



2nd ICHMS & 2nd LSC

PROCEEDING

PROCEEDING

The 2nd International Conference of Medical and Health Sciences (ICMHS) and The 2nd Life Sciences Conference (LSC) 2016

*"Towards a Better Quality of Life
through Interdisciplinary Research"*

Yogyakarta, 9th-10th December 2016
The Alana Hotel and Convention Center

ISBN: 978-602-757-793-0



9 786027 1577930



PROCEEDING

The 2nd International Conference
of Medical and Health Sciences (ICMHS)
and
The 2nd Life Sciences Conference (LSC)
2016

*"Towards a Better Quality of Life
through Interdisciplinary Research"*

Yogyakarta, 9th-10th December 2016
The Alana Hotel and Convention Center

**The 2nd International Conference of Medical & Health Sciences
and
The 2nd Life Sciences Conference 2016**

TABLE OF CONTENT

COMMITTEE	viii
WELCOMING SPEECH	
Welcome Message from Committee	ix
Welcome Message from Dean	x
Welcome Message from Rector	xi
Welcome Message from the Head of Provincial Health Office Special Region of Yogyakarta	xiii
KEYNOTE SPEAKER OF INTERNATIONAL CONFERENCE	xv
REVIEWER	xvi
FULL ARTICLE	
Diabetic Neuropathy - A Chance Towards A Better Treatment <i>Tri Wahyuliati</i>	2
Herbal Medicine a Holistic Approach; in Case of Food Supplement Formulation of <i>Sauropus androgynus</i> and <i>Elephantopus scaber</i> to Modulate Immune and Hormonal System in Pregnant <i>Salmonella typhi</i> Infected Mice <i>Muhammad Sasmito Djati</i>	10
Continuing Competence of Practicing Nurses in Indonesia <i>Fitri Arofiati, SKep.,Ns, MAN Ph.D</i>	19
The Influence of Neuromuscular Taping (NMT) in Walking Speed for the Patients After Ischemic Stroke <i>Umi Budi Rahayu</i>	29
Correlation between Larvae Free Number with DHF Incidence in Sleman, Yogyakarta, Indonesia <i>Tri Wulandari Kesetyaningsih, Sri Andarini, Sudarto, Henny Pramoedyo</i>	34
Correlation Interdialytic Weight Gain-Idwg towards Physical and Psychological Health to Quality of Life in Patients with Hemodialisa <i>Cecilya Kustanti, Maria Putri Sari Utami</i>	42

**The 2nd International Conference of Medical & Health Sciences
and
The 2nd Life Sciences Conference 2016**

Quality of Life in Hemodialysis Patiens with Hypertension <i>Maria Putri Sari Utami, Elsy Maria Rosa, Azizah Khoiriyati</i>	48
Environmental Housing Characteristic of Pulmonary Tuberculosis Sufferers in Slum Area <i>Iwan Stia Budi, Yustini Ardillah, Indah Purnama Sari, Dwi Septiawati</i>	55
Exploration Study in Psychological Changed on First Trimester Pregnant Women at Kembaran II Health Center, Banyumas <i>Wilis Dwi Pangesti, Dewi Ambarwati, Inggat Ratna Kusuma</i>	63
The Anxiety of Pregnant Mother with History of Abortion in Health Service 2 Banyumas Qualitative Study <i>Evicenna Naftuchah Riani, Wilis Dwi Pangesti, Diah Atmarina Yuliani</i>	72
Analysis of Infection Control Risk Assessment and Strategies to Reduce Health-Care Associated Infections in RS PKU Muhammadiyah Gamping Yogyakarta <i>Nurmalita Sari, Elsy Maria Rosa</i>	76
Health Promotion Program for Disaster Eruption of Mount Merapi Refugee in Youth Centre Sleman Distric, Yogyakarta Special Province, Indonesia <i>Novitasari Ratna Astuti</i>	91
Pap Smear is Important Screening of Cervical Cancer for Women <i>Ivanna Beru Brahma</i>	100
Analysis of Compliance on Implementing Standard Precautions on Dental Health Service at PKU Muhammadiyah Gamping Hospital of Yogyakarta <i>Maria Margaretha S Nogo Masa, Elsy Maria Rosa</i>	108
Qualitative Study of Stakeholders' Knowledge Regarding Alert Village Program in Ogan Ilir Regency <i>Asmaripa Ainy, Iwan Stia Budi</i>	123
The Influence of Parents Knowledge and Health Care Access to the Identification of Children with Hearing Impairment <i>Asti Widuri, Alazi, Muhammad Pringgo Arifianto</i>	131

