (sensitivity 64.7%, specificity 79.3%, PPV 64.7%, NPV 79.3%, AUC 73.1%) and 29 cm for female (sensitivity 71.4%, specificity 95.5%, PPV 62.5%, NPV 97.0%, AUC 96.4%).

**Conclusion:** CC can be used to estimate muscle mass in elderly outpatients, especially for female, with good diagnostic performance.

**Keywords:** calf circumference, elderly, muscle mass, sarcopenia.
Association between Muscle Mass Index and Physical Frailty in Geriatric Outpatients

Purwita Wijaya Laksmi, Nur Ainun

Introduction: Frailty syndrome is an emerging geriatric giant. A theoretical link between frailty and low lean mass has been established, however previous studies have shown inconclusive results.

Methods: A cross-sectional study was conducted on elderly subjects (≥60 years old) in the Geriatric Outpatients Clinic of Cipto Mangunkusumo Hospital from April to June 2018. Each subject underwent anthropometric measurement, frailty evaluation using Cardiovascular Health Study (CHS) questionnaire dan lean mass measurement using dual energy X-ray absorptiometry (DXA). Appendicular lean mass (ALM) measurement was adjusted by height squared (ALM/ht2) and body mass index (ALM/BMI) to indicate muscle mass index.

Results: The proportion of frail, pre-frail and robust subjects according to CHS were 29.17%, 58.33% and 12.5% respectively. We found significant difference in ALM/ht2 between frail dan non-frail subjects [6.54 (1.01) Kg/m2 vs. 7.03 (0.91) Kg/m2; p = 0.01] but nonsignificant result for ALM/BMI (p = 0.72). No association was found between frailty status and muscle mass index of ALM/ht2 (PR 2.03; 95%CI 0.80-5.15; p = 0.13) nor ALM/BMI (PR 5.09; 95%CI 0.45-58.06; p = 0.2). From multivariate analysis, frailty was significantly associated with nutritional status (OR 3.67; 95%CI 1.59–8.49; p = 0.02) and functional status (OR 4.94; 95%CI 2.01–11.75; p = 0.00).

Conclusion: Muscle mass index was not significantly associated with physical frailty but nutritional and functional status were. This study supports the use of ALM/ht2 for muscle mass index.

Keywords: appendicular lean mass; elderly; frailty syndrome; muscle mass index
Older People with More Positive Attitude Have Higher Quality of Life

The Maria Meiwati Widagdo, Mitra Andini Sigilipoe, Widya Christine Manus, Teguh Kristian Perdamaian

Introduction: As life expectancy increases, people live longer and expect to have a good quality of life until old age. The purpose of this study is to assess the correlation between the attitudes toward ageing and quality of life as this issue has not been well researched in Indonesia.

Methods: This is a cross-sectional study of older people aged 60 years or over living in Yogyakarta Municipality, Indonesia. The attitude toward ageing of the respondents was assessed using The Attitudes to Ageing Questionnaire (AAQ), while the quality of life was measured using WHO QOL OLD. Spearman Rank correlation was used to analyse the correlation between the attitudes toward ageing and the quality of life of the respondents.

Results: There were 378 older people consisting of 257 females and 121 males who participated in this study. The youngest respondent aged 60 years and the oldest was 95 years, with mean age and standard deviation (SD) of 70.06±7.141 years. AAQ score ranged between 59-116 with mean±SD of 88.06±10.112. The overall WHO QOL OLD score was 99.77±9.963 ranging between 61-119. There was a significant correlation between the AAQ score and WHO QOL OLD score (ρ=0.532, p<0.001).

Conclusion: Older people with more positive attitudes toward ageing have higher quality of life. Qualitative research to investigate factors affecting attitudes toward ageing will be beneficial to build more positive attitudes toward ageing among older people.

Keywords: attitudes toward ageing, quality of life, older people, Indonesia
Overview of Fetal Intervention at Harapan Kita Mother & Child Hospital, Indonesia

Andri Welly, Gatot Abdurrazak, Irvan Adenin, Sadina Pramuktini Besar, Novan Satya Pamungkas, Aditya Kusuma

**Introduction:** Fetal intervention is a subdivision to Maternal-fetal medicine (MFM), while MTM itself is a subspecialistic filed that dealing with knowledge and training related medical, surgical, obstetrical, fetal, and genetic complications related pregnancy and their effects on both the mother and fetus. In Indonesia, fetal interventional therapy is spearheaded by Fetomaternal Division in Harapan Kita Mother & Child Hospital. Our aimed is to promote the development of team approach to the care of the high-risk pregnancy that will be useful for obstetric care in the Indonesia. The relationship between the obstetric care provider and the MFM subspecialist depends on the acuity of the maternal and/or fetal condition and the local resources.

**Methods:** Retrospective cohort study of all fetal interventional procedure in the Harapan Kita Mother’s and Child Hospital as a tertiary referral hospital, between January 2014 and July 2018.

**Results:** During January 2014 until June 2018 period, we dealing with 608 cases related fetal-maternal intervention such as amniocentesis, amnioinfusion, intrauterine transfusion, fetoscopy, fetal bladder shunt, etc.

**Conclusion:** More research is needed to evaluate the impact of MFM care on outcomes. Therefore, in the future, we suggest a contribution from the Government behalf Ministry of Health, POGI, IDAI as a team for having A National Fetal Treatment Working Group.

**Keywords:** Fetal treatment, high risk pregnancy, maternal-fetal medicine, maternal outcome, neonatal outcome, perinatal outcome.
Clinical Research
Epidemiology and Evidence Base Medicine

**Cognitive Impairment and Social Engagement among Community-dwelling Elderly in Yogyakarta City, Indonesia**

Teguh Kristian Perdamaian, The Maria Meiwiati Widagdo, Mitra Andini Sigilipoe, Widya Christine Manus

**Background:** Social engagement is well-known associative with cognitive function, especially among elderly. This study is aimed to identify the association between social engagement and cognitive impairment among elderly in Yogyakarta.

**Method:** This is a cross-sectional study measuring the association between cognitive impairment and social engagement. Social engagement was measured with Bassuk’s Index of Social Disengagement (BISD) comprising 6 domains. BISD has 0-6 scale and higher score describes better social engagement. Cognitive impairment is defined as MMSE score ≤ 24 (adjusted with age and education). We tested the proportion of cognitive impairment and increasing BISD score with $\chi^2$-trend test, and 5% level of significance.

**Result:** We obtained data from 377 elderly (≥ 60 years old) and found 80 (21,1%) person with cognitive impairment. Most of the elderly has BISD score 3 (28,0%) and 4 (35,1%). We also discovered a decrement of cognitive impairment proportion with the better social engagement score (from 50% to 9%). However, this trend only showed a borderline significance ($\chi^2 = 3,291, \text{df} = 1, p = 0,070$).

**Discussion:** This study revealed a relationship between improved social engagement with the presence cognitive impairment. Social activities could be influenced by cognitive impairment through the decreased capability of communication and the presence of emotional disturbances. Further, this might lead to worse quality of life of the elderly.

**Conclusion:** Cognitive function contributes to elderly social activities, which further corresponds with quality of life. Further community intervention should address these issues.
Epidemiology and Evidence Based Medicine
Clinical Research

Lipid Accumulation Product Index as A Predictor of Type 2 Diabetes:
A Systematic Review

Dicky Levenus Tahapary, Gratcia Ayundini, Pradana Soewondo

Introduction: The excess of fat accumulation contributes to the development of insulin resistance, hence type 2 diabetes mellitus (T2DM). Lipid accumulation product (LAP) index is an index computed from waist circumference and triglycerides, which represents increased lipotoxicity. We aim to study the use of LAP index as a predictor of T2DM.

Methods: We performed a systematic review on all studies reporting the use of LAP as a predictor of T2DM which were published in English language. We searched in PubMed and Cochrane database using the terms of lipid accumulation product, LAP, type 2 diabetes, predictor.

Results: We retrieved 3 cross-sectional studies and 1 cohort study which were performed in India, Japan, USA and Iran. In India, LAP was better in the identification of overt T2DM than BMI, with the cut off value of 50.8. In Japan, they reported different cut off values, which were 21.1 for women and 37.2 for men. A high LAP corresponds to a higher risk of T2DM [19.1 (6.6 – 55.5) for women and 7.4 (5.1 – 10.8) for men]. In line with these studies, in USA, LAP index was also superior to BMI for identifying adults with T2DM. In Iran, however, it was only true for younger individuals.

Conclusion: LAP index is a practical equation as a proxy for body fat accumulation which can be used as predictor of T2DM. However, its performance as a predictor of T2DM in different ethnic and age group needs further studies.
Visceral Adiposity Index as a Predictor of Type 2 Diabetes Incidence: Cohort Study on Non-Communicable Diseases in Bogor City, West Java Province, Indonesia

Pradana Soewondo, Randy Nusrianto, Muhadi Muhadi, Woro Riyadina Mail

Introduction: It has been reported that visceral fat plays a relatively more important role in the development of type 2 diabetes (T2DM) than subcutaneous fat. Visceral Adiposity Index (VAI) is an equation model developed in Caucasian to estimate visceral fat accumulation, and has been reported to better predict the future development of T2DM. We aim to assess whether it can also predict T2DM in Indonesian population.

