2nd ICHMS & 2nd LSC

PROCEEDING

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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

UMY ICMHS Life Sciences SOCIETY

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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.

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.

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.

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

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 mortility 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);

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

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 Elephantopusscaberto modulate immune and hormonal system in pregnant Salmonella typhi infected mice"

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SPEAKER OF INTERNATIONAL CONFERENCE

ICMHS-P-1-9

The Effects of Exercises in Molecular Neuron Cells of Cerebellum in Congenital Hypothyroidism Rats

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Abstract

Congenital Hypothyroidism is a condition of thyroid hormone deficiency since birth.The effects of congenital hypothyroidism are disruption of intellectual and cognitive function in children. Intellectual and cognitive disturbances in children with congenital hypothyroidism can be affected due to the low number of neurons in the brain. This research aims to determine the effects of walking exercise adequately to the number of neurons in rat cerebellar cortex of congenital hypothyroidism. Design is experimental, posttest control group design. Postes used to analyze differences in the number of neurons in the cortex the molecular layer cerebellum of mice in various groups. The subjects were holdingrats, *Sprague Dawley*aged 4-5 months, healthy and ready to get pregnant. Parent pregnant required 12 were divided into 6 groups each 2 tail.4 group induced hypothyroidism with given prophilthiourasil (PTU), 2 normal group. Each child born mice were then grouped in accordance with the treatment that has been given to the mother. Data were obtained from observations of a numerical scale data. To test the hypothesis of a difference in all treatment groups used statistical analysis *of One Way Anova*. The number of neuron cells on average in the group as much as 177 cells Normal, Normal practice 209 cells, 152 cells PTU group, PTU group exercise 173 cells,153 cells Thyroxine group,group Thyroxine exercise 195 cells. Withanalysis *One Way Anova* obtained by value p = 0.004 (p-value <0.05). Adequate exercise brisk walking increases the number of neurons in rat cerebellar cortex molecular layer of congenital hypothyroidism.

Keywords: congenital hypothyroidism, fast way adequate, *sprague dawley*

INTRODUCTION

Thyroid hormone is a hormone that is essential for growth, development and homeostasis vertebrate organisms. Abnormal thyroid gland activity which may interfere with growth and development. Hypothyroidism is one of the disorders, which are of low activity of nodes tiroid.[1]

Congenital hypothyroidism is thyroid hormone deficiency in newborns. Hypothyroidism has an effect during pregnancy and fetal development. Little difference in the concentration of thyroid hormone during pregnancy can cause significant changes children.[2]

intelligence Hypothyroidism is not diagnosed until the first trimester are at high risk lowering of intellectual and cognitive function for children.[3]

Congenital hypothyroidism incidence varies greatly between countries as well as the data collected by the causal factor.[4] Coordination Unit of Endocrinology Working Children from several hospitals in Jakarta, Bandung, Yogyakarta, Palembang, Medan, Banjarmasin, Solo, Surabaya, Malang, Denpasar, Makassar and Manado, 595 cases of congenital hypothyroidism treated during 2010. Most of these cases are diagnosed too late to impaired growth and motor development and impaired intelektual.[2]

Impaired brain function in patients with congenital hypothyroidism can cause mental retardation, hearing impairment, neuromotor disorders, speech disorders, and how the road. Hypothyroidism in children can cause symptoms of heights less, midget, and late ossification.[5] Impaired neuromotor, speech disorders, and how the way in patients with hypothyroidism can be caused by disorders of the cerebellum. This is due to cerebellar functioning in coordination of voluntary muscle movement, posture and balance. The cerebellum is also involved in the process of language and learn.[6]

On the other side of physical activity can maintain cerebral blood flow and may also increase the supply of nutrients the brain. The activities of physical activity are also believed to facilitate the metabolism of neurotransmitters, may also trigger changes in molecular and cellular activities that support and maintain brain plasticity.[7]

With this research is expected to be known how quickly the effects of exercise is adequate to the number of neurons in cortical cerebellar molecular layer.

MATERIALS AND METHODS

This study was an experimental study, the control group posttest design. Postes used to analyze differences in the number of neurons in rat cerebellar cortex molecular layers on various treatment groups.

The subjects were holding Sprague Dawley rats, aged 4-5 months, healthy and ready to mate and pregnant;. Parent pregnant; required as many as 12 were divided into six groups each 2 tail. Four (4) groups induced hypothyroidism with given prophilthiourasil (PTU), 2 normal group. Children born mice were grouped by treatment

that includes the normal group without treatment, normally with a brisk walk adequately, hypothyroidism without treatment, hypothyroidism with a brisk walk adequately, hypothyroidism with thyroxine treatment, and treatment of hypothyroidism with thyroxine and fast way adequate. Each treatment group using 5 mice pups. Inclusion criteria for this study are in accordance with the classification of infant rats each treatment group and the inability of groups of mice undergoing treatment given. Exclusion criteria in this study were a group of mice who are unable to undergo treatment such as physical disability and inability to undergo adequate exercise brisk walking.

