



**EAST ASIAN
MEDICAL STUDENTS'
CONFERENCE-2018**

NEPAL

21st-26th January 2018

ACADEMIC BOOKLET

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Foreword by Overall Chairperson

Dear Wonderful People,

With enormous excitement and utmost pleasure, I would like to welcome you all to the 31st EAMSC- 2018, Nepal. A cool insight to the diverse culture and hospitality in the lap of Himalayas; a country of Mount Everest, Lord Buddha, Brave Gurkha's, diverse culture and heritage, city of temples, and a common garden of peace and harmony.

You will be staying in this small yet beautiful country enjoying different food and culture, bonding new friendship, exploring nature and heritages and learning something important about the theme of our conference "Maternal and Neonatal Health". No matter how much we advance in medicine and research, a woman has to give birth to a child- a divine power women are gifted with. Even though we have advanced methods of maternal care like antenatal care visits, vitamins, iron, calcium, precautions with diseases and delivery methods like vacuum delivery, caesarian section, test tube baby etc., still every pregnancy is at risk. Every new born starve to get that first gasp of breath. No matter how well trained and experienced you are, you will hold your breath to listen that first cry of the baby and see the very smile on the mother's face forgetting all the pain she went through. I think we all need to know about this fact and learn about this never ending process.

In this conference, we will be learning about this magical process of growing from a single cell into a complete being, the skills and techniques, new inventions, risks associated with it and challenges in the coming days. The conference will be a different experience for you as we are working for it, days and night to make it a



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wonderful program. I am thankful to AMSA family for providing us this opportunity to host you. We will stand strong on your faith on us.

Finally, it would be pleasure to see all the cheerful and enthusiastic people in our country to make this pro-gram a successful one with your active participation.

*Warmest Regards,
Dr. Santosh Upadhyaya*

Foreword by Secretary Academics

Namaste Everyone,

Welcome to you all to the 31st EAMSC 2018 in Nepal!

This is the first time we medical students from Nepal are conducting an international conference and we feel very fortunate to have been awarded this opportunity. We think the theme "Maternal and Neonatal health" for this conference is relevant to the present context of Asia and the whole world. And we are assured that the keynote sessions, scientific paper, scientific poster and white paper presentations along with workshops on Neonatal resuscitation and Preventing Post Partum Hemorrhage with focus on 3rd Stage Management of Labour would definitely provide insights and basic skills to the delegates and would help foster the developments in the field.

Our academic team has really put forward a very good job in making this event a grand success. Starting with selection of recognised and experienced Judges panel to finding materials for conduction of workshops and negotiating with the hospitals and primary health care centers, the works have been fantastic. Along with the responsibilities comes problems that our academic team and the organising committee has been tackling very well.

This booklet is a summary of the academic competitions of the conference. And we congratulate all those who participated in it and wish them best of luck for the competition.

We would like to thank Prof. Ramesh Kant Adhikari, Dr. Meera Thapa Upadhyay (keynote speakers), Prof. Archana Amatya, Prof. Sudha Basnet, Prof. Padam Raj Pant, Dr. Bishal



Gyawali, Dr. Bishesh Poudyal (judges) for their valuable contribution in the conference. We also would like to remember Hospital Director(TUTH), Dean (IOM), Campus Chief(TUTH), Prof Bekha Laxmi Manadhar (HOD-OB/GYN), Prof. Laxman Shrestha (HOD-Paediatrics) and all the faculties of different departments of TUTH for their constant support for the conference. We also extend our words of thankfulness to Prof. Asma Rana (Past HOD- OB/GYN) who has helped us right from the start of preparation for the conference. We would like to thank Hotel Radisson for providing us with the venue for conduction of academic programs. We also remember all people who have been directly or indirectly involved to achieve this feat.

On a personal note, great effort from our Organising Committee has brought us this far and I am sure you all will have a wonderful experience being in this conference.

*Dr. Sandesh Gyawali
Secretary Academics
EAMSC 2018 Nepal*

Scientific Paper

Top 7

3.1 Scientific Paper (Abstract) Philippines

Impact of Human Health Resource and Emergency Obstetric Care on the Maternal Mortality Rate in the Philippines

By Emma Teresa Carmela Aportadera, Maria Stephanie Faye Cagayan, Maria-Kassandra Coronel,
Levin Ace Danganan, Mianne Airish Hernandez, Johnaliz Know, Kenji O. Uematsu

Asian Medical Students' Association – Philippines

The Philippines' Department of Health (DOH) issued an administrative order in 2008 to implement health reforms to reduce maternal mortality to address MDG5 by reducing maternal mortality by three quarters at the end of 2015. Despite programs implemented, the Philippines failed to meet the set target goal, garnering only a 0.5% annual decrease in maternal mortality ratio. The study was conceptualized in order to describe the actual status of maternal health in terms of the maternal mortality rate and the accessibility of women to emergency maternal health care facilities in the Philippines. The researchers aimed to determine if there is a relationship between the increase in number of skilled maternal healthcare providers and facilities and maternal mortality rate (MMR) and sought to present data on the methods of delivery, location of the delivery, birth attendants by profession, and the number of emergency obstetric care facilities in relation to the maternal mortality rate.