**The 2nd International Conference of Medical & Health Sciences
and
The 2nd Life Sciences Conference 2016**

The Comparison of Maternal Leukocytosis Incidence between Preterm Premature Rupture of Membranes and Premature Rupture of Membranes at Term in Panembahan Senopati Hospital Bantul Yogyakarta <i>Choirotun Jum'iyatin Nisak, Supriyatningsih</i>	137
Analysis of Patient Safety Culture Instrument by MaPSaF <i>Arum Astika Sari, Arlina Dewi</i>	143
The Relationship of Fish Consumption to Cognitive Development in Students of SD Saptosari, Gunungkidul, Yogyakarta <i>Dewi Ngaisyah</i>	158
Inter Professional Education and Collaborative Practice: Reflection from Health students <i>Wiwik Kusumawati, Ika Setyawati, Romdzati, Likky Tiara Alphianti</i>	164
Steroidal Saponin in Ethanol Extract Tuber of Purple Yam (<i>Dioscoreaalata L.</i>) Decrease IL-4 Density of Blood Sera on BALB/c Mice Model Digestive Tract Allergy <i>Sri Nabawiyati Nurul Makiyah, Muhaimin Rifa'i, Widodo, Muhammad Sasmito Djati</i>	173
Managerial Leadership Competence in PKU Muhammadiyah Hospital of Gamping <i>Ranggit Oktanita, Qurratul Aini, Ekorini Listiowati</i>	184
Malaria Occurrence Factor Analysis Based on Elevation of Sea Surface in the District of OganKomeriungUlu, South Sumatra <i>Pademi Alamasyah, Chairil Anwar, Dwi Setyawan, Laila Hanum</i>	200
Increasing Family Involvement to Reduce of Cigarette Consumption with Participatory Learning Action (PLA) Approach <i>Tri Hastuti Nur Rochimah, Salmah Orbayinah</i>	212
Air Pollution Effect to Human Health in Palembang City <i>Marsidi, M.T. Kamaluddin, Fauziah N. Kurdi, Novrikasari</i>	230
Identification of Patient Satisfactory Profile for Outpatient Pharmaceutical Service at Private and Government Hospital within Semarang District <i>Pramitha Esha Nirmala Dewi, Novita Dwi Dahliyanti</i>	241

**The 2nd International Conference of Medical & Health Sciences
and
The 2nd Life Sciences Conference 2016**

Intervention of Family Nutritional Awareness to Increase Family's Food Security <i>Fatmalina Febri, Anita Rahmiwati, Fenny Etrawati</i>	249
The Effects of Exercises in Molecular Neuron Cells of Cerebellum in Congenital Hypothyroidism Rats <i>Idiani Darmawati, Marten Bhara Suryo Aji, Zulkhah Noor</i>	258
The Effect of Air Freshener Exposure on Corneal Thickness of White Rat (<i>Rattus norvegicus</i>) <i>Yuningtyaswari, Pajar Sigit Nugroho</i>	265
The Correlation between Education about Personal Hygiene and Knowledge and Attitude of Personal Hygiene of the Adolescent <i>Kusbaryanto, Wahana</i>	272
The Relationship between Sports Activities and Premenstrual Syndrome In SMA N 1 Sentolo, Kulon Progo <i>Fenthy Vabiella, Alfaina Wahyuni</i>	277
Relationship Thyroid Status to the Physical Growth and Psychomotor Development on Children Under 2 Years in Endemic Areas of Iodine Deficiency Disorders in District Samigaluh of Kulonprogo Regency <i>Adang Muhammad Gugun, Zulkhah Noor, Jifani Rasyad, Mardylla Nur Fitriany</i> ..	282
Baby Blood Vessel Detection-Based Touch Sensors <i>Ade Pajar Pirdianto, Anna Nur Nazila Chamim</i>	299
Analysis of Factors that Influence Smokers Using Alcohol among Students in a Private University in Yogyakarta <i>Iman Permana, Gibran Ilham Setiawan</i>	306
The Effectiveness of Combined Warm Water Foot Submerging and Breath Relaxation Therapy on Lowering the Blood T Pressure in Hypertensive Patients in the Work Area of Puskesmas Penumping Surakarta <i>Prima Trisna Aji, Novita Kurnia Sari, Sri Nabawiyati Nurul Makiyah</i>	315
Assessment of Interprofessional Communication and Collaboration: Using Multi Methods <i>Sri Sundari Purbohadi</i>	335

**The 2nd International Conference of Medical & Health Sciences
and
The 2nd Life Sciences Conference 2016**

Bed Side Teaching as Effort for Decreasing Needle Stick and Sharp Injury in Clinical Practice Students of PSIK FKIK UMY <i>Azizah Khoiriyati, Novita Kurnia Sari</i>	342
The Relationship between Working Period and Cholinesterase Blood Levels among Pesticides-Spraying Workers in the Oil Palm Plantation <i>Restu Dewi Lestari, Merry Tiyas Anggraini</i>	350
The Effect of Interpersonal Relationship toward Birth Satisfaction <i>Hema Dewi Anggraheny</i>	356
Effect of Early Mobilization Education of The Level Anxiety and Independence of Patients After Total Knee Replacement in Hospital <i>Amik Muladi, Sagiran, Azizah Khoiriyati</i>	363
The Effect of Normal Dose Extract Gempur Batu Kejibeling (<i>Strobilanthus crispus</i> .BL) to the Histological of Rat's Digestive Tract <i>Yoni Astuti, Ali Usodo Mulyo, Harminani</i>	371
Effectiveness of Alcohol 70%, Clorhexidine Gluconate 4% Soap and Irgasan DP 300 as Hand Sanitizers in Reducing Bacterial Growth <i>Inayati, Pinter Hartono</i>	377