This research was conducted in UPHP UMY for maintenance, administration of stem treatment, replacement thyroxine hormone treatment, the provision of treatment of children in the form of brisk walking rats on a treadmill mice and rat brain surgery organ harvesting. Making the mouse brain preparations carried out in the Laboratory of Pathology Anatomy Faculty of Medicine. Filming histological preparations done at the Laboratory School of Medicine Gadjah Mada University.

The research instrument used was the Rat SD host 12 heads, equipment maintenance standards, standard feed, propylthiouracil (PTU), treadmill rat, drugs (chloroform), thyroxine, surgical equipment mice, tools and materials storage organs of the brain (pots, cerebrospinal fluid artificial , cooling), tools and materials for making preparations for brain tissue histology, microscopy, computer.

The study was conducted with several stages. First, the mother rats were randomly grouped; and adjusted for one week. After that mother rats mated and pregnancy checking with swep vagina. Parent pregnant rats are expected to result in congenital hypothyroid mice induced propylthiouracil (PTU) 15 ppm in drinking water for pregnant.8 To confirm the measurement of free T4 levels in the blood after 2 weeks of pregnancy. Most children were born (as per group) were given T4 dose of 1.6 mg/g). After the baby mice age 2-3 weeks, some groups are treated a quick walk on a treadmill. When aged mice anesthetized mice 8-10 weeks using chloroform and then surgery to take out the brain. After the rats was terminated (killed), the organ of the brain (cerebellum) is taken, then put in a pot containing 10% formalin, then taken to the Anatomical Pathology Faculty to be made preparations with HE staining. After the preparations were observed using a microscope with eyepiece 10 eyepiece and objective 4, a total of 40 times magnification. For each repetition preparations in 5 visual fields. The area of each field of view is 52x39 = 2028 lm.

Data were obtained from observations of a numerical scale data. Because in this study using six treatment groups (> 2 groups) and is not a variable pairs (independent) to test the hypothesis that differences in all treatment groups used statistical analysis of One Way Anova. Before the data were tested for normality using descriptive and analytic methods Shapiro-Wilk test because the sample size of 30. If the known data distribution is not normal, then the statistical test used was Kruskal Wallis. Then, to

compare the effect of each treatment on each group against another group, used to test the Post Hoc Multiple Comparison Test. The analytical data obtained from histological observation in mice brains of animals test.

RESULTS

Parent rats that received 15 ppm PTU will experience a hypothyroid condition and will potentially give birth congenital hypothyroid mice. FT4 levels hypothyroid rats induced a significantly lower PTU.FT4 levels hypothyroid group of exercises can be increased to the equivalent of normal controls (p> 0.05). Hypothyroid mice receiving thyroxine therapy and exercise treatment also showed an increase in FT4 levels similar to normal mice. The results can be seen in Table 1 and Figure 1.

Table 1. Mean FT4 Levels of Mice Treated

GROUPS	Levels of FT4 serum (mg/ml)		
	Parent	Baby Mice 15 days	Baby Mice 60 days
Normal exercise;	1,42±0,158	1,09±0,145	1,32±0,211*
Normal exercise;	1,37±0,162		1,77±0,113**
Hipotiroid exercise	0,07±0,089	0,09±0,164	0,50±0,094***
Hipotiroid exercise	0,122±0,106		1,46±0,327*
Hipotiroid Tyroksin	0,23±0,13		1,50±0,20*
Hipotiroid Tiroksin exercise		0,21**±0,17**	1,20±0,33

Kruskal Wallis: p=0,002

Description the number of different show differences meaningful in p≤0,05

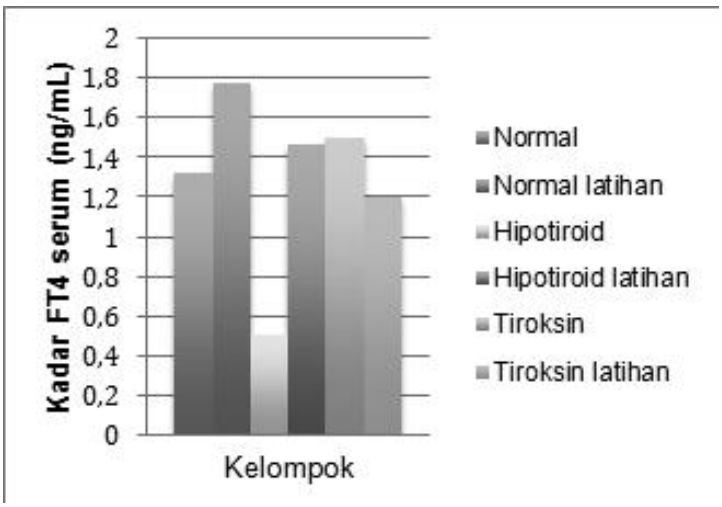

Figure 1 . A histogram Graph FT 4 Levels of the Treatment Group Rat

All data normality test results obtained sig. p> 0.05, which means that the distribution of the data shows the number of neuronal cells is normal, so it can proceed different test using One Way Anova. One Way Anova results show the value of p = 0.004 (p <0.05), which means that there are significant differences in the average number of neuronal cells sixth among treatment groups.