The research utilized a descriptive study design gathering information on the population size, maternal mortality rate, number of maternal healthcare providers per region, list of emergency obstetric care facilities, delivery methods and location, and birth attendants per profession who administered the deliveries.

Analysis of data showed that the two factors, human health resource and emergency obstetric care, are not enough to contribute to a significant reduction of the MMR. Adjustments in only a few aspects such as the healthcare workforce and facilities are inadequate to bring the decrease the number significantly or to prevent it from rising. Therefore, there is a need to look at the Philippine health system and its building blocks in an in-depth manner in order to improve maternal outcomes in the country.

Keywords: Philippine maternal mortality rate, Philippine health system, emergency obstetric care, healthcare workforce

3.2 Scientific Paper (Abstract) South Korea

Effect of the Regional Difference in Obstetrics and Gynecology Specialists and Clinics Accessibility in Perinatal Mortality in South Korea

Authors : Jiyun Choi¹, Jongwon Jung², Hyungyu Park², Yeechan Park³, Woobin Lee³, Sumin Kim³

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Introduction : Perinatal mortality rate is one of the values that reflects the neonatal and gynecological health of the society. This study analyzed the relation between the regional difference of accessibility of obstetrics and gynecology(OB/GYN) and regional perinatal mortality rate in South Korea.

Data & Methods: We divided South Korean administrative districts in the analysis to metropolitan cities and provinces since they are different in many aspects. We modeled accessibility to OB/GYN as the sum of births and perinatal deaths per OB/GYN specialist and clinic for metropolitan cities and as area () per OB/GYN specialist and clinic for provinces. Births and perinatal deaths from 2012 to 2015 were used in the analysis. Total of 5 variables (regional OB/GYN accessibility, maternal age, maternal education level, fetus/infant sex, single/multiple births) were used in the analysis. Logistic regression was performed and odds ratios were calculated to analyze the effect of regional OB/GYN accessibility on perinatal mortality.

Results: In the analysis of metropolitan cities, an increase in the number of births and perinatal deaths per OB/GYN specialist and clinic reduced perinatal mortality, with odds ratios of 0.996 ($p<0.001$) for the sum of the number of births and perinatal deaths per OB/GYN specialist and 0.999 ($p=0.023$) for the sum of the number of births and perinatal deaths per OB/GYN specialist. For provinces, an increase in area() per OB/GYN specialist and clinic increased perinatal mortality, with odds ratios of 1.004 ($p<0.001$) for its area () per OB/GYN specialist and 1.001($p<0.001$) for its area () per OB/GYN clinic respectively.

Discussions / Conclusions: For metropolitan cities, reduction in OB/GYN accessibility didn't increase perinatal mortality rate. Several factors we didn't consider, especially including traffic congestion may have contributed to this result. For provinces, reduction in OB/GYN accessibility increased perinatal mortality rate, which may imply that the distance to the OB/GYN specialist and OB/GYN clinic is an important factor in perinatal mortality rate, especially for sparse regions. Our study suggests that the number of OB/GYN specialists and clinics by area should be considered when allocating medical resources, especially in relatively less populated regions.

Keywords : *perinatal mortality, OB/GYN accessibility, regional differences*

3.3 Scientific Paper (Abstract) Taiwan

Genome-wide DNA methylation profile in umbilical cord blood samples as marker for Spontaneous Preterm Labor through enhancement of Innate Inflammatory response and the Defense Mechanism

Shan Miao (Samia) Yeh, Yu Jen Chen, Ching Lan Yang

Taipei Medical University, Taiwan

The ROC Ministry of Health and Welfare saw an exponential increase in preterm birth rate in the last 14 years, while the WHO has cited preterm birth complication as the highest cause of death for children under 5 years old in Southeast Asian countries. The use of Caesarean sections and medicine to induce labor are also escalating in the geographical region we reside in. These factors not only increase the risk of uterine rupture or furtFollowing the work of our predecessors, we examine the role DNA methylation plays in the initiation of spontaneous preterm labor (sPTL) throughher maternal and neonatal complications, but it may cause unnecessary and risky medical intervention.

Analysis of genome wide methylation profile in umbilical cord blood samples (UCB) from 11 idiopathic preterm and 11 term neonates all born after vaginal delivery with no clinical difference. Through a two-part analysis, DMPs and its correlated functional processes were first compared between preterm and term before executing further comparisons between early-preterm and late-preterm. Preterm labor cases were separated according to gestational age upon delivery, resulting in 4 early-preterm (gestational age at delivery28 weeks) and 3 late-preterm labor (gestational age at delivery32 weeks) UCB.