**The 2nd International Conference of Medical & Health Sciences
and
The 2nd Life Sciences Conference 2016**

Committee of ICMHS & LSC 2016

Supervisor	dr. Ardi Pramono, Sp.An, M.Kes
Chair	dr Iman Permana, M.Kes, Ph.D
Partner	Dr Zahid Iqbal, Ph.D
Secretary	Winnie Setyonugroho, S.Ked, MT, Ph.D
Secretariat	dr Bramantyas Kusuma H, M.Sc Futuh Hidayat, SEI Elida Tri Grahani, SE
Treasury	dr Hidayatul Kurniawati, M.Sc
Scientific section	Dr dr Ikhlas M Jenie, M.Med, Sc Dr Sri Nabawiyati Nurul Makiyah, S.Si, M.Kes Lia Fitriana, SP
Programme section	dr Ika Setyawati, M.Sc dr Imaniar Ranti, M.Sc dr Ahmad Ikliludin, SpM
Publication and Documentation section	dr April Imam Prabowo Arif Hadiano, ST
Logistic and Transportation	dr Muhammad Kurniawan, M.Sc Aris Nuryanta, SH Muhammad Ma'rifatullah Katiga Putra Dwi Hatmo Budi, S.IP
Fund Raiser	dr Maria Ulfa, MMR dr Akhmad Syaiful Fatah Husein, SpAn

**The 2nd International Conference of Medical & Health Sciences
and
The 2nd Life Sciences Conference 2016**

**Chair person of The 2nd International Conference of Medical and
Health Sciences and The 2nd Life Sciences Conference 2016**



Welcome to Jogja, sugeng rawuh!

For the second time, the Faculty of Medicine and Health Sciences Universitas Muhammadiyah Yogyakarta is going to conduct the 2nd International Conference of Medical and Health Sciences (ICMHS) this December in vibrant Yogyakarta, Indonesia. This year we are going to collaborate with the Life Sciences Society of Pakistan for their 2nd Life Sciences Conference (LSC) with Dr. Zahid Iqbal as the general secretary.

This year's conference theme "Towards a better quality of life through interdisciplinary research" will be celebrating an era of seamless interdisciplinary integration and collaboration in scientific innovations with the involvement of more extensive topics and disciplines in the conference. We aim to exhibit the products of that kind of approach in solving challenges, improving the quality of life, and creating sustainable developments. We are happy to announce that our conference is filled with Invited speakers from Pakistan, United States of America, Uni Emirates Arab, Malaysia and Indonesia. Presentations will be conducted in oral as well as poster that covers topics from medicine, public health, dentistry, pharmacy, biomedical to agriculture. To put more credibility to the conference we are collaborating with Isra Medical Journal and the Asian Journal of Agriculture and Biology to publish selected papers from the event. Other paper will be published in the ISBN Proceeding book.

The last but not least, enjoy the conference, start networking and sharing ideas, and let immerse yourself to the heritage cultural ambient of Jogja, sumonggo!

Yogyakarta, 1st December 2016

dr. Iman Permana, M.Kes, Ph.D.

**The 2nd International Conference of Medical & Health Sciences
and
The 2nd Life Sciences Conference 2016**

**Dean of Faculty of Medicine and Health Sciences,
Universitas Muhammadiyah Yogyakarta**



Assalamu'alaikum Wr. Wb.

Science, especially in the areas of health and life growing more rapidly. We need to work together in the research of various disciplines to the advancement of science and to provide benefits to human life.

After successfully organized international scientific meeting last year, the Faculty of Medical and Health Sciences Universitas Muhammadiyah Yogyakarta, held the second scientific meeting ICMHS along with "2nd Life Sciences Conference". In this second scientific meeting, FKIK UMY collaborates with various researchers, among others from Pakistan, Malaysia, and the United States. Taking the theme "Towards a better quality of life through interdisciplinary research" we hope to establish cooperation with various parties to be able to contribute ideas to the civilization of human life.

Finally, we congratulate the scientific meeting in the city of Yogyakarta Indonesia. Enjoy the beautiful city of Yogyakarta with priceless historical relics. We hope that this meeting can run smoothly and provide benefits to the advancement of knowledge.

Wassalamu'alaikum Wr. Wb.