Methods: We analysed a secondary data from the Bogor Non-communicable Diseases Cohort Study 2011-2016 which involved all participants aged 25-65 years old without the diagnosis of T2DM at baseline. The role of VAI as the predictor for T2DM was analysed using linear regression analysis.

Results: We involved a total of 5215 subjects (2022 men and 3193 women) in this study, of which the number of subjects who were diabetics, prediabetes, and normoglycemic were 3806, 1020, and 389 respectively. At baseline, we observed a significant VAI differences between those three groups. For prediction analysis, we only included the prediabetic group at baseline for analysis (n=1020). In women (n=754), the subjects who developed T2DM had a significantly higher VAI \[1.16 (0.62-1.87) \text{ vs } 0.82 (0.58-1.24), p=0.005\] at baseline. While in men (n=266), we observed no significant differences \[1.38 (1.09-1.41) \text{ vs } 1.43 (0.95-2.44), p=0.38\].

Conclusion: VAI is a practical equation which can potentially be used as a predictor of T2DM in Indonesia, but only in women.
The Effectiveness of Hyperbaric Oxygen Therapy on Healing of Chronic Diabetic Foot Ulcers: an Evidence-based Case Report

Annisaa Yuneva, Kuntjoro Harimurti

Background: One of chronic complications frequently found in patients with uncontrolled diabetes mellitus is diabetic foot ulcer, as a result from peripheral neuropathy and peripheral vascular disease. Hyperbaric Oxygen Therapy (HBOT) is predicted to improve the ulcer healing process. However, the effectiveness of this therapy is uncertain. Objective: To find out whether hyperbaric oxygen therapy is effective in improving ulcer healing process and decreasing the amputation rate based on the Evidence-Based Medicine practice.

Methods: The structured literature searching was done according to the clinical question using PubMed, Cochrane Library, dan ProQuest. The chosen article was critically appraised according to its validity, importance, and applicability.

Result: After the selection process based on the inclusion and exclusion criteria, one appropriate systematic review was found. From that systematic review, it is known that the hyperbaric oxygen therapy improves the short-term ulcer healing process (RR = 2.35, 95% CI 1.19 - 4.62; P = 0.014), but not known for the long-term effect. The decrease of rate of amputation is also not statistically significant.

Conclusion: HBOT improves the short-term diabetic foot ulcer healing process, for now there is no enough evidence that HBOT improves long-term healing process and decreases amputation rate.

Keywords: hyperbaric oxygen therapy, diabetic foot ulcer, wound healing, amputation
Unafraid to Die? Correlation of Cognitive Function and Quality of Life of the Elderly in Yogyakarta

Mitra Andini Sigilipoe, Widya Christine Manus, Teguh Kristian Perdamaian, The Maria Meiwit Widagdo Hariyono Winarto, SpOG(K)

Introduction: Based on a survey done by Indonesian Centre of Statistics, the Special Administrative Region of Yogyakarta (Yogyakarta) has the highest number of elderly population (13.05%), compared to other regions. Therefore, special attentions regarding healthcare must be given to this elderly population in order to maintain a good quality of life.

Method: This study was done in Yogyakarta, during November-December of 2017. 377 people, age 60 y.o. and above, who resided at home and able to communicate well verbally, participated in this study. Cognitive function was measured by Mini-Mental State Examination (MMSE), with adjustment to educational background. 6 dimensions of World Health Organization Quality of Life in Older people (WHOQOL-Old) was used to measure quality of life in elders. Correlation was analyzed using MANCOVA.

Result: The average age of participants was 70.09 ± 7.157, with MMSE’s mean score 26.52 ± 3.293. 21.2% of all participants were suspected having mild cognitive disorder, due to their low MMSE’s score. Analysis of all WHOQOL-Old’s dimensions showed the highest average at 18.21 ± 2.998 on Death and Dying, and the lowest at 15.62 ± 2.296 on Social Participation. MANCOVA’s analysis showed correlation between MMSE’s scores and all 5 dimensions of WHOQOL-Old (p<0.05). No statistically significant correlation was established between Death and Dying domain of WHOQOL-OLD and MMSE’s score.

Conclusion: This study suggested that most elderly in Yogyakarta have good cognitive function, and relatively good quality of life. Further studies are needed regarding factors that correlated with Death and Dying’s perception in the elderly.

Keywords: Cognitive, Quality of Life, Elderly.
Epidemiology and Evidence Based Medicine
Basic Science

**Depression and Quality of Life among the Elderly in Yogyakarta**

Widya Christine Manus

**Introduction:** Elderly are prone to suffer from depression. Depression in the elderly isn’t a normal aging process often underdiagnosed or misdiagnosed. The symptoms of depression are more often complained as symptoms related physical complaints such as insomnia, concentration disorders, unexplainable fatigue or pain. Depression in the elderly is also lack of treatment and can decrease quality of life.

**Method:** This cross-sectional study was done in Yogyakarta, during November-December of 2017. 430 elderly people with ages ≥ 60 years. This study investigated the relationship between depression and the quality of life of elderly according to Geriatric Depression Scale (GDS) and World Health Organization Quality of Life in Older People (WHOQOL-Old). Data was analysed using Pearson correlation.

**Result:** From the 430 elderly people, there were 63 (14.7%) who had mild depression and 5 (1.2%) had severe depression. Statistical analysis of WHOQOL-Old showed that means of domain sensory (15.667±0.341), autonomy (14.473±0.318), social participation (14.159±0.243) love and intimacy (14.79± 0.295), past-present (14.972±0.214) and death (16.643±0.297). There were significant negative correlation between depression and all domain of quality of life (p<0.05).

**Conclusion:** Depression in elderly often misdiagnosed or underdiagnosed. Level of depression can decrease quality of life in elderly.

**Keywords:** depression, quality of life, elderly
Effectiveness of Gabapentin in Reducing Pruritic Burn: A Systematic Review

Eva Chintia Yessica¹, Matius Kitu¹

¹ Department of Surgery. RSUD Umbu Rara Meha, Sumba Timur, East Nusa Tenggara, Indonesia

Introduction: Pruritus is a very common and distressing symptom suffered by burns victims. Over the decades, antihistamines and emollients has been the traditional of antipruritic therapy, this study aims to critically appraise the evidence of gabapentin as a breakthrough in relieving burn pruritus.

Methods: The PubMed and Cochrane CENTRAL databases were queried for researches investigating the link between gabapentin and its effects in pruritic burn on March 2018. The abstracts and full text of the retrieved articles were scanned for potentially relevant trials that fulfilled the inclusion criteria. The methodological quality of the included trials was assessed using a PEDro scale.

Results: One RCT met the inclusion criteria and was considered eligible for review. The study was considered as high quality and showed a significant association between the administrations of gabapentin and its relieving effect in burn pruritus compared to antihistamine. The trial discovered that gabapentin could reduce 95% from the initial mean VAS score compared to 52% for the cetirizine group. In addition, the onset of action with gabapentin was significantly faster than the cetirizine group.

Conclusion: It is quite evident from this study that gabapentin is significantly better and has a faster action than cetirizine as mono-therapy in resolving burn itch. However, more studies regarding this particular topic are needed to prove the consistency of the effectiveness of gabapentin.
Clinical Features of Endometriosis: a laparoscopy study in women with and without endometriosis

Ririn Rahmala Febri, Raden Muhammad, Lydia Olivia

Introduction: Endometriosis is an abnormal glandular and stromal tissue that resembles an endometrium, which grows in the uterine cavity and can cause chronic inflammation. Until now, the prevalence of endometriosis still tends to increase, with the prevalence in the general population in the range of 0.7-44% (ACOG, 2005), 26.5% in 40-44 years, and 52.7% in 18-29 years.

Methods: Cross-sectional research in December 2016 – October 2017 in Ciptomangunkusumo hospital. Endometriosis patients undergoing laparoscopy or laparotomy were recruited by consecutive sampling. Subject characteristics from each group were then analyzed using descriptive univariate and presented in frequency and percentage. Qualitative data will be tested for its normality and presented in the table.

Results: We found that the factors with an increased risk for endometriosis include age (p=0.02), and blood glucose (p=0.02). The mean of body mass index (BMI) of endometriosis group was 22.81 ± 1.74 kg/m², whereas in control group was 22.99 ± 1.71 kg/m², but there was not statistically different (p>0.05). We also found that the average of leukocytes in endometriosis group was 8045 ± 1645.71/µl and control group was 932.76 µl, statistically, leukocytes did not show significant differences (p>0.05).

Conclusion: Age and blood glucose are all strongly associated with the development of endometriosis.

Keywords: Age, blood sugar, body mass index, endometriosis, leukocytes.
Introduction: The prevalence of asthma increased in the last two decades. Because of the similarity in their pathophysiology, helminth infections was suspected to be the cause of asthma.

Methods: A search of relevant literature was conducted using three databases (Pubmed, EBSCO, and Proquest) and related search terms. Etiological study in human and English-language or Bahasa was included. After screening for duplication and reading the full text, this search led us to four relevant studies to be critical reviewed.