The T-test allowed us to retained selected methylated genes showing statistical significance ($p < 0.05$). The means of differentially methylated positions (DMPs) rate were subtracted, and DMPs with subtraction of the averages of methylation rates less than or equal to 0.125 (-0.125), or greater than or equal to 0.125(0.125) were selected. Selected probes have a difference large enough to have biological and clinical impacts. Enrichment analysis with DAVID 6.8. allowed correspondence of DMPs with Gene Ontology (GO) biological process.

The two-part analysis highlighted the overlapping high DMPs association with the immune system. GO biological process of high DMPs of the early-preterm labor are extremely similar to the high DMPs of preterm labor, if not the same; both GO biological processes illustrate high relation to inflammatory response such as the immune response, defense response, and leukocyte cells. High DMPs contribute to the immune response observed in preterm laboring women. DNA methylation profile analysis allow us to make functional prediction of these abnormal changes in DNA genome, and conclude epigenetic mechanisms might provide an answer by enhancing innate inflammatory responses and the host's defense mechanism. DNA methylation changes can further be exploited as markers for sPTL.

3.4 Scientific Paper (Abstract) Indonesia

Insilico and Invitro Study for Utilizing Active Compound of Thymoquinone in Decreasing NfKB and Increasing eNOS Expression in HUVECs Model of Severe Pre-eclamptic Pregnancies

Alfryan Janardhana¹, Savannah Quila Thirza², Nicholas Kevin³, Kevin Marcello⁴

ASIAN MEDICAL STUDENTS' ASSOCIATION-INDONESIA

BRAWIJAYA UNIVERSITY

Background: Preeclampsia is a syndrome in pregnancy and remains as the most common problem in maternal health. In several studies, it has been discovered that the active compound of Thymoquinone in black cumin (*Nigella shativa*) extract has anti-inflammatory effect. The aim for this research is to prove that the active compound of Thymoquinone in black cumin (*Nigella sativa*) extract can increase the expression of eNOS and decrease the expression of NfKB in HUVECs model with severe preeclampsia pregnancy.

Material and Methods: This scientific paper is based on experimental research (true experimental) that used post-test only control group design to measure the effect of treatment in comparison between experimental group and control group, without conducting a pre-test beforehand. Exploration study uses Human Umbilical Vein Endothelial Cells (HUVECs) that is exposed with 2% of preeclampsia plasma in addition with *Nigella sativa* extracts in various doses. Insilico studies were done to test the pharmacokinetic and pharmacodynamics of Thymoquinone. In in vitro procedures, plasma was taken from 10 patients with severe preeclampsia and gestational age above 34 weeks that have signed inform consent.

Results: From Insilico result, it is found that the bioavailability of thymoquinone is notably high, which is above 70%. Thymoquinone will be absorbed 100% in the duodenum, thymoquinone then will enter the liver. Penetration of thymoquinone into the cytopasms of the target cells does not depend on pH value. According to the results in this study, it can be acknowledged that minimal dose thymoquinone will initially take effect on the inhibition of AKT and activate AMPK which will cause the increased expression of eNOS. From In vitro results, it is found that there is a decrease on NfKB expression and increase on eNOS expression on HUVEC samples which were exposed to thymoquinone beforehand. The higher concentration of black cumin (*Nigella sativa*) thymoquinone, the lower the expression of NfKB. While the higher concentration of thymoquinone, the more the expression of eNOS in the samples. A decrease in the activity of NfKB in patients with preeclampsia will increase proangiogenic factors and increase eNOS activity, both in endothelial cells of blood vessels and in placental trophoblast cells. The result is the increased production of NO and improved endothelial function.

Conclusion: Therefore it can be concluded that Thymoquinone binds on the alosteric site of AKT and AMPK. The end result is increase in expression of eNOS and decrease in expression of NfKB

3.5 Scientific Paper (Abstract) China

Maternal Vitamin D status during Pregnancy and its correlation to the occurrence of Asthma in the Offspring: A Systematic Review

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Background: Possible programming effect of maternal vitamin D status during gestation has been proposed by an individual study and some observational studies suggesting that high prenatal vitamin D intake may be associated with reduced childhood recurrent wheezing and asthma. We examined the effect of prenatal vitamin D levels and supplements during pregnancy on the risk of childhood wheezing and asthma in a systematic review.