Yogyakarta, 1st December 2016

dr. Ardi Pramono, M.Kes, Sp.An.

**The 2nd International Conference of Medical & Health Sciences
and
The 2nd Life Sciences Conference 2016**

Rector of Universitas Muhammadiyah Yogyakarta



Assalaamu'alaikum Wr. Wb.

Ladies and Gentlemen,

Welcome to the 2nd International Conference on Medical and Health Science in conjunction with the 2nd Life Sciences Conference 2016

Welcome to Yogyakarta City of Tolerance

Our Faculty of Medicine and Health Sciences has been doing such international conference almost every year for the last ten years. This and other previous conferences are the things that supporting our vision as an excellence and Islamic university, a young and global university. We will always try to keep monitoring the development of science through sending more lecturers to do the sabbatical leave overseas, doing international research collaborations and also the international conference. Each department should do this strategy of internationalization so that each department has its own network. Faculty of medicine and health science is one of the most progressive units in implementing this strategy by inviting international experts on a regular basis. This program will certainly strengthen our vision.

International conference on medicine and health sciences is a smart choice to offer our lecturers access to the most recent development of the subjects. The participants will also gain the same knowledge and latest information on medicine and health sciences. As everyone knows that the development of science and technology are faster today compared to the previous period. Information technology, computer, and other development havefastened the transformation of medicine and health science into the different and more complex stage.

**The 2nd International Conference of Medical & Health Sciences
and
The 2nd Life Sciences Conference 2016**

Cellular technology, for instance, can be used for several functions including those that directly impacts our daily life. There is no long distance call anymore today because cellular phone can do everything we need to contact other people far from where we stand anytime anywhere. People will finally innovate cellular phone for the sake of personal health services. We will in the future using our simple cellular phone to detect our body temperature, blood pressure, even how much fat we have in our body and how much it is supposed to be. We may also be able to check the health of our body without leaving our house and order medicine without going into the drug store. Everything is almost possible as long as we think hard for the better of people in the future. Enjoy the conference and don't forget to visit our rich tourist destinations, mountains, beaches or caves (underground waterways).

Thank you

Wassalaamu'alaikum Wr. Wb.

Prof. Dr. Bambang Cipto, MA

**The 2nd International Conference of Medical & Health Sciences
and
The 2nd Life Sciences Conference 2016**

Keynote Speech

**by Head of Provincial Health Office Special Region of Yogyakarta
in International Conference
of Medical and Health Sciences and Life Sciences Conference**

The Alana Hotel and Convention Center, Yogyakarta, December 9-10, 2016

The honorable:

- Rector of Muhammadiyah University of Yogyakarta,
- The Dean of Medical and Health Sciences Muhammadiyah University of Yogyakarta,
- The chairman of organizing committee of the international conference of medical and health,
- Distinguished guests and colleagues.

Assalamu'alaikum Warahmatullahi Wabarakatuh,

First of all, we thank God for His blessings that today we may attend the International Conference of Medical Health Towards a Better Quality of Life Through Interdisciplinary Research in Yogyakarta.

My distinguished colleagues,

In Indonesia National Long Term Development Plan (2005-2024), the Indonesian Ministry of Health have determined a paradigm shift that have governed health services in health development plan. There has been a shift from Curative Health Services to Preventive and Promotive Health Services.

Recently, Indonesia suffers from a triple burden of diseases as health development challenges. The triple burden of diseases are: 1) the backlog of common infections, undernutrition, and maternal mortality; 2) the emerging challenges of non-communicable diseases (NCDs), such as cancer, diabetes, heart disease; and 3) mental illness, and the problems directly related to globalization, like pandemics and the health consequences of climate change.

Dear colleagues,

Here are some data that show several health problems in Indonesia:

1. Maternal mortality rate in 2015 is 4,809 cases, infant mortality rate in 2015 is 22,267 cases;
2. Regarding to children under the age of five, the national stunting rate is 37.2% which consists of 18% for very short dan 19.2% for short (Riskesdas 2013);

The 2nd International Conference of Medical & Health Sciences and The 2nd Life Sciences Conference 2016

3. HIV testing coverage is 14% dan antiretroviral (ARV) therapy coverage is 65.58% (Directorate General of Disease Control and Prevention Ministry of Health, 2015);
4. Tuberculosis (TB) notification rate in 2015 is 73.5% and tuberculosis treatment success rate is 72% (Directorate General of Disease Control and Prevention Ministry of Health, 2015).

Distinguished guests,

Indonesia Health Development Program in 2015-2019 strengths in improving human quality life through Health Indonesia Program with family approach. The Indonesian Ministry of Health issued The Minister of Health Regulation (Permenkes) No. 39 Year 2016 as a Guideline of Implementation of Health Indonesia Program with Family Approach. This program has 12 main indicators as markers of a family health status. Currently, many health programs have been implemented by Indonesian Ministry of Health, Provincial Health Offices, and District Health Offices. However, many health problems, some as mentioned above, still become health burdens. We may ask a question whether the programs that we conducted have answered the health problems we have in Indonesia.