Results: Infection of A.suum (adjusted OR 3.96; 95% CI 1.53-10.29), A.lumbricoides (adjusted OR 2.59; 95% CI 1.28-5.16), and T.trichiura (adjusted OR 2.33; 95% CI 1.35-3.98) can cause an asthma. Chronic infection of A.lumbricoides (OR 0.37; 95% CI 0.11-0.95) and T.trichiura (OR 0.25; 95% CI 0.11-0.54) also current infection of T.trichiura (OR 0.68; 95% CI 0.5-0.94) can become protective factors for asthma.

Conclusion: Helminth infection can be a cause or protective factor for asthma based on the intensity of the infection.
Effectiveness of Autologous Mesenchymal Stem Cell on Healing of Diabetic Foot Ulcer

Bertha Kawilarang¹, Archietta Niigata Putri²

¹ Faculty of Medicine Universitas Pelita Harapan, Indonesia
² Department of Biology, Faculty of Mathematics and Natural Sciences Universitas Indonesia, Indonesia

Background: Diabetic foot ulcer remains a challenging disease to both patients and physicians. Approximately 15 to 25% of diabetic patients may develop diabetic foot ulcers, in which there is a long period of time for successful healing to take place. Failure of healing may lead to foot gangrene requiring lower limb amputation. Despite various treatment modalities to date, there is no standard consensus on treatment of diabetic foot ulcer. The aim of this systematic review is to obtain objective evaluation on efficacy of autologous mesenchymal stem cell towards healing outcomes of diabetic foot ulcer.

Method: The design of this study is systematic review using PRISMA protocol. Literature search were done on PubMed, ScienceDirect and ClinicalKey databases, and selected articles were critically appraised. The data evaluation included type and origin of stem cells used, route of stem cell administration, follow up period, and outcomes of efficacy.

Results: Research articles that meet the criteria were 6 studies. Based on existing evidences, all of the obtained studies showed significant improvement in diabetic foot ulcer patients measured by better rest pain, shorter ulcer healing time, lower amputation rate and improved prognosis compared to patients without stem cell therapy.

Conclusion: Application of autologous mesenchymal stem cell may be an effective and safe treatment strategy in the management of diabetic foot ulcer. However more randomized clinical trials with better study designs may be required for further studies.

Keywords: Mesenchymal stem cell, diabetic foot ulcer, treatment
Meaning of Elderly Life with Chronic Disease Living with Family:
Phenomenological Study

Bahtiar

Introduction: Many elderly should undergo lifelong treatment caused by chronic illness that will cause symptoms which affect the physical, psychological, social and spiritual aspects. Spirituality plays an important role in health conditions and social relationships so that the meaning of life can be felt when the individual is able to see the wisdom of life events experienced.

Method: The purpose of this research to figure out of the elderly experience with chronic illness to their meaning of life. This research was using descriptive phenomenology method to 13 older with chronic illness by using thematic analysis of Collaizi.

Results: The meaning of elderly life with chronic illness is (1) submitting to God (2) destiny of God (3) Taking care until death, (4) get financed, (5) replacing role/ representation, (6) can see child and grandchild development while facing chronic illness.

Conclusion: Families are expected to facilitate the meaning of elderly life with chronic illness in order to support the fulfillment of spiritual needs of the elderly.
The Effectiveness of Triple Dose Albendazole in Treating Soil Transmitted Helminths 
Infection in Perobatang village, Southwest Sumba

Saleha Sungkar, DAP&E, MS, SpP

Soil transmitted helminths (STH) infection is a major health problem in tropical countries such as Indonesia. Albendazole is an effective and widely used anthelmintic to treat STH, but not effective towards T.trichiura. Its effectiveness also varies between populations and geography. Hence, we conducted a study to determine the effectiveness of triple dose albendazole in children of Perobatang village, Southwest Sumba, Indonesia. A pre-post study was carried out in Perobatang village on July 2016. Children aged 1-15 years old were enrolled in the study and asked to collect stool samples which were then analyzed using Kato Katz method. The children infected with STH were given albendazole 400 mg for three consecutive days. From 246 subjects examined, 192 (78%) were positive with STH; T.trichiura (64%), A.lumbricoides (60%), and hookworms (10%). After treatment, the prevalence of STH decreased significantly (McNemar test, p<0.001) to 27%, T.trichiura 25%, A.lumbricoides 2%, hookworm 0%. Cure rate for T.trichiura, A.lumbricoides and hookworms are 61%, 97% and 100% respectively. Significant decrease of eggs per gram of feces was found in A.lumbricoides and T.trichiura (Wilcoxon test, p value <0.001) but not hookworms (Wilcoxon test, p=0.317); egg reduction rate for T.trichiura (91%), A.lumbricoides (100%) and hookworms (100%). In conclusion, triple dose albendazole is effective in controlling STH.
A Highlight: Therapeutic Potential of Butyrate-producing Bacteria \textit{Faecalibacterium prausnitzii} as Crohn’s disease Treatment

Nathaniel Alvin Sanjaya

\textbf{Introduction:} Crohn’s disease (CD) has been associated with dysbiosis (changes in the number of several gut microbiota). Treatment using a particular type of bacteria has therapeutic potential for CD.

\textbf{Method:} Google Scholar search engine was used to conduct the literature review with keywords mainly related to CD and various treatments using bacteria. Relevant research and review papers from the years 2008-2018 were included in the study.

\textbf{Results:} Treatment using butyrate-producing bacteria, \textit{Faecalibacterium prausnitzii}, works through suppressing the pro-inflammatory cytokines production, including TNF-, IL-1, and IL-6 while upregulating the production of anti-inflammatory cytokines including IL-10 and FOXP3+ cells, by secreting this anti-inflammatory molecule. Butyrate produced by \textit{F. prausnitzii}, also inhibits NF-B activation, resulting in the decrease of mentioned pro-inflammatory cytokines. For comparison purpose, the treatment effect of inflammatory bowel disease (IBD) with other developed probiotics and synbiotics is provided in this review. The result shows that \textit{F. prausnitzii} is the best candidate for CD treatment since it effectively regulates the pro-inflammatory cytokines by also controlling the anti-inflammatory cytokines.

\textbf{Conclusion:} This review highlights \textit{F. prausnitzii} as the promising novel treatment in CD. However, further investigations are needed regarding the mechanism of action of this secreted metabolite, their effects on in vivo studies, and clinical trials.
Efficacy of Metformin on Histological and Biochemical Improvement among Patients with Non-Alcoholic Fatty Liver Disease: An Evidence-Based Case Report

Diyah Ayu Rosalinda, Rachmat Hamonangan

Introduction: Non-alcoholic fatty liver disease (NAFLD) is a condition of liver damage that is associated with metabolic syndrome and its prevalence increases as the prevalence of diabetes and obesity remain high. Based on the pathogenesis, the use of insulin sensitizer, such as metformin, considered to have benefits in improving NAFLD condition.

Method: Literature searching was conducted through PubMed, EBSCO, Cochrane, and ProQuest. The articles were appraised using therapy worksheet from the Center of Evidence-based Medicine (CEBM), University of Oxford.

Result: Two articles were obtained: 1 systematic review and 1 randomized control trial (RCT) study. One RCT study have poor validity, so the appraisal of importance and applicability is only conducted on systematic review article by Li Y et al. According to the article, the group given metformin did not improve histological response: steatosis (P = 0.66), inflammation (P = 0.91), hepatocellular ballooning (P = 0.25), and fibrosis (P = 0.90); but decreased levels of ALT (MD= -8.12 U / l, P = 0.03) and AST (MD= -4.52 U / l, P = 0.04).

Conclusion: Metformin treatment has no significant effect on liver histology improvement, but significantly improve liver biochemical parameters.

Keywords: Non-alcoholic fatty liver disease, metformin, fatty liver progression, liver histological parameter, liver biochemical parameter
High Blood Glucose Associated Factors among Adolescents with High BMI: Analysis of 2017 Health Registry of Universitas Indonesia’s New Students

Yosafat Lambang Prasetyadi, Naufal Arkan Abiyyu Ibrahim, Tutug Kinasih, Dhanasari Vidiawati

Introduction: This study aims to investigate the associated factors of higher blood glucose (HGB) among adolescents with high BMI (≥23) and its prevalence.

Method: Cross-sectional analysis study was conducted on the data obtained from Klinik Makara Universitas Indonesia’s medical checkup consecutive new students admitted in 2017. A total of 7269 registries were identified, with only 1982 meeting the inclusion criteria. There were 102 registries excluded from analysis hence 1880 were analyzed. Independent variables were gender, smoking history, sleep deprivation, family history, lack of physical activity, high systolic blood pressure (HSBP) which measured >120mmHg, and fast food consumption. The dependent variable was HBG (>140gr/dl). The association between variables was analyzed using a bivariate method and logistic regression analysis.

Result: The prevalence of HBG was 14.3%. HSBP, which occurred on 18.7% sample, was independently associated with HBG status (OR=1.862; 95%CI: 1.384 – 2.504). Other factors which should have association theoretically, have a low association in this study, due to the population that is limited to high BMI only. The result indicated 4% of the sample have HBG, HSBG, and high BMI. These three factors tend to develop metabolic syndrome. HSBP is also the most significant association based on logistic regression analysis, making a two-fold increase in HBG status among adolescents.