Methods: We searched EMBASE, PubMed and Cochrane Library for all published articles. We got a total of 147 articles from EMBASE and 101 articles from PubMed. Repetitive articles and articles with no relevance to our topic were excluded. After this primary filtration, 53 relevant articles were included for further analysis, 13 of them were RCTs or cohort studies with applicable data. The final 21 studies (15 observatory studies, 2 meta-analysis, 1 systematic review, 1 editorial, 1 cross-sectional study and 1 secondary analysis) were selected after extensive scrutiny, the data extracted and analyzed on the basis of the guidelines from Cochrane Handbook for Systematic Reviews of Interventions

Results: Data on prenatal vitamin D level, supplement and dosage during pregnancy was collected from the selected articles. A second analysis revealed that mothers having a baseline level of vitamin D greater than 30 ng/mL and having been randomized to the dosage of 4000 IU/d were associated with the lowest risk for asthma/recurrent wheeze by age 3 years compared with having an initial level of less than 20 ng/mL and receiving placebo (adjusted odds ratio, 0.42; 95% CI, 0.19-0.91), which suggested higher vitamin D status in early pregnancy as a necessity for asthma/recurrent wheeze prevention in early life.

Conclusion: Our systematic review showed a minor association between maternal vitamin D content and the risk of recurrent wheeze or asthma in the offspring. However, no apparent clinical result between the vitamin D dosage to the mother (during gestation period) and the reduction of disease incidence in the offspring has been presented, thereby presenting the need for further studies.

Keywords: *vitamin D, asthma, pregnancy, prenatal medicine*

3.6 Scientific Paper (Abstract) Singapore

Association of maternal antenatal sleep on perinatal outcomes may be modified by advanced maternal age

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Background / Information: There is a global trend of increasing maternal age worldwide and higher maternal age has been linked to poorer perinatal outcomes. At the same time, sleep problems are common during pregnancy but the evidence on sleep problems and perinatal outcomes is less consistent. The aim of our study is to examine if the association between antenatal sleep problems and perinatal outcomes is modified by advanced maternal age (≥ 35 years) (AMA).

Brief research methodology: Prospective study using data from 466 women, with singleton pregnancy with no pregnancy complications, who participated in the Singaporean birth cohort study (GUSTO). They filled in the Pittsburgh Sleep Quality Index (PSQI) at 26-28 weeks gestation and had perinatal outcome data collected at delivery. All analyses were adjusted for maternal BMI at 26-28 weeks gestation, ethnicity and maternal education.

Key findings: Neonates of mothers with AMA and had poor sleep quality (PSQI score > 5) were more likely to be placed under special or intensive neonatal care (adjusted odds ratio = 3.53, 95% CI: - 1.21 to 10.27) compared to mothers with AMA but with good sleep quality. Their offspring also have shorter birth length (adjusted mean difference = -1.05cm, 95% CI: -1.82 to -0.20) and a marginal trend of lower birth weight (adjusted mean difference = -152.6g, 95% CI: -319.4 to 14.2). Neonates of mothers with AMA and short nocturnal sleep duration (< 6 hours) were born with smaller head circumference (adjusted mean difference = -0.89cm, 95% CI: -1.68 to -0.09) than neonates born to mothers with AMA but has sufficient nocturnal sleep.

Conclusion: Our study shows that amongst mothers with advanced maternal age, poor sleep quality and short sleep duration during pregnancy were associated with shorter birth length, smaller head circumference in the offspring and higher likelihood of staying in special or intensive care nursery. Improving sleep during pregnancy could potentially improve perinatal outcomes in women with AMA.

3.7 Scientific Paper (Abstract) Thailand

The factors affecting preferences of Thai pregnant women towards the mode of delivery comparing between rural and urban area.

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Cesarean delivery is one of the most controversial topics in obstetrics. It can effectively prevent maternal and perinatal mortality and morbidity. However, in 1985, the World Health Organization states (WHO) suggested that rate of the cesarean section should not exceed 15%¹ since no additional benefit for the newborns or for the mothers are obtained beyond this level and it might cause further risk to the mother, child and the future pregnancy. 1,2,3,But the overall cesarean section rate is increasing in several countries, as well as in Thailand.^{5,6}

So, we design this study in order to identify the reasons for pregnant women to prefer cesarean delivery and the differences between a rural and urban area in Thailand. This might be a useful information to developed and decrease the cesarean section rate in Thailand corresponding with the ideal WHO cesarean section rate.

We use a cross-sectional study composed of a 5 parts questionnaire, addressing pregnant women demographic data, knowledge about the mode of deliveries, attitude towards the mode of deliveries, doctor factor, and an open question about other factors that might affect the preference. The questionnaire was conducted on stratified proportional randomized 300 pregnant women who are coming to ANC at Chulalongkorn Hospital, Bhumibol Adulyadej Hospital, and Chonburi Hospital during September to December 2017. The data was interpreted and categorized into two group; Urban and Rural and was described by using percentage.

Keywords: *Pregnant women, Pregnancy, Cesarean section, Cesarean section rate, Vaginal delivery, Perinatal mortality, Labor, Postpartum infection, Abdominal scar, Labor pain, Epidural anesthesia*

4

Scientific Poster

4.1.1 Scientific Poster-Singapore



The effects of maternal first and second hand smoking on general morbidity of neonates

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INTRODUCTION:

Maternal first and second hand (passive) smoking are potential risk factors for developing significant health problems in neonates. This could lead to distressing situations such as admission into neonatal intensive care unit (NICU) for treatment.