It would be better if all health programs that we implement based on scientific health research, especially interdisciplinary research. The research should be related to detection, prevention, and treatment of diseases or problem solving for better health.

My dear colleagues,

Being a province with speciality, Special Region of Yogyakarta placed Traditional Medicine as one of the priority programs in Provincial Medium Term Development Plan (2017-2022). We still encounter many challenges in developing Traditional Medicine, especially in providing services which are based on scientific evidence.

Distinguished colleagues,

We look forward to results of interdisciplinary research which would support health problem solving, especially by developing traditional medicine in Yogyakarta. We believe that collaboration in interdisciplinary research would improve quality of human life.

Finally,

Thank you for your attention. We wish you a successful conference.

Wassalamu'alaikum Warahmatullahi Wabarakatuh,

On behalf of
the Head of Provincial Health Office
Special Region of Yogyakarta

Drg. Pembajun Setyaningastutie, M.Kes

**The 2nd International Conference of Medical & Health Sciences
and
The 2nd Life Sciences Conference 2016**

**SPEAKER OF
INTERNATIONAL CONFERENCE**

Zahid Iqbal

Al-Nafees Medical College Isra University Islamabad Campus Islamabad, Pakistan
"One Health Program for Public Health Benefit"

Prof. Dr. Abdul Khaliq

Professor, Department of Agronomy, University of Agriculture, Faisalabad
"Role of Agriculture in Poverty Alleviation of Rural Areas"

Fitri Arofati

Universitas Muhammadiyah Yogyakarta, Indonesia
"Continuing Professional Development of Practicing Nurses in Indonesia"

Tri Wahyuliati

Universitas Muhammadiyah Yogyakarta, Indonesia
"Diabetic Neuropathy - A Chance Towards A Better Treatment"

Mohammad Khalid Ashfaq

University of Mississippi, USA
"Natural Products –Use or Misuse"

Muhammad Mukhtar

American University of Ras Al Khaimah, United Arab Emirates
"Emerging Biotechnologies and Genomic Medicines in Human Health and Well-Being"

Muhammad Sasmito Djati

Brawijaya University Malang, Indonesia
"Herbal Medicine a Holistic Approach: in case of food supplement formulation of Sauropusandrogynus and Elephantopuscaberto modulate immune and hormonal system in pregnant Salmonella typhi infected mice"

**The 2nd International Conference of Medical & Health Sciences
and
The 2nd Life Sciences Conference 2016**

REVIEWER

1. Dr. Zahid Iqbal, Ph.D (Isra University, Islamabad, Pakistan)
2. Prof. Dr. Abdul Khaliq (University of Agriculture, Faisalabad)
3. Dr. Mohammad Khalid Ashfaq, DVM, DTVM, MS, Ph.D (University of Mississippi, USA)
4. Dr. Muhammad Mukhtar, Ph.D (American University of Ras Al Khaimah, United Arab Emirates)
5. Dr. Ir. Muhammad Sasmito Djati, MS. (Brawijaya University Malang, Indonesia)
6. Fitri Arofiati, S.Kep., Ns., MAN., Ph.D (Universitas Muhammadiyah Yogyakarta, Indonesia)
7. Dr. SN Nurul Makiyah, S.Si., M.Kes (Universitas Muhammadiyah Yogyakarta, Indonesia)
8. dr. Iman Permana, M.Kes, Ph.D (Universitas Muhammadiyah Yogyakarta, Indonesia)
9. Dr. dr. Ikhlas M. Jenie, M.Med, Sc (Universitas Muhammadiyah Yogyakarta, Indonesia)
10. Dr. dr. Arlina Dewi, M.Kes, AAK (Universitas Muhammadiyah Yogyakarta, Indonesia)
11. dr. Oryzati Hilman, M.Sc, CMFM (Universitas Muhammadiyah Yogyakarta, Indonesia)
12. Dr. Dra. Yoni Astuti, M.Kes, Ph.D (Universitas Muhammadiyah Yogyakarta, Indonesia)
13. Dr. drg. Tita Ratya Utari, Sp. Ort (Universitas Muhammadiyah Yogyakarta, Indonesia)
14. Dr. dr. Tri Wahyuliati, Sp.S, M.Kes (Universitas Muhammadiyah Yogyakarta, Indonesia)
15. Dr. Elsy Maria Rosa, M.Kep (Universitas Muhammadiyah Yogyakarta, Indonesia)
16. Dr. dr. Titiek Hidayati, M.Kes (Universitas Muhammadiyah Yogyakarta, Indonesia)
17. Dr. Shanti Wardaningsih, M.Kep., Ns., Sp.Kep.J., Ph.D. (Universitas Muhammadiyah Yogyakarta, Indonesia)
18. Dr. dr. Sri Sundari, M.Ke (Universitas Muhammadiyah Yogyakarta, Indonesia)
19. Dra. Lilis Suryani, M.Kes (Universitas Muhammadiyah Yogyakarta, Indonesia)
20. Drh. Tri Wulandari K, M.Kes (Universitas Muhammadiyah Yogyakarta, Indonesia)
21. Dr. dr. Wiwik Kusumawati, M.Kes (Universitas Muhammadiyah Yogyakarta, Indonesia)
22. Sabtanti Harimurti, S.Si., M.Sc., Ph.D., Apt. (Universitas Muhammadiyah Yogyakarta, Indonesia)