Conclusion: HSBP as the most influential factors on HBG status must become the focus of intervention among adolescents with high BMI. Further examination defining blood lipid status and waist circumference should be conducted on students who tend to develop metabolic syndrome.
A Tri-Center Survey of Cognition and Sleep in Indonesians

Anthony Paulo Sunjaya, Angela Felicia Sunjaya

Introduction: Sleep is an important complex physiologic state. However today, prolonged wakefulness and sleep-deprivation has become a widespread phenomenon. Impaired quantity and quality of sleep has been found detrimental to cognitive function. Nevertheless, the study on cognition and sleep has been lacking in Indonesia. This study therefore aims to survey the state of cognition and quantity of sleep in three centers in Indonesia.

Methods: This is a cross-sectional analytical study based on results of the Indonesia Basic Health Survey (INABHS). One-hundred-and-forty-six subjects (mean age 64 years) were recruited. Data was collected through face-to-face interview by trained interviewers. Cognitive function was screened using MiniCogTM, Clock Drawing Test (CDT), 3-Item Recall and simple-arithmetic. Patients were also questioned on their sleep quality and quantity.

Results: The prevalence of mild-cognitive impairment, dementia and sleep disorder was 6.9%, 20.7% and 23.4% respectively. Majority of the patients were male and completed 12 years of education. Based on their sleep quality, no significant differences were found in age between both groups, those sleep-deprived had an average sleeping time of 4.5 hours while those not sleep deprived slept for an average of 6.8 hours. Results for recall and the MiniCog examination were significantly better (p-value <0.05) in the non-sleep deprived compared to the sleep-deprived group. Furthermore, a significantly higher proportion of dementia was found in the sleep-deprived compared to the non-sleep deprived group (35.3% vs 16.2%).

Conclusions: Sleep disorder resulted in significantly poorer recall and MiniCog test results as well as higher proportion of dementia.
Antihypertensive Effects of Nigella sativa: Weighing the Evidence

Angga Wiratama Lokeswara

Introduction: Hypertension causes 7.5 million deaths worldwide. Antihypertensive drugs are known to cause side effects, potentially leading to nonadherence, hence uncontrolled hypertension and increased risk of cardiovascular morbidity and mortality. Therefore, there has been increasing interest in other alternatives, one of which is black cumin, or Nigella sativa, a traditional medicine which has been empirically used. Hence, this evidence-based case report aims to evaluate the current evidence on the effectiveness of Nigella sativa in reducing blood pressure in a mildly hypertensive patient.

Methods: A search of literatures was performed in MEDLINE, TRIP Database, Clinical Key, ScienceDirect, and DynaMed, using the keywords “nigella sativa”, “hypertension”, and “blood pressure” with all their synonyms and related terms. The included studies were two systematic reviews and two clinical trials, which were then critically appraised.

Results: Out of four studies, three were considered valid. In terms of importance, Sahebkar, et al showed a reduction of WMD: -3.26 mmHg, 95% CI: -5.10, -1.42, I2=59% for SBP and WMD: -2.80 mmHg, 95% CI: -4.28, -1.32, I2 =60% for DBP. Badar, et al concluded that N. Sativa significantly reduces systolic and diastolic blood pressure compared to control group. Two studies were considered applicable in this case.

Conclusion: The current evidence on the effect of Nigella sativa in lowering blood pressure is limited. However, one strong evidence suggested significant antihypertensive effects of Nigella sativa. In a mild hypertension, Nigella sativa could be one of the therapeutic options.

Keywords: hypertension, blood pressure, Nigella sativa, black seed, black cumin.
Epidemiology and Evidence Based Medicine
Undergraduate student

**Systematic Review on the Impact of Centella Asiatica Administration for Cognitive Improvement in Humans**

Viharsyah Aulia Akbar Mail

**Background:** Cognitive impairment has become a rising problem in the society which based on a international wide research, there is a prevalence of 5.9% across four continents. Currently there are no available standard drugs to treat it so it is needed alternative medicine to help the patients. Centella asiatica has been used as a supplement for cognitive enhancement, however there has not been a review that supports the effect of such administration in humans. This study aims to establish the effects of Centella asiatica administration for cognitive improvement.

**Methods:** The search strategy in this study uses the database of Cochrane, Pubmed, Science Direct and Google Scholar which focus on RCT and medication with Centella asiatica or its combination. Based on this criteria, This study has selected three randomized controlled trials for evaluation which studies the effects of either Centella asiatica on its own or combined with other medication.

**Results:** This review shows that despite some issues in two trials during the critical appraisal, all three trials are deemed suitable to be included in this review.

**Conclusion:** The conclusion of this review shows that although there is a significant effect of cognitive enhancement with the administration of Centella asiatica, further studies are still needed due to the methodological limitations that can be found in the trials themselves, these limitations can affect the results of the trials to be insufficient for a definitive effect of the administration of Centella asiatica for cognitive improvement.

**Keywords:** Centella asiatica, Cognitive Improvement, Human
Epidemiology and Evidence Based Medicine
Undergraduate student

**Aloe vera VS Silver Sulfadiazine for Second-Degree Burn Wounds: an Evidence-based Case Report**

Clara Menna, Nabilla Calista, Leorca Aurino, Adisti Dwijayanti

Current treatment for second-degree burn wounds such as silver sulfadiazine (SSD) may cause side effects such as delayed and incomplete wound healing therefore leaving a scar. Traditional plants empirically used for burn wounds like *Aloe vera* seems to be a promising option with better safety profile. This study compared *Aloe vera* to SSD as topical therapy for second-degree burn wounds. Three clinical trials were searched through Cochrane, PubMed and DynaMed databases and were critically appraised. Two of the studies stated that *Aloe vera* was more effective in treating second-degree burn wounds than SSD 1% with NNT 5 patients. *Aloe vera* therapy showed faster healing and early epithelialization. Moreover, *Aloe vera* could diminish the pain earlier. The third study combined *aloe vera* with another herbs hence also revealed better healing abilities than SSD.

**Keywords:** *Aloe vera*; silver sulfadiazine; second-degree burn wound
Molecular Biology and Proteomic
Low Runx3 Expression Alters Dendritic Cell Function in Patients with Systemic Sclerosis and Contributes to Enhanced Fibrosis

Alsyia Affandi

**Background:** Systemic sclerosis (SSc) is an autoimmune disease manifested by inflammation, vasculopathy, and fibrosis in skin and internal organs. The type I IFN signature found in SSc propelled us to study plasmacytoid dendritic cells (pDCs) in this disease.

**Methods:** PCR-based transcription factor profiling and methylation status analyses, SNP genotyping by sequencing, and flow cytometry analysis were performed in pDCs from healthy controls or SSc patients. Itgax-Cre:Runx3f/f mice were used in in vitro assays and bleomycin-induced SSc skin inflammation and fibrosis model.

**Results:** RUNX3 was significantly downregulated in SSc pDCs on RNA and protein levels. A higher methylation status of the RUNX3 gene correlated with RUNX3 gene expression level and disease susceptibility. We identified a non-synonymous SNP rs6672420 associated with SSc and hypermethylation of RUNX3. Additionally, pDCs cultured in hypoxic conditions showed a significantly lower RUNX3 expression. Furthermore, mouse pDCs deficient of Runx3 showed enhanced expression of co-stimulatory molecules upon CpG stimulation. Finally, in SSc bleomycin model, mice with DC-specific deletion of Runx3 showed increased skin inflammation and fibrosis.

**Conclusion:** We found low RUNX3 expression in pDCs of SSc patients. The presence of a SNP and higher methylation status of RUNX3, and downregulation in hypoxic condition, suggest at least three pathways underlying the low RUNX3 expression observed in SSc pDCs. We demonstrate a detrimental role of RUNX3-ablated DCs in a mouse SSc model further underscoring the role of pDCs in this disease. Further research is warranted to explore the potential therapeutic effect of RUNX3 targeting in fibrotic disease.
Impact of Gut Microbiota in Non Alcoholic Fatty Liver Disease Progression Evaluated with Transient Elastography

Winda P Bastian,¹ Irsan Hasan,¹ C. Rinaldi A. Lesmana,¹ Ikhwan Rinaldi,² Rino A. Gani¹

¹ Department of Internal Medicine, Hepatobiliary Division, Cipto Mangunkusumo Hospital, Universitas Indonesia, Jakarta, Indonesia,
² Department of Internal Medicine, Clinical Epidemiology Unit & Hematology and Oncology Division, Cipto Mangunkusumo Hospital, Universitas Indonesia, Jakarta, Indonesia

Introduction: Dysbiosis of the gut microbiota is associated with the pathogenesis of NAFLD from steatosis resulting to liver fibrosis. This study aims to find the proportion of gut microbiota in NAFLD patient with stages of liver fibrosis.