To determine if smoking affects the general health of neonates we examined associations between first or second hand smoking and neonatal intensive care unit (NICU) admission.

RESULTS:

The degree of exposure of smoking during pregnancy was classified into 2 groups. Group 1 consisted of pregnant mothers who either a) were free from exposure to smoke and had cotinine lower than limit level of detection (LOD) or b) had cotinine <LOD with self-reported ETS exposure. Group 2 consisted of pregnant mothers who either a) had cotinine levels from 0.17-13.99+ and were currently not smoking or b) had cotinine levels >14 or were self-reported smokers.

METHODS:

The Growing Up in Singapore Towards healthy Outcomes (GUSTO) cohort study in Singapore includes women from the major Asian ethnic groups (Chinese, Malays and Indians) studied throughout pregnancy at two hospitals, KK Women's and Children's Hospital and National University Hospital. It aims to investigate how a mother's diet and lifestyle factors during pregnancy can affect the health of her baby. Information on first hand smoking and ETS (environmental tobacco smoke) exposure during pregnancy was obtained from the mother using an interviewer-administered questionnaire, carried out at 26-28 weeks of gestation. Cotinine levels in a plasma sample collected at 26-28 weeks gestation were also measured by LC-MS/MS (Liquid chromatography-Mass spectrometry/Mass spectrometry).

General health morbidity in neonates was ascertained using the incidence of NICU admission. Multivariable logistic regression was conducted with adjustment for gestational age at birth, maternal age, education, parity, BMI pre-pregnancy, gestational diabetes, and hypertension during pregnancy.

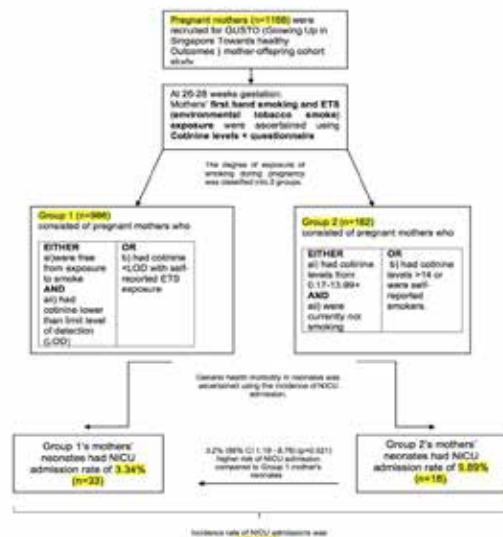
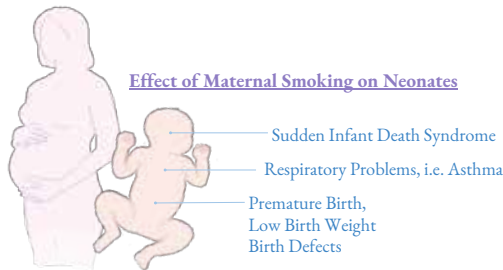


Table 1: Characteristics of the Cohort Stratified by Maternal Smoking

Smoke Exposure	n=	NICU Admissions n= (%)	Multivariate RR	95% CI	p value
Group 1 (reference)	986	33 (3.3)	-	-	-
Group 2	182	18 (9.9)	3.2	1.19– 8.76	0.021

There were a total of 986 subjects in Group 1 and 182 subjects in Group 2. Overall, the incidence rate of NICU admissions was 4.4% (n=51), with 3.34% (n = 33) and 9.9% (n = 18) for Group 2. Neonates with mothers classified within Group 2 had a 3.2 (95% CI 1.19 - 8.76) (p=0.021) higher risk of admission to NICU compared to neonates with mothers within Group 1.

DISCUSSION:

Cigarette smoking is a significant problem in Singapore despite the reduction in mothers who smoke regularly (from 12.6% to 2.3%) with the advent of pregnancy. Of the 2.3% expectant mothers who are actively smoking, many tended to be of Malay ethnicity and from the lower socioeconomic status. We can hence target these high-risk groups through counselling and active intervention to benefit fully.

Efforts from maternal side is insufficient to reduce discussed exposure. Passive smoking of mother and unborn child do have deleterious effect as shown, and this is where more efforts should direct to fathers who smoke as well. A study has shown that relapse of smoking in women increased 4 fold when they live with a smoker. Our targeting strategy should be addressed to both the parent, to prevent pregnant mothers who used to smoke from picking up smoking again, as well as to reduce the exposure from passive smoke.

CONCLUSION:

Smoking and environmental tobacco smoke exposure during pregnancy is associated with increased NICU admission. This suggests that counselling of mothers to stop smoking and avoid environmental tobacco smoke exposure before and after conception may reduce the risk of her infant being admitted to the NICU. Future efforts could extend in-depth into different systems of impact from this exposure as well as the health status of the child up to adolescence.