**The 2nd International Conference of Medical & Health Sciences
and
The 2nd Life Sciences Conference 2016**

**SPEAKER OF
INTERNATIONAL CONFERENCE**

ICMHS-O-1-39

**The Comparison of Maternal Leukocytosis Incidence between
Preterm and at Term Premature Rupture of Membrane in
Panembahan Senopati Hospital, Bantul Yogyakarta**

Choirotun Jum'iyatin Nisak¹, Supriyatningsih^{2*}

¹ Student of Faculty of Medicine and Health Sciences,
Universitas Muhammadiyah Yogyakarta

² Obstetri and Gynecology Department, Faculty of Medicine and Health Sciences,
Universitas Muhammadiyah Yogyakarta

*Email: supriyatningsih_upi@yahoo.com

Abstract

High Maternal Mortality Rate (MMR) still a problem in the world. One contributing factor is the infection caused by Premature Rupture of Membrane (PROM). Preterm (PPROM) and at Term (PROM) may increase a risk of infection at pregnant women. The younger gestational age at delivery process contributes to the longer latent period and increase the risk of maternal infection. Leukocytosis could be an indicator of the infection. This study aimed to compare the number of maternal leukocytosis incidence between PPRM and PROM. This study used observational comparative with cross-sectional study design. The samples in this study were medical records of pregnant women with PPRM and PROM in Panembahan Senopati Hospital, Bantul from January 2013-June 2015. Sampling was conducted by purposive sampling method with 66 samples which were divided into two groups: PPRM and PROM, with 33 samples for each. Data was analyzed using Chi-square test. The result of this study showed that there was no difference in the number of maternal leukocytosis incidence between Preterm and at Term PROM ($p=0.741$; $RR=0.833$; $95\% CI=0.282$ to 2.464). Based on research results could be concluded that there was no difference in the number of maternal leukocytosis incidence between Preterm and at Term PROM.

Keywords: Infection, PROM, PPRM, Maternal Leukocytosis.

The 2nd International Conference of Medical & Health Sciences and The 2nd Life Sciences Conference 2016

INTRODUCTION

Mortality is a final process of life, one of the example is maternal mortality in delivery process. Based on Indonesian Demographic and Health Survey (IDHS) in 2012 there is an increasement of Maternal Mortality Rate (MMR) from 228 evidences (2007) into 359 evidences (2012) per 100,000 live births.¹

The increasing of MMR is influenced by several factors, one of them is premature rupture of membranes (PROM). Preterm premature rupture of membranes is being the most common factor causing morbidity and mortality for mother and baby in Indonesia.² This is very dangerous because it can cause infection for mother and baby.³

Infection in pregnant women should be detected early in order to prevent premature labor or other intrauterine disorders. Routine blood tests can indicate the presence of infection, by counting the number of white blood cells (*leukocytes*). Generally, *leucocytes* are the indicators of infection in the body, so the increasing of *leukocytes* level in the blood indicates an active infection in the body.⁴

When the membranes rupture in younger gestational age (Preterm), the latent period will become longer,⁵ and more longer latent period will increasing the infection risk that characterized by *leukocyte* increasement (*leukocytosis*). Based on this comparison, researchers interested in studying the incidence of maternal *leukocytosis* between preterm (PPROM) and aterm (PROM).

MATERTIALS AND METHODS

This research was an observational research. This research used observational comparative with cross sectional study design.

Samples in this research based on the medical records of pregnant women with preterm (PPROM) and aterm (PROM) in Panembahan Senopati Hospital, Bantul from January 2013 until June 2015. Sampling was taken by purposive sampling method with 62 samples which divided into two groups. First group was preterm (PPROM) and the other group was at term (PROM), each of them includes 31 samples. Final samples that obtained from the field were 66 samples and divided into two groups and each group has 33 samples. The data were analyzed using Chi-square test.