Methods: Human fecal samples from NAFLD patients were collected consecutively in an ongoing prospective cross sectional study performed at RSUPN Cipto Mangunkusumo Hospital. The stool sample examination was performed using isolation DNA kit (Tiangen) and quantitative real-time polymerase chain reaction (Fast 7500) was used to measure total bacterial counts (Bacteroides, Lactobacillus and Bifidobacteria). The stage of fibrosis were diagnosed based on transient elastography (FibroScan® 502 Touch). Statistical analysis including bivariate analysis were performed using SPSS version 20.

Results: Of 60 human fecal samples, there are 35 patients with non-significant fibrosis and 25 patients with significant fibrosis and consist of 28 (46.7%) male and 32 (53.3%) female with the median age is 56 years old. Most patients have diabetes mellitus (85%), followed by dyslipidemia (58.3%), and obesity (58.3%), however central obesity was found in 90% of patients. The proportion of Bacteroides (81%) was the highest when compared to Lactobacillus (16.9%) and Bifidobacteria (2%). The higher proportion of Bacteroides was also found in significant fibrosis group (64.1%) when compared to those with non significant fibrosis (35.9%), but bivariate analysis showed no significant difference between each gut microbiota and the fibrosis group; Bifidobacteria (p=0.88), Lactobacillus (p=0.22), and Bacteroides (p=0.13). Further analysis revealed that there is significant difference of Bifidobacteria (p=0.005) and Lactobacillus (p=0.012) between obese NAFLD patients and non-obese NAFLD patients.

Conclusion: There is a dysbiosis of gut microbiota in NAFLD pathogenesis although the proportion of the gut microbiota is not significantly different among fibrosis group.
**Hibiscus sabdariffa Linn Potential for Treatment of Obesity through FGF21 in Rats**

Neng Tine Kartinah, Imelda Rosalyn Sianipar, Nuraini Diah Noviati, Heriyanto Tang, Afifa Radhina

**Background:** Browning of adipose tissue is the process of changing phenotype white adipose tissue to adipose beige which is important for the treatments of obesity. This process is induced by activation of fibroblast growth factor 21 (FGF21) that the analog drugs of FGF21 was thiazolidinediones (TZD) has been made. Currently, there are several studies of Hibiscus sabdarifaa Linn (H. sabdariffa) which have the potential to weight loss in many obese patients. But the mechanism underlying the weight loss in related to FGF21 is remain unclear. This study aims to determine the potential of H. sabdariffa compared by FGF21 levels for the treatment of obesity.

**Methods:** This study was an experimental study in vivo using male Sprague-Dawley rats, age 8-10 weeks, initial weight 110-160 g. Rats were randomly assigned to 3 groups : (1) Normal control group (K), (2) Obese control group (Ob), (3) Obese group extracted H. sabdarifaa 200mg/kgBW/day (Ob-Hib2). Rats administered H. sabdarifaa extract for 5 weeks. Measurement of FGF21 levels in rat’s white adipose tissue using ELISA method.

**Results:** There was an increase in FGF21 levels in the obese group given H. sabdarifaa compared with the obese group without H. sabdarifaa

**Conclusion:** H. sabdarifaa has potential for treatment of obesity through increasing FGF21 levels which important in beiging process
CpG ODN 2006x3_PD with/without Chitosan Nanoparticles Delivery Induced Treg and Th1 Type Cytokines of Human Peripheral Blood Mononuclear Cells

Febriana Catur Iswanti, Samsuridjal Djauzi, Mohamad Sadikin, Arief Budi Witarto, Tomohiko Yamazaki

Background: Development of allergy pathogenesis understanding led to new approach of allergy treatment. Toll like receptor (TLR) 9 agonist is an immunostimulator which may restore immunological imbalance Th2 biased toward Th1. CpG ODN 2006x3_PD was reported as a potential safe TLR9 agonist due to its natural backbone. In this study we examined CpG ODN 2006x3_PD potency to stimulate Th1 type cytokine and Treg type cytokine, whereas inhibit Th2 type cytokine with/without chitosan nanoparticles (NP) delivery on human peripheral blood mononuclear cells (PBMC).

Methods: Chitosan nanoparticles were prepared by using ionic gelation method. Isolation of 10 human PBMC consist of 5 healthy and 5 rhinitis allergy donor was obtained by lymphoprep solution using leucosep tube. Stimulation of CpG ODN 2006x3_PD with/without chitosan nanoparticles was performed in a 96 well micro plate using RPMI 1640 culture medium in a 5% CO2 incubator for 7 days. IFNγ, IL-10 and IL-13 cytokines levels of supernatants were measured by sandwich ELISA method.

Results: There were relative increase of IFNγ and IL-10 production from healthy and allergic PBMC both on ODN and ODN+NP stimulation groups. While IL-13 level of healthy and allergic PBMC did not decrease both on ODN and ODN+NP stimulation groups. Use of chitosan nanoparticles in this in vitro study has not clearly shown improvement of delivery efficiency.

Conclusion: It seemed CpG ODN 2006x3_PD may induced Th1 and Treg type cytokines production of PBMC although there was no significant inhibition of Th2 type cytokine production.
Cloning and Expression of Non-Structural 1 (NS1) Gene Dengue Virus Serotype 4 in Escherichia coli

Zaid Ramdhan Anshari, Fernita Puspasari, Ihsanawati Ihsanawati, Dessy Natalia

Indonesia has the second-highest epidemic dengue in the world. Health Ministry of Republic Indonesia reported that there was 0.67% mortality rates in January - May 2017. An accurate and rapid diagnostic test is needed to allow the proper handling of the dengue virus infected patients. One of the important component in diagnostic test is NS1 protein. NS1 protein is an antigen that can interact with IgG and IgM antibody in dengue virus infected patients. The purposes of this research were to construct pET32b-DENV4-NS1 recombinant plasmid and to produce DENV-4 NS1 recombinant protein in Escherichia coli. A gene fragment of 1,059 base pair (bp) encoding DENV4-NS1 was amplified by PCR technique using pET16b-DENV4-NS1 as a DNA template. The DNA fragment encoding DENV4-NS1 was subcloned into pET32b expression vector between restriction sites of EcoRI and XhoI to obtain a 6,931 bp recombinant plasmid pET32b-DENV4-NS1. E. coli BL21(DE3) was transformed by pET32b-DENV4-NS1. SDS-PAGE analysis showed that Trx-DENV4-NS1 fusion protein is produced with molecular mass of ~55 kDa. The DENV-4 NS1 aggregat was unfolded in 8M urea. The unfolded DENV-4 NS1 was then refolded in Ni-NTA column chromatography by serial dilution step. The refolded Trx-DENV4-NS1 fusion protein was digested with thrombin to remove Trx from the fusion protein. SDS-PAGE analysis showed that the resulted DENV-4 NS1 has molecular mass of ~45 kDa. The recombinant DENV-4 NS1 protein recognizes NS1 monoclonal antibody on the commercial NS1 diagnostic kit test.
The Reduced of Breast Cancer Stem Cells (CD24-/CD44+) Sensitivity to Doxorubicin is Associated with Oxidative Stress Status

Resda Akhra Syahrani, Septelia Inawati Wanandi

**Background:** Breast cancer has been widely reported to have high incidence of therapy resistance even to doxorubicin, the most effective drug. This may be due to the presence of breast cancer stem cells (BCSCs) owing self-renewal capability to survive in oxidative stress. Doxorubicin is an anthracycline anti-cancer chemotherapy that inhibits DNA replication. Until now, the association of doxorubicin resistance with oxidative stress remains unclear. This study was aimed to analyze BCSC sensitivity to doxorubicin and its relation to oxidative stress.

**Methods:** BCSCs (CD24-/CD44+) were treated with doxorubicin every two days for 14 days. Determination of cell viability was performed using trypan blue exclusion assay. ROS levels were measured using Dihidroethydium (DHE) and Dichloro-dihydro-fluorescein (DCFH-DA) probe. Manganese superoxide (MnSOD) expression was analyzed, as well as its activity. GSH level was measured using Ellman’s method.

**Results:** BCSCs viability treated with doxorubicin was decreased (64.23%) on the second-day, but started to increase (84.53%) after eight days and reached 92.57% on the 14-day treatment. Following 8-day doxorubicin treatment, ROS level in BCSCs was reduced along with increased MnSOD specific activity, although MnSOD mRNA expression was suppressed. Meanwhile, GSH level was decreased after 14 days of treatment.

**Conclusion:** Two-day doxorubicin treatment induced cytotoxicity by increasing superoxide level of BCSCs. Reduced BCSC sensitivity to doxorubicin after 8-day treatment was associated with suppressed oxidative stress due to the enhancement of antioxidant MnSOD capacity.

**Keywords:** breast cancer stem cells, doxorubicin, oxidative stress, MnSOD, GSH
Molecular Biology and Proteomic
Basic science

Apoptotic Activity of Alpha Mangostin in Acetaldehyde-Induced Hepatic Stellate Cells: an In Vitro Study
Melva Louisa

Introduction: Alpha mangostin has been reported to have cytotoxic potentials via induction of apoptosis and cell cycle arrest in human breast cancer and hepatocellular carcinoma in vitro. Previous study had also shown that alpha mangostin ameliorates proliferation of hepatic stellate cells in alcoholic liver disease model in vitro. However, whether alpha mangostin exerts its effect by inducing apoptosis is still unknown. This study was aimed to analyze the apoptotic properties of alpha mangostin in acetaldehyde-induced hepatic stellate cells in vitro.