ACKNOWLEDGEMENTS

We thank the contribution of the GUSTO study group and participants. This work is funded by the **National Research Foundation (NRF)**, Prime Minister's Office, Singapore, through its "Translational Clinical Research (TCR) Flagship Programme on Developmental Pathways to Metabolic Disease" (DevOS), with fund-administration by the **National Medical Research Council (NMRC)**, Ministry of Health - NMRC/TCR/004-NUS/2008. Additional funding is provided by the **Singapore Institute for Clinical Sciences (SICS)**, A*STAR.

4.1.2 Scientific Poster (Abstract) Singapore

Objective: Both first hand and second hand (passive) smoking are potential risk factors for developing significant health problems in neonates. To determine if smoking affects the general health of neonates we examined associations between first or second hand smoking and neonatal intensive care unit (NICU) admission.

Materials and methods: This study was part of the GUSTO (Growing Up in Singapore Towards healthy Outcomes) mother-offspring cohort study, which aims to investigate how a mother's diet and lifestyle factors during pregnancy can affect the health of her offspring. Information on first hand smoking and ETS (environmental tobacco smoke) exposure during pregnancy was obtained from the mother using an interviewer-administered questionnaire, carried out at 26-28 weeks of gestation. Cotinine levels in a plasma sample collected at 26-28 weeks gestation were also measured by LC-MS/MS (Liquid chromatography-Mass spectrometry/Mass spectrometry).

The degree of exposure of smoking during pregnancy was classified into 2 groups. Group 1 consisted of pregnant mothers who either a) were free from exposure to smoke and had cotinine lower than limit level of detection (LOD) or b) had cotinine <LOD with self-reported ETS exposure. Group 2 consisted of pregnant mothers who either a) had cotinine levels from 0.17-13.99+ and were currently not smoking or b) had cotinine levels >14 or were self-reported smokers.

General health morbidity in neonates was ascertained using the incidence of NICU admission. Multivariable logistic regression was conducted with adjustment for gestational age at birth, maternal age, education, parity, BMI pre-pregnancy, gestational diabetes, and hypertension during pregnancy.

Results: There were a total of 986 subjects in Group 1 and 182 subjects in Group 2. Overall, the incidence rate of NICU admission was 4.4% (n=51). Neonates with mothers classified within Group 2 had a 3.2 (95% CI 1.19 - 8.76) (p=0.021) higher risk of admission to NICU compared to neonates with mothers within Group 1.

Conclusion: Smoking and environmental tobacco smoke exposure during pregnancy is associated with increased NICU admission. This suggests that counselling of mothers to stop smoking and avoid environmental tobacco smoke exposure before and after conception may reduce the risk of her infant being admitted to the NICU.

4.2.1 Scientific Poster-Taiwan

Risk Factors Associated with Preterm Birth in Pregnant Women: A Retrospective, Cross-Sectional, Case-Control Study in a Medical Center in Taipei



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I INTRODUCTION

Preterm birth of newborn infants is the major cause of neonatal mortality and morbidity. According to the reports of WHO, there are approximately 15 million babies born preterm every year in the world, and the reported occurrence rate of preterm birth are 5% to 18%.¹ Besides the common known causes, some maternal factors may also be associated with the occurrence of preterm birth, such as maternal age, body weight, body height, or body mass index (BMI).²⁻⁵

Therefore, this study was designed to analyze the maternal characteristics and their delivery conditions, and to find the risk factors associated with preterm birth in pregnant women from an urban tertiary medical center.

II METHODS

- **Study design:** a retrospective, cross-sectional, case-control study.
- **Study place:** a tertiary medical center.
- **Inclusion criteria:** All pregnant women giving births of their babies from January 1, 2015 to December 31, 2015.
- **Data source:** Medical records of the mothers and their newborn infants.
- **IRB approval number:** VGHRB 2016-12-006CC.

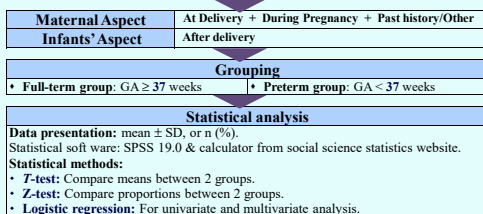


Table 4. Peripartum conditions of enrolled mothers.