Samples were taken based on inclusion and exclusion criteria. Inclusion Criteria are 1) Pregnant women with PPRM (gestational age less than <37 weeks), 2) Pregnant women with PROM (≥ 37 weeks gestation), 3) Vaginal Delivery. Exclusion criteria are 1) Pregnant women with complications of pregnancy (*pre-eclampsia*, *eclampsia*). 2) Pregnant women with a history of infection before and during pregnancy (urinary tract infection), 3) Pregnant women with a history of chronic disease, 4) Data of medical record was incomplete

**The 2nd International Conference of Medical & Health Sciences
and
The 2nd Life Sciences Conference 2016**

Variables that used in this study were preterm (PPROM) and at term (PROM) as independent variables and the incidence of *leucocytosis* as the dependent variable. PROM in this case mean with gestation >37 weeks and PPRM with gestational age <37 weeks.

Leukocytosis in this case mean *leukocytosis* exceeding 15,000 mm³.⁶

Instruments that used in this research was secondary data from medical records of pregnant patient with PPRM and PROM. From the medical records can be seen the result of *leucocytes* number. *Leucocytes* number result which more than 15,000 mm³ was categorized as *leukocytosis* and less than 15,000 mm³ was categorized as not *leukocytosis*.

RESULTS

Distribution of respondent groups based on maternal age, parity and the number of *leucocytes*.

Table 1. Distribution based on the age of the mother

Age of the mother	Quantity	Percentage
< 20 years old	3	4,5%
20-35 years old	56	84,8%
>35 years old	7	10,6%
Total	66	100%

The table above showed that most pregnant women who have premature rupture of membranes is in the productive age of 20-35 years old as much as 84,8%.

Table 2. Distribution based on parity

Parity	Preterm		Aterm	
	Quantity	%	Quantity	%
Primipara	15	22,7%	13	19,7%
Multipara	18	27,3%	20	30,3%
Total	33	50%	33	50%

From the above table known that the highest incidences of PROM multiparous with percentage 30,3% of the total samples were taken.

Table 3. Distribution based on the number of *leucocytes*

<i>Leucocytes</i> Number	Preterm	Percentage	Aterm	Percentage
<15.000	28	42,4%	27	40,9%
>15.000	5	7,6%	6	9,1%
Total	33	50,00%	35	50,00%

**The 2nd International Conference of Medical & Health Sciences
and
The 2nd Life Sciences Conference 2016**

From the above table shows that most samples obtained from *leukocytes* number <15,000 with 28 samples in 42,4% in the group of PPRM.

Table 4. Comparison of preterm (PPROM) and at term (PROM) in the incidence of *leukocytosis*.

Premature Rupture of Membranes	<i>Leukocytosis</i>		Total	RR (95% CI)	p
	Yes	No			
Preterm	5	28	33	0,833	0,741
Aterm	6	27	33	(0,282-2,464)	
Total	11	54	66		

From the above table p=0,741 ; RR 0,833 and CI 95% by 0,282-2,464.

DISCUSSION

In table 1 showed the distribution of premature rupture membranes based on the age of the mother. Maternal age affects to the pregnancy. In healthy reproductive stated that safe age for pregnancy and birth were in aged 20-35 years old.

Maternal age <20 and >35 years old have risk of complications in pregnancy and delivery.⁷ In general the average age of pregnancy were 20-35 years old as known as the reproductive age in pregnancy and birth. That was why the samples obtained from women with ages from 20-35 years old.

Table 2 showed the distribution of the sample based on parity. It was found that premature rupture occurred in a group of pregnant women with PROM multiparous. This is in accordance with the statement of Fatkhiyah (2008),⁸ states that the consistency of thin cervix with cervical dilation process in multiparas (flat while open almost simultaneously) can speed up the opening of the cervix so that it can be risk of membranes rupture before the complete opening.

Table 3. showed that most patients were patients with PPRM with leukocytes numbers under 15,000 µl. The average of the patient does not experience *leukocytosis* because when the patient came to the hospital, they had an antibiotics as the first treatment before laboratory test so the result was not showed the numbers of *leukocytes* that exceeds normal value.

In accordance with the guideline issued by SOGC (Society of Obstetricians and Gynecologists of Canada) 2009,⁹ which stated that PPRM (Preterm Premature Rupture Of The Membrane) at 32 weeks' gestation, should be give an antibiotic to women who did not in delivering process during labor for prolong pregnancy and to reduce maternal and infant morbidity. The statistical test that used in this study was chi square test.

The 2nd International Conference of Medical & Health Sciences and The 2nd Life Sciences Conference 2016

The result of the research data that has been done at the Regional General Hospital Panembahan Senopati Bantul showed that there was no correlation between the incidences of premature rupture of membranes with *leukocytosis* and there were not found differences between the incidence of *leukocytosis* in preterm (PPROM) and at term (PROM). It showed by $p=0,741$ with $RR=0,833$ and 95% CI 0,282 to 2,464.