Methods: Immortalized human hepatic stellate, LX2 cell line, were incubated with acetaldehyde with or without alpha mangostin (10 and 20 μM). After treatments, cells were harvested and subjected for RNA isolation. The apoptotic markers, Bax, Bcl-2, Caspase-3, and Caspase-9 were analyzed using qRT-PCR.

Results: Acetaldehyde treatment resulted in a significant decrease in the mRNA expressions of Bax and Caspase-3 and a slight decrease in the expressions of Caspase-9. Alpha mangostin treatment resulted in a significant increase in mRNA expressions of Bax, Caspase 3, and Caspase 9. We observed decreased mRNA expressions of Bcl-2 in alpha mangostin-treated cells. These effects were shown to be dose-dependent manner.

Conclusion: Alpha mangostin has an apoptotic activity in acetaldehyde-induce hepatic stellate cells in a dose dependent manner.
Hypoxia and Oxidative Stress
Role of PPAR gamma in the Browning Process in Rats Treated With Hibiscus Sabdariffa Linn.

Neng Tine Kartinah, Imelda Rosalyn Sianipar, Afifa Radhina, Heriyanto Tang, Nuraini Diah Noviati

**Background:** Obesity is a health problem with metabolic disorders such as cardiovascular disease, diabetes, and cancer. One interesting approach is the browning process that uses energy through elevating thermogenesis activity. The browning process is affected by peroxisome proliferator-activated receptor-γ (PPARγ) level. Currently, the role of Hibiscus sabdariffa Linn has been recognized for obesity treatment, in addition to the role of PPARγ working together with C/EBP which inhibits adipogenesis. But it is not clear yet the role of pparγ in improving the process of browning. Therefore, this study aims to determine the potential of Hibiscus sabdariffa Linn on the process of browning through the role of PPARγ.

**Methods:** In-vivo experimental study in eighteen male Sprague Dawley rats aged 8-10 weeks, with an initial body weight of 110-160 grams. Rats were divided into three groups randomly: Control (K), Obesity are not given extract (Ob), Obesity were given Hibiscus Sabdariffa Extract 200mg/kgBW/day (Ob-Hib2). Treatment is given for 5 weeks. Measurement of adipose tissue PPARγ levels was measured by qRT-PCR.

**Results:** This study will show an increase in PPARγ levels in adipose tissue due to the administration of Hibiscus Sabdariffa Extract.

**Conclusion:** Hibiscus sabdariffa Linn has the potential to increase PPARγ which plays a role in the browning process for obese patients.
Clove (Syzygium aromaticum) Antioxidant Effect on Plasma and Liver of Rats Induced by CCl4: 3 Day Clove Duration Decrease Carbonyl Level.

Ani Retno Prijanti

**Introduction:** Free radicals becoming serious problem and lead to various degenerative diseases. Mechanism of destruction by radicals was through destruction of DNA, protein, lipid, and carbohydrate. Carbonyl compounds are the damaged product of protein and carbohydrate. Clove (Syzygium aromaticum) is a spice traditionally known has strong antioxidant effect. In this study we conduct experiment to reveal antioxidant effect of clove water extract on liver and plasma protein damages in CCl4-induced rats and their correlation.

**Methods:** This research design was experimental in vivousing 24 Wistar strain rats divided into 6 groups. Group I: Normal control, II: Positive control (CCl4 induced rat + alpha-tocopherol), III: Negative control (CCl4 induced rat), IV: CCl4 induced rat + 1 day clove, V: CCl4 induced rat + 3 days clove. The clove dose was 200 mg/kg body weight (BW). The CCl4 non toxic dose was 0.55 mg/kg BW.

**Result:** Results showed that liver carbonyl concentration in group III lower than IV but not significant, (p=0.257). Group III higher than V, but also not significant, (p=0.91). Group IV significantly higher than I, (p=0.005), and also than V (p=0.008). Plasma carbonyl concentrations result showed that group III significantly lower than IV (p=0.008), and higher than V, but not significant (p=0.085).

**Conclusion:** Three days Clove administration has antioxidant effect to carbonyl compounds in CCl4-induced free radical damages in the liver and plasma.

**Keywords:** Syzygium aromaticum, Carbonyl compounds, CCl4, antioxidant
Animal Research
The Effect of Extremely Low Frequency – Electromagnetic Field (ELF-EMF) for Delayed Union Fracture Femur: Analysis in Radiological and Biomechanical Axial Load in a Rat Model

Ismail Hadisoebroto Dilogo, Andika Dwiputra Djaja

Background: Delayed union in fracture healing affect millions of individual each year, often causing non union that requiring surgical intervention. Recent studies shown that pulsed electromagnetic field (PEMF) therapy improved either bone and soft tissue healing in a rat model. The purpose of this study was to analyze the radiological process of fracture healing in delayed union bone model and the biomechanical quality of callus formation.

Methods: Forty eight Sprague-Dawley Rats underwent delayed union fracture of left femur and ORIF using the intramedullary device followed by extremely low frequency EMF therapy for 4 hours daily. Control animal did not received EMF therapy. Biomechanics by axial loading test and radiological properties were assessed at 2, 3, 4, and 5 weeks.

Result: improvement in biomechanical properties were identified for treated animals when compared with untreated. ELF-EMF therapy showed significant improvements in callus mechanical properties at 4 and 5 weeks. Bone formation radiologically improved using the Radiographic Union Score for Tibial (RUST).

Conclusion: Overall, our study results suggest that ELF-EMF therapy has a positive effect on rat delayed union bone healing and callus formation in both biomechanical and radiological properties at different stages of bone healing.
Animal Research  
Basic Science

**Development of Rat Model for Histomorphological Evaluation of Full-thickness Damage Thermal Burns**

Dewi Sukmawati, Lia Damayanti, Astheria Eryani, Elvin Clara Angmalisang, Jeanne Adiwinata Pawitan

Burn injury is one of common trauma in our daily and may become a severe case if it damaged the full thickness of the skin. It leads to organ dysfunction and cosmetically impairment. The dynamic process of burn wound healing is complex and involved various phases. A thorough understanding of the normal healing process is a prerequisite for unveiling pathophysiology of burn wound healing, while further study in human is limited by ethically concern. We developed a rat model of full-thickness skin damage in thermal injury. We used male Sprague dawley rats to create a burn wound model by preheated metal plat. Rats were prepared and anesthesized during wounded. Wound closure were observed and measured by visitrak in time course followed by histological analysis. The pre-heated metal plat had successfully created a full-thickness damage of skin burn wound as shown by the damage of the skin up to dermis. Time course observation revealed prominent reduced in wound size of day 6, 12, 18 and 24. Histological evaluation were accordingly revealed a gradual process of healing, and able to demonstrate the component of wound tissue involved in healing process including epithelialization, formation of collagen fibers and neovascularization. Conclusion. Using rat as an animal model of thermal injury provide a useful tool for histological evaluation of the dynamic healing process which is strictly limited in clinical study. Therefore such a model could facilitate further clinical study in burn wound healing in a reproducible way.
Effects of Topical Omega 3 on Skin Wound in Mice

Andri Rezano

Introduction: Wound healing process is affected by many factors such as nutrition, infection, and wound care. Wound care in daily life involves chemicals that might have negative side effects. Recently the use of natural products in healing wounds has been developed, which is claimed to be of low cost and of no side effect. One of the natural products that can be used to heal wound is omega-3. This study examines the effect of omega-3 to heal cuts on male mice.

Method: In this study, 24 adult male Swiss Webster mice in 2 groups were used. A wound (1.5 cm diameter) were made through the full thickness of the skin, parallel to the midline of vertebral column, 5 cm near outer ear after giving anaesthesia. For topical application, a swab was soaked in Omega 3 fluid. The control group was untreated. Histological samples were harvested on post-injury days 1, 5, 10 and 20. A p value <0.05 was considered statistically significant.

Result: Application of topical Omega 3 showed significant differences on angiogenesis growth on days 10 and 20. Healing effect was further substantiated by improving epithelial process seen from the peak of skin thickness on days 10, whereas wound contraction increased significantly on days 5 and 10 compare to control group.

Conclusion: The administration of omega-3 can accelerate the growth of angiogenesis and wound contraction on the 5th, 10th, and 20th day, while the epithelial process seen from the thickness of the epithelium experienced a peak increase on days 10.
Medical Education
The Impact of Caregiving on the Symptoms of Anxiety and Depression in Caregivers of Hospitalized Geriatric Patients

Steven Sutanto Sihombing, Rudi Putranto, Kuntjoro Harimurti, Ikhwan Rinaldi

Introduction: Research on anxiety and depression among caregivers of hospitalized geriatric patients is lacking. The objective of this study is to determine the prevalence of anxiety and depression symptoms during one week of caregiving in caregivers of hospitalized geriatric patients.

Methods: A prospective cohort study of anxiety and depression symptoms was conducted in caregivers of geriatric patients hospitalized at Cipto Mangunkusumo Hospital from February to May 2018 by comparing the level of anxiety and depression symptoms on the first day of hospitalization with the seventh day using the Hospital Anxiety and Depression Scale (HADS) questionnaires. Analysis was done by using SPSS statistic for bivariate and multivariate logistic regression.