Maternal condition	Total N = 1729	Full term N = 1520	Preterm N = 209	<i>p</i>
Before delivery				
Tocolysis requirement, n (%)	222 (12.8)	128 (6.6)	94 (45.0)	0.000
Tocolysis duration (days)	3 ± 14	2 ± 11	12 ± 26	0.000
Duration with whom received	24 ± 33	23 ± 32	26 ± 36	0.446
Receiving GBS screening, n (%)	1260 _{100%} (93.3) [#]	1157 _{100%} (95.2) [#]	103 _{100%} (74.6) [#]	0.000
Positive GBS screening test, n (%)	293 _{100%} (23.3) [#]	281 _{100%} (24.3) [#]	12 _{100%} (11.5) [#]	0.000
Fetal distress before delivery, n (%)	249 (14.4)	218 (14.3)	31 (14.8)	0.834
PROM ≥ 18 hours, n (%)	71 (4.1)	57 (3.8)	14 (6.7)	0.060
At delivery				
GA at delivery	38 ± 2	39 ± 1	34 ± 3	0.000
Delivery mode, n (%)				
Spontaneous vaginal delivery	896 (51.8)	823 (54.1)	73 (34.9)	0.000
Cesarean section	531 (30.7)	407 (26.8)	124 (59.3)	0.000
Vacuum extraction	207 (12.0)	202 (13.3)	5 (2.4)	0.000
Low Forceps	95 (5.5)	88 (5.8)	7 (3.3)	0.147
Dysfunctional labor, n (%)	402 (23.5)	385 (25.3)	17 (8.1)	0.000
Maternal blood loss	426 ± 406	399 ± 375	623 ± 543	0.000
< 500 mL, n (%)	1278 (73.9)	1172 (77.1)	106 (50.7)	0.000
≥ 500 mL, n (%)	451 (26.1)	348 (22.9)	103 (49.3)	0.000
Meconium stain, n (%)	202 (11.7)	189 (12.4)	13 (6.2)	0.009

Table 5. Odds ratios of preterm delivery-related maternal peripartum conditions.

Maternal conditions	OR	95% CI
Tocolysis requirement	5.341	3.945-7.231*
Maternal blood loss (≥ 500 mL)	3.273	2.433-4.402*
Delivery mode		
Spontaneous vaginal delivery	1	
Cesarean section	3.435	2.513-4.693*
Low Forceps	0.897	0.401-2.008
Vacuum extraction	0.279	0.111-0.700*
Receiving GBS screening	0.647	0.505-0.830*
Meconium stain in amniotic fluid	0.505	0.276-0.922*
Dysfunctional labor	0.316	0.193-0.533*

Table 6. Characteristics of 1778 newborn infants born by 1729 enrolled mothers.

Conditions	Total N = 1778	Full term N = 1553	Preterm N = 245	<i>p</i>
Gender				
Male, n (%)	924 (52.0)	790 (51.5)	134 (54.7)	0.371
Female, n (%)	854 (48.0)	743 (48.5)	111 (45.3)	
Twin, n (%)	98 (5.5)	26 (1.7)	72 (29.4)	0.000
Birth length (cm)	48 ± 3	48 ± 2	43 ± 5	0.000
Birth weight (kg)	2999 ± 555	3134 ± 398	2152 ± 642	0.000
Appgar score				
at 1 min	7 ± 1	8 ± 1	6 ± 2	0.000
at 5 min	9 ± 1	9 ± 1	8 ± 2	0.000
< 6 within 5 min, n (%)	95 (5.3)	37 (2.4)	58 (23.7)	0.000
Placenta weight	684 ± 171	689 ± 152	656 ± 257	0.005
Skin to skin contact, n (%)	1277 (71.8)	1211 (79.7)	66 (26.9)	0.000
Duration, all (min)	29 ± 26	32 ± 25	11 ± 22	0.000
Duration, contact only (min)	40 ± 21	40 ± 21	41 ± 24	0.945

III RESULTS

Table 1. Characteristics of 1729 enrolled mothers at delivery.

Characteristics	Total N = 1729	Full-term N = 1520 (87.9%)	Preterm N = 209 (12.1%)	<i>p</i>
Age (years)	33 ± 4	33 ± 4	34 ± 4	0.066
≤ 17 y, n (%)	1 (0.1)	1 (0.1)	0 (0)	0.711
18-34 y, n (%)	1050 (60.7)	932 (61.3)	118 (56.7)	0.177
35-39 y, n (%)	580 (33.4)	509 (33.5)	71 (34.0)	0.889
≥ 40 y, n (%)	98 (5.7)	78 (5.1)	20 (9.6)	0.009
Body height (cm)	160 ± 5	160 ± 5	150 ± 6	0.001
< 155, n (%)	211 (12.3)	170 (11.3)	41 (19.7)	0.001
155-164, n (%)	1147 (67.0)	1016 (67.6)	131 (63.0)	0.184
≥ 165, n (%)	353 (20.6)	317 (21.1)	36 (17.3)	0.208
Body weight (kg)	67 ± 10	67.0 ± 10.0	66.8 ± 11.8	0.756
6-months weight gain (kg)	12 ± 5	12.3 ± 4.4	9.5 ± 5.3	0.000
BMI	26 ± 4	26.0 ± 3.8	26.3 ± 4.3	0.193
< 18.5, n (%)	16 (0.9)	12 (0.8)	4 (1.9)	0.111
18.5-24.9, n (%)	712 (41.9)	633 (42.4)	79 (38.3)	0.271
25-29.9, n (%)	755 (44.4)	669 (44.8)	86 (41.7)	0.407
≥ 30, n (%)	216 (12.7)	179 (12.0)	37 (18.0)	0.016
Twin pregnancy, n (%)	49 (2.8)	13 (0.9)	36 (17.2)	0.000
Gravida	2.1 ± 1.2	2.0 ± 1.2	2.2 ± 1.5	0.181
Primiparas, n (%)	958 (55.4)	834 (54.9)	124 (59.3)	0.222