Perdana (2011),¹⁰ revealed that there was no significant correlation between the levels of c-reactive protein with intrauterine infection in patients with premature rupture of membranes with $p=0,082$. This was equal with the results obtained by chi-square analysis test $p=0,741$ ($p>0,05$), which mean there was no relationship between the incidence of premature rupture of membranes with *leukocytosis* and $RR:0,0833$ (95% CI=0,282 to 2,464). It showed $RR<1$, it means there was no differences between the incidence of *leukocytosis* in PPRM and PROM, both of them have same number of *leukocytosis* events. This study proved that premature rupture does not indicate to *leukocytosis*.

This showed that the premature rupture of membranes was not the main cause of *leukocytosis*. There were many factors that causing *leukocytosis* such as preeclampsia, eclampsia, infection diseases of pregnancy (malaria, bronchitis, hepatitis, influenza, gingivitis) which have been controlled in this research.

Maharani (2012),⁶ in her research proved that there was a relationship between elevated levels of *leukocytes* to preterm labor with $p<0,05$ is $p=0,001$.

That results were not in line with a recent study which does not proved that there was a relationship between preterm birth due to premature rupture of membranes with elevated levels of *leukocytes*. There were several causes of preterm birth that associated with *leukocytosis* beside of premature rupture of membranes, such as pre-eclampsia and eclampsia.

Firdausi (2014),¹¹ revealed in his study that the old premature rupture of membranes can increased the risk of infection that marked by increasement of *leukocytes* number of mother. But in his research he could not proved that the old premature rupture caused by *leukocytes* increasement which evidenced of $p= 0,229$ ($p> 0,05$). It was in line with the results of this research.

There were some factors that could affected the numbers of *leukocytes* which could not been controlled by the researcher, one of them was consuming antibiotics. Antibiotics which were consumed by the patient may affect the existing of leukocyte's number so the infection could be prevented and it did not raise abnormal *leukocytes* number (*leukocytosis*) in routine blood tests of patients.

According to the guidelines of Intermountain Healthcare's OB Development (2012),¹² the criteria of pregnancy termination in case of premature rupture membranes would be happened if there were following criterias, such as intrauterine infections, placental abruption, and fetal compromise.

The 2nd International Conference of Medical & Health Sciences and The 2nd Life Sciences Conference 2016

Leukocytosis was not the only determining factor of pregnancy termination, because there were several others criteria in intrauterine infection besides of *leukocytosis* such as fever up to 38°C, maternal tachycardia, fetal tachycardia, uterine tenderness and smelling amniotic fluid.

CONCLUSIONS

No significant relationship between premature rupture membranes with the incidence of maternal *leukocytosis*. There is no differences number of maternal *leukocytosis* occurrence between PPROM and PROM in Panembahan Senopati Hospital Bantul.

REFERENCES

1. Saputra, W., 2013. *Angka Kematian Ibu(AKI) Melonjak, Indonesia Mundur 15 Tahun*, Jakarta Selatan: Prakarsa Policy Review.
2. Manuaba, I., 2010. *Buku Ajar Patologi Obstetri untuk Mahasiswa Kebidanan*. Jakarta: EGC.
3. Muntoha, Suhartono & Endah, N., 2013. Hubungan antara Riwayat Paparan Asap Rokok dengan Kejadian Ketuban Pecah Dini pada. *Jurnal Kesehatan Lingkungan Indonesia*, April, Volume 12, p. 88.
4. Lopez, N. G., Guilbert, L. J. & Olson, D. M., 2010. Invasion of the leukocytes into the fetal-maternal interface during pregnancy. *Journal Leukocyt Biology*, Volume 10, p. 31.
5. Wardhani, D. & Kayika, I., 2014. Ketuban Pecah Dini. In: *Kapita Selekta Kedokteran*. Jakarta: s.n., p. 442.
6. Maharani, F., 2012. Hubungan Peningkatan Kadar Leukosit dengan Kejadian Persalinan Prematur di RSUD dr. Moewardi.
7. Wiknjastro, 2002. *Ilmu Kebidanan*. Jakarta: YBPSP.
8. Fatkhiyah, N., 2008. Hubungan Status Paritas dengan Kejadian Persalinan Ketuban Pecah Dini di RSUD dr Soeselo Slawi Kab Tegal tahun 2008. *Stikes Bhamada Slawi*.
9. SOGC (Society of Obstetricians and Gynaecologists of Canada), 2009. *International Guidelines Antibiotic Therapy in Preterm Premature Rupture of the Membranes*.
10. Perdana, E. A., 2011. Hubungan antara kadar C-reaktif Protein dengan Infeksi Intra Uterin pada Penderita Ketuban Pecah Dini.
11. Firdausi, A., 2014. Hubungan Antara Lama Kejadian Ketuban Pecah Dini dengan Angka Leukosit Maternal di RSUD Panembahan Senpoati Bantul Periode Januari 2011-Desember 2012. *Mutiara Medika*.
12. Intermountain Healthcare's OB Development Team, 2012. Management Of Premature Rupture of Membranes.