Results: On the first day of hospitalization, 29.1% caregivers had mild anxiety symptoms, 5.1% had moderate anxiety symptoms and 2.6% had mild depression symptoms. On the seventh day of hospitalization 44.4% caregivers had mild anxiety, 23.1% had moderate anxiety and 3.4% had severe anxiety symptoms meanwhile 49.6% caregivers had mild depression and 12.8% had moderate depression symptoms. Duration of caregiving equal to or more than 8 hours in a day (p=0.041; OR 4.228; 95% CI 1.060-16.860 for anxiety; p=0.008; OR 8.392; 95% CI 1.723-40.880 for depression) and duration of caregiving equal to or more than 6 days in a week (p=0.019; OR 2.500; 95% CI 1.163-5.375 for anxiety; p<0.001; OR 4.184; 95% CI 1.982-9.256 for depression) significantly increased anxiety and depression symptoms during hospitalization.

Conclusion: Caregiving for hospitalized geriatric patients can aggravate anxiety and depression symptoms and duration of caregiving equal to or more than 8 hours in a day and 6 days in a week significantly increased both symptoms.

Keywords: geriatric patients caregivers, anxiety, depression, HADS
Patient Assessment of Constipation Quality of Life Questionnaire: Validity and Reliability of the patient assessment for Indonesian Population

Murdani Abdullah, Hasan Maulahela, Amanda Pitarini Utari, Pratiwi Dyah Kusumo, Amin Soebandrio, Dadang Makmun, Ibrahim Achmad, Andy William

Introduction: Constipation is a condition commonly encountered by physicians. Constipation causes a significant reduction in patients’ quality of life. Therefore, successful management of constipation should also increase the quality of life. The Patient Assessment of Constipation – Quality of Life questionnaire (PAC-QOL) is a questionnaire developed to address this issue. However, the questionnaire had not been translated into the Indonesian language. Therefore, the aim of this study is to adapt PAC-QOL into Indonesian culture and to perform the psychometric evaluation.

Methods: Translation and cultural adaptation were performed based on the linguistic validation guidelines. A total of 64 subjects were recruited to perform the psychometric evaluation. Test-retest reliability was assessed by completing the PAC-QOL twice with a 1-week interval. Subjects also completed the Short-Form 36 (SF-36) questionnaire to assess the concurrent validity.

Results: The mean overall average score was 1.52 (0.66). The Cronbach's alpha value for the overall average score was 0.910. The intraclass correlation coefficient (ICC) for the overall score was 0.865. Content validity was judged to be adequate by several experts. Every question had significant correlations with their respective domains. Each domain of PAC-QOL also had a significant correlation with several of the SF-36 domains.

Conclusion: The Indonesian version of the PAC-QOL demonstrated good validity and reliability, suggesting that this questionnaire can be used in daily practice.
Development of a New Instrument to Assess Clinical Performance of Residents in Dermato-Venereology Department

Sandra Widaty, Hardyanto Soebono, Sunarto Sunarto, Ova Emilia

Introduction: Performance assessment of residents should be achieved with evaluation procedures, informed by measured and current educational standards. The present study aimed to use such standards to develop, test, and evaluate a psychometric instrument for evaluating clinical practice performance among Dermatology and Venereology (DV) residents.

Methods: A pilot instrument was developed by 10 expert examiners from five universities to rate four video-recorded clinical performance, previously evaluated as good and bad performance. Examiners were trained on the instrument and returned to make actual ratings one week later. Internal consistency was used as measurement of reliability. Face, content and construct validity evaluations were completed by the DV experts. Convergent validity was examined by having experts complete a second assessment of each video with the instrument.

Results: The instrument comprised 11 components. There was a statistically significant difference (p < 0.00) between good and bad performance. Cronbach’s alpha documented high overall reliability ($\alpha = 0.96$) and good internal consistency ($\alpha = 0.90$) for each component. The new instrument correctly evaluated 95.0% of poor performance.

Conclusion: The DVP-CEx is a reliable and valid instrument for assessing clinical practice performance of DV residents. Further studies are required to evaluate the instrument in live utilizations.

Keywords: instrument, clinical assessment, performance, resident, dermatology-venereology, workplace-based assessment
Effectiveness of One Day Resuscitation Training for Layperson on Resuscitation Knowledge and Cardiac Compression Performance in Indonesia

Aida Rosita Tantri, Aldy Heriwardito, Christopher Kapuangan, Aino Auerkari, Dini Irawan, Nur Aini Alamanda, Mega Ayu Marina, Noorzabandari Noorzabandari, Ronald Christian Agustinus Aritonang, Roy Martino, Naufal Anasy, Claudia Lunaesti

Introduction: Laypersons, or bystanders with little or no training, may be an essential link in the ‘chain-of-survival’ from critical health emergencies. In Indonesia, resuscitation training has not become a major focus on national health program. The purpose of this study was to determine the effectiveness of one-day resuscitation training for layperson in Indonesia on resuscitation knowledge and chest compression performance (depth, speed and quality).

Methods: A short one-day resuscitation and first aid training, consisting of interactive lecture and skill station, was specifically designed for layperson. Eighteen lay subjects participated in this training. Before and after training, a knowledge test was conducted. After interactive lectures on basic life support and first aid, subjects were asked to perform chest compression for 4 cycles, followed with feedback by an experience instructor. Knowledge test and cardiac compression performance results, pre- and post-training, were obtained and analyzed.

Results: Median resuscitation knowledge increased significantly after training (85 (60-90) vs 50 (35-61), p<0.001). Percentage of good cardiac compression depth and speed post-training was significantly different with pre-training results (70% vs 25%, p=0.001; 60% vs 40%, p=0.001, respectively). Eighty percent of subjects had already been able to place their hands in the right position before the skill station started.

Conclusion: One-day resuscitation training for laypersons was effective to increase knowledge and performance of chest compressions for layperson in Indonesia.
Comparison of Resuscitation Knowledge and Cardiac Compression Performance between Anesthesiologists and Anesthesiology Residents

Aida Rosita Tantri, Sidharta Kusuma Manggala, Riyadh Firdaus, Evi Muliyah, Annisaa Yuneva, Oktavianus Marciano, Edwin Kilian Deges, Imelda Rosalyn Sianipar, Dina Muktiarti, Adisti Dwijayanti

Introduction: High quality chest compression is needed to improve the survival rate of resuscitation. Anesthesiologists and anesthesiology residents in Indonesia, are often responding to in-hospital emergencies as team leaders. Good training of anesthesiology residents for cardio-pulmonary resuscitation (CPR) has long been a major focus for medical educationists, but not in continuing medical education for anesthesiologists. This study aimed to compare the resuscitation knowledge and cardiac compression performance between anesthesiologists and anesthesiology residents.

Methods: Eight anesthesiologists and fifteen residents were invited to attend an evaluation session. Knowledge retention was assessed by a multiple choice question test and cardiac compression skills (rate, depth, and quality) were evaluated using two R series ZollR Defibrillator Monitors. Results were compared between anesthesiologists and residents.

Results: Anesthesiologists had significantly lower median score of knowledge compared to anesthesiology residents (50.00 (40.00-73.33) vs 66.67 (46.67-86.67), p=0.034). Median cardiac compression rate of anesthesiologists were lower than standards (96.17 times/min (80.09-117.07 times/min), significantly different with anesthesiology residents who could achieve the cardiac compression standard (117.58 times/min (108.33-136.79 times/min), p=0.002). Median cardiac compression depth of both groups could fulfill the AHA standard and were not significantly different between them. Both groups could not achieve the cardiac compression quality standard (0.00% (0.00%-42.24%) and 34% (0.00%-89.52%), p=0.054).

Conclusion: Anesthesiologists had lower resuscitation knowledge compared to anesthesiology residents. Cardiac compression rate of anesthesiologists were lower than standard and were significantly different compared to residents. Cardiac compression quality was lower than AHA standard in both groups.
The Role of Simulation-Based Interprofessional Team Training in Team Communication and Ability to Finish Task in Critical Condition

Aida Rosita Tantri, Riyadh Firdaus, Sidharta Kusuma Manggala, Evi Muliyah, Imelda Rosalyn Sianipar, Dina Muktiarti, Adisti Dwijayanti, Annisaa Yuneva, Edwin Kilian Deges

Introduction: Critical conditions need effective communication and contributions from both doctors and nurses. This study was aimed to measure the role of simulation-based interprofessional team training in team communication skills and ability to finish the task on time in critical condition.

Methods: We developed a simulation-based interprofessional team training program in emergency setting for 16 physicians and 19 nurses, consisted of interactive lecture, skill station session, critical condition simulation and debriefing session. All subjects were divided in teams randomly. After debriefing session, all subjects underwent final simulation session. We performed and compared team ability assessment to perform effective communication and finish the task on time during critical time between first and final simulation session, then analyzed it. We also collected participants’ feedback.