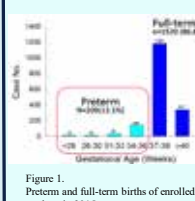


Figure 1. Trend of preterm and maternal age.

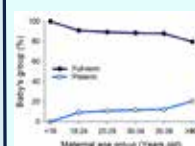


Figure 2. Trend of preterm and maternal age.

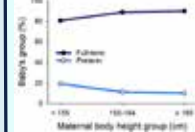


Figure 3. Trend of preterm and maternal height.

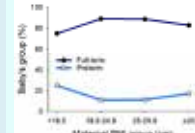


Figure 4. Trend of preterm and maternal BMI.

• GA, gestational age; GBS, group B *Streptococcus*; PROM, premature rupture of membrane; BMI, body mass index; GDM, gestational diabetes mellitus; OR, odds ratio; SLE, systemic lupus erythematosus. **p* < 0.05. ***p* < 0.005. ***Cases of unknown status are excluded. #Data are presented as mean ± SD or n (%) as appropriate.

Table 2. Past histories of enrolled mothers before delivery.

History	Total N = 1729	Full term N = 1520	Preterm N = 209	<i>p</i>
Previous abortion				
1-2 times	510 (29.5)	447 (29.4)	63 (30.1)	0.826
≥ 3 times	71 (4.1)	56 (3.9)	15 (7.2)	0.016
Smoking during pregnancy, n (%)	17 (1.0)	14 (0.9)	3 (1.4)	0.497
Alcoholism during pregnancy, n (%)	3 (0.2)	3 (0.2)	0 (0)	0.552
Pregnant-related problem	112 (6.5)	68 (4.5)	44 (21.1)	0.000
Preeclampsia/eclampsia, n (%)	60 (3.5)	28 (1.8)	32 (15.3)	0.000
GDM, n (%)	61 (3.5)	42 (2.8)	19 (9.6)	0.000
Maternal disease (any), n (%)	784 (45.3)	677 (44.5)	107 (51.2)	0.070
Maternal infection, n (%)	462 (26.7)	377 (24.8)	85 (40.7)	0.000
SLE	9 (0.5)	4 (0.3)	5 (2.4)	0.002
Thyroid disease	64 (3.7)	52 (3.4)	12 (5.7)	0.115
Uterine myoma	106 (6.1)	91 (6.0)	15 (7.2)	0.537

Table 3. Maternal risk factor-related to preterm delivery.

Maternal factors	Univariate analysis OR	95% CI	Multivariate analysis OR	95% CI
Twin pregnancy	24.123	12.550-46.367*	31.676	15.849-63.309*
Preeclampsia/eclampsia	8.312	4.905-14.084*	10.786	2.674-43.511*
SLE	9.289	2.474-34.874*	7.920	4.227-14.842*
Maternal infection	1.640	1.244-2.161*	2.618	1.863-3.677*
GDM	3.290	1.0878-8.765*	2.580	1.342-4.963*
Body height (cm)				
155-164	1			
< 155	1.860	1.264-2.727*	1.852	1.208-2.841*
≥ 165	0.881	0.597-1.301		
Age (years old)				
18-34	1			
35-39	1.102	0.805-1.508		
≥ 40	2.025	1.195-3.431*	1.384	0.742-2.579
BMI				
18.5-24.9	1			
25-29.9	1.030	0.745-1.425		
≥ 30	1.656	1.084-2.532*	0.809	0.497-1.318
< 18.5	2.671	0.841-8.482*		
Previous abortion (frequency)				
1	1			
1-2	1.093	0.768-1.555		
≥ 3	2.080	1.143-3.782*	1.788	0.920-3.474

IV DISCUSSION

1. Twin pregnancy, maternal diseases during pregnancy and lower body height were risk factors of preterm birth in Taipei in 2015.
2. With higher births in our study, the pregnant women required more tocolysis and cesarean section, and had higher blood loss at delivery.
3. Maternal obesity had been demonstrated to be related to preterm birth.^{8,9} Our study also found that the proportion of maternal BMI ≥ 30 was significantly higher in preterm than full-term group, but it was not an independent risk factor after multivariate analysis.
4. Lower body