Then, to compare the effect of each treatment on each group against another group, used LSD (Least Significant diference) in the Post Hoc Multiple Comparison Test.

LSD test results obtained their differences in the number of neurons between the treatment groups. Significant differences seen in the group of Normal (K1) with a group of Normal practice (K2), with p = 0.045, group Normal exercise with a group of Hypothyroidism with p = 0.001, group Normal exercise (K2) with hypothyroidism exercise (K4) with a value of p = 0,025, the group Normal exercise (K2) with a group of Thyroxine (K5) with p = 0.001, group Hypothyroidism (K3) with a group of Thyroxine exercise (K6) with a value of p = 0.007, and the latter is a group of Thyroxine (K5) with Thyroxine exercise (K6) with a value of p = 0.009.

DISCUSSION

Propylthiouracil consumed by pregnant rats that normally would cause hypothyroidism and may cause the baby mice born with congenital hypothyroidism. During early gestation, the fetus is completely dependent on thyroid hormone (thyroxine) mother cross the placenta because of fetal thyroid function has not been functioning before 12-14 weeks gestation. Maternal thyroxine bound to the receptor cells of the fetal brain, then converted intracellularly into FT3 is an important process for the development of the fetal brain even after the production of thyroid hormones fetus, the fetus is still dependent on maternal thyroid hormones, so long as adequate maternal iodine intake. In this study stem Sprague Dawley rats that are pregnant are treated Award propylthiouracil 15 ppm in drinking water, so that the parent will experience the condition hypothyroid rats and mice that are born will have hypothyroid kongenital.[9]

Stimulus physical activity such as brisk walking adequate given slowly and gradually to avoid physical stress far beyond the child's ability hypothyroid rats. Physical activity is expected to stimulate the metabolic system and improve the function of the thyroid to produce thyroxine. Stimulus physical activity can stimulate the central nervous to grow, increased plasticity and function better. In this study showed that the group of mice treated hypothyroid quick way adequately increased FT4 levels to be normal. Giving workout with weights of 70%, 90% aerobic increases levels of the hormone thyroxine circulation.[10]

Physical exercise can increase the expression of genes that encode several brain neurotrophin such as BDNF have neurodegenerative and neuroprotective effect on the brain by stimulating new cell growth and development and protects nerve damage. BDNF is a factor neurotrofik which were first discovered in the brain. BDNF is a protein that has activity in neurons of the central and peripheral nervous system that helps the survival of neurons and promote the growth and differentiation of neurons and synapses baru.[11]

Results from this study showed that the average yield of neuronal cells in hypothyroid group (K1) is approximately 152, whereas in the group exercise Hypothyroidism (K2) at 173. While there are an increasing number of neurons in group exercise Hypothyroidism (K2), but based on test least Significant diference valuenya p-value of 0.160 (> 0.05). This means that the difference in the number of neural cells meaningful between groups of congenital hypothyroidism (K1) with hypothyroidism group exercises (K2). This shows that brisk walking exercise adequate in this study are not significantly influential enough to affect the number of neurons in the molecular layer of cerebellar cortex in rats congenital hypothyroidism. But the result of the comparison between treatment groups Thyroxine (K5) and group exercises Thyroxine (K6) based Least Significant diference obtained p value 0.007. It means that differences in the number of neurons in cortical cerebellar molecular layer between the treatment groups with Thyroxine Thyroxine is a meaningful exercise. This shows that adequate exercise brisk walking can significantly affect the amount of neuronal cells in hypothyroid rats group of children who have received treatment thyroxine. The group of mice that received treatment thyroxine and coupled with adequate exercise brisk walking has a number average molecular layer of the cerebellum neurons more than the group of mice were only treated with thyroxine. Treatment of hypothyroidism using thyroxine is recommended by the Ministry of Health. Whatever the cause, hormone replacement therapy with L-thyroxine thyroxine pill should immediately be given once the diagnosis of hypothyroidism have enforced.2

CONCLUSION

Adequate exercise brisk walking in the Sprague Dawley rat pups can increase the number of neurons in cortical cerebellar molecular layer. Adequate exercise brisk walking combined with thyroxine therapy can increase the number of neuronal cells in Sprague Dawley rats congenital hypothyroidism than Sprague Dawley rats were only treated with thyroxine.

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