Results: Percentage of good effective team communication and ability to finish the task on time increased during final simulation session compared to the first simulation session, although not significantly different (85.7% vs. 88.6%, p = 1.00; 62.8% vs. 77.1%, p = 0.267). All participants (100%) stated that the training was useful and most of them (>80%) found it applicable in daily job.

Conclusion: Simulation-based interprofessional team training could enhance team communication skills and ability to finish the task on time in critical condition, although not statistically significant.
Validity and Reliability of Melasma Quality of Life Scale Questionnaire in Bahasa Indonesia for Female Patients

Rubby Aditya

**Background:** Until now, there is no questionnaire that are used to assess the quality of life women with melasma. The aim of this study to adapt english questionnaire, MELASQOL, and to assess validity and reliability of adaptation questionnaire.

**Methods:** design of this study used cross sectional. There are two stage, the initial stage is cross cultural and language adaptation. The final stage are validity and reliability test. The original MELASQOL questionnaire in English is adapted into bahasa Indonesia by according cross cultural and language adaptation guideline. The research subjects from Dr. Cipto Mangunkusumo hospital and factory in Tangerang. Validity analysis used construct validity. Internal consistency using Cronbach α were used for reliability analysis.

**Results:** the initial stage administered 30 research subjects and final stage 32 research subjects. Validity of MELASQOL bahasa Indonesia with analysis item-total score correlation coefficient is 0,712-0,935. Reliability of this quetionnaire with Cronbach α score is 0,962.

**Conclusion:** MELASQOL bahasa Indonesia is a valid and reliable instrumen for assessing the quality of life of female melasma patients in Indonesia.
**Correlation between Academic Evaluation Scores within the Undergraduate Medical Education**

Nur Atik

**Introduction:** The medical education process ends with some form of assessment or examination. A constant problem in the assessment of medical undergraduate students is adjusting between the aim of evaluation with the existing method, where one method might be highly quantitative whereas the other is the opposite. The study aims to provide insight on the correlation between test scores of multiple choice question and oral examination in the medical undergraduate program.

**Methods:** This cross sectional study included test scores from first to fourth year medical undergraduate students at Universitas Padjadjaran. Scores were collected from the Multiple Disciplinary Examination (MDE), a summative multiple choice exam; and Student’s Objective Oral Case Analysis (SOOCA), a summative case analysis oral exam. Test scores analyzed were initial scores prior to remedial. Spearman’s correlation test was used to analyze correlation between scores.

**Results:** A total of 1031 corresponding sets of MDE and SOOCA test scores were collected. Spearman test showed a positive and significant correlation between MDE and SOOCA scores of all study courses throughout the year. The strongest correlation was found in the sixth semester within the Gastrointestinal System and Genitourinary System Block ($rs=0.571$ ($p < 0.01$)). The weakest correlation was found in the first semester within the Fundamental Basic Science II Block ($rs=0.197$ ($p < 0.01$)).

**Conclusion:** There is a positive correlation between test scores from multiple choice question examinations and oral examination scores. Both tests complement each other in evaluating medical undergraduate education.
Linkage Model of Brand Equity and Word of Mouth toward Purchase Intention in Surgery Specialty Hospital Ropanasuri Padang, Indonesia

Nurmaines Adhyka

Introduction: Hospital organization development demands the management to enroll strongly competitiveness for majoring in the market. Brand equity and word of mouth play an important role to affect patients purchase intention. The aim of this study is to evaluate the association between brand equity dimensions and word of mouth on purchase intention in the health sector.

Methods: Survey method was used to collect data from 115 patients who did not use national coverage in surgery specialist hospital Ropanasuri Padang, Indonesia. Convenient sampling was used to choose patients with a cross-sectional design. Hypotheses test were performed using structural equation modeling.

Results: This study demonstrated that brand awareness, brand association, perceived quality and brand loyalty were dimensions which build brand equity. Brand equity and word of mouth have a significant impact on patient purchase intention in hospital.

Conclusion: Therefore, these results provide an insight into how important to build strong brand equity dimensions in service competitions.

Keywords: Brand Equity, Hospital, Purchase Intention, Word of Mouth
Post-Graduate Medical Internship: the Indonesian Medical Graduates Perspective

Anthony Paulo Sunjaya, Khansa Khairunnisa Azzahra, Melati Ariena Putri Ramadhani

Introduction: Since the launch of Indonesia’s revamped medical internship program in 2010, over 20 thousand medical graduates have taken part in this program. Even so, its conduct have not been without various challenges with even greater ones ahead. This study aims to evaluate the perspectives of current and past interns on the conduct of Indonesia’s medical internship and provide inputs for its development.

Methods: This is an analytical observational study involving current and past interns conducted by ISMKI from 2016 to 2018. Data was collected through online forms and analysed. Interns were surveyed on several aspects including their administrative and registration process, departure and training, conduct of their internship, preceptors, incentives and facilities.

Results: A total of 824 internship doctors were part of the survey representing graduates from 73 universities throughout Indonesia. Compared to 2016, significant reductions in internship registration delays were found in 2018. Java especially East Java remains the premier location for interns throughout all years. Improvements in pre-internship training and preceptor supervision was also found, although an increasing percentage of interns found their internship health facility to be inadequate for the conduct of internships. The results from 2018 also showed that 88.2% of interns agree that their internship provided them with the required competencies and skill to work in a primary care facility.

Conclusions: Improvements in the quality of internship have been made over the years, even so, problems regarding internship registration and allocation as well as quality of supervision and health facility remain to be solved.
Effectiveness of an Assessment Model to Improve Comprehensive Patient-Centred Care Competency for Primary Care Physicians

Trevino Aristarkus Pakasi

Background: A comprehensive patient-centred care is an approach in primary care practice. To improve this competency, a continuing professional development for primary care physicians is needed. It is also important to have a model of assessment to measure the achievements. The aim of this study was to develop and measure the effectiveness of the assessment model.

Method: This was a pre-post test study without control. We applied Case-based Discussion (CbD) and Direct Observation (DO) as Instruments for this model. Analysis goodness of fit test was used to test their function for such instruments. The SEM-PLS was applied to test the model.

Result: Thirteen (13) primary care doctors are enrolled in this study. The result of goodness of fit test of CbD and DO indicators were as follows: root of square AVE > 0.500; cronbach alpha > 0.600 and composite reliability > 0.700. Effectiveness test for assessment model with SEM-PLS resulted a positive and meaningful effect, in which it showed that the Original Sample > 0.0 and t count 1.96. Effectiveness test for assessment model with SEM-PLS resulted a positive and meaningful effect, in which it showed that the Original Sample > 0.0 and t count 1.96. Anamnesis capability increased with a coefficient of 0.860.

Conclusion: Indicators of CbD and DO can be used as an assessment model, and this model also effective in improving primary care doctor’s competencies of patient-centered and comprehensive care especially in the aspect of anamnesis.
Pre Clinic Grade Point and Clinic Study Periods Effect on Progress Test Result of Medical Profession Students in UNISMA

Ariani Ratri Dewi, Dini Sri Damayanti, Rizki Anisa

Introduction: Pre clinic grade point is often seen as predictor of good performance in professional education whose short term goal is to pass national examination which command progress test to evaluate the preparation.

Purpose: To know the effect of pre clinic grade point and clinical study periods in progress test result of medical profession students.

Methods: 135 students of completed computer based progress test of 200 national standardized questions in 200 minutes using siPENA software. Progress test result then analysed based on how long they have been studied and their pre clinic grade point.

Results: 21 students with pre clinic grade point of 2,50 – 2,74 give slightly higher mark than those with >2,75 and >3,00 grade point. Half participants (66 students) who have finished half of their study give similar result with those who has just begin.

Conclusion: Pre clinic grade point and clinic study periods has little to no effect on progress test result of medical profession students in UNISMA.
The Effect of Body Mass Index to the Risk of First-Ever Stroke
(A Case Study in Gatot Soebroto Army Hospital)

Lydia Putri, Mohammad Dokhi, Setia Pramana

Introduction: As a developing country with the highest obesity rate in Southeast Asia, Indonesia is facing the danger of stroke. This study is aimed to investigate the risk factors of first ever stroke (FES) in Indonesia focused in Gatot Soebroto Army Hospital (RSPAD) Jakarta.

Methods: This study was retrospective cohort using 415 stroke patients taken randomly from January 2011 to December 2017. Body Mass Index (BMI) is the exposure variable with gender, marital status, education, smoking, family history of hypertension, heart problems, and diabetes mellitus as the confounder variables. Weibull Inverse-Gaussian Frailty Survival Model is used to analyze the effect of BMI to the risk of FES. Inclusion Frailty used to accommodate the unmeasurable variable effect because the factors that affect the risk of FES are numerous and some of them could not be directly measured.

Results: BMI significantly affects the risk of having a FES. Participants who were underweight BMI have a relative hazard of 0.66 for the FES compared to a person with a normal BMI. Participants who were overweight BMI have a relative hazard of 1.51, obese-I BMI have a relative hazard of 1.78, obese-II BMI have a relative hazard of 2.44, and obese-III BMI have a relative hazard of 7.20 for having FES. The significant confounding variables that affect the risk of FES are education and family history of hypertension and heart problems.

Conclusions: The increase of BMI proves consistent to elevate the risk of FES, especially in the category of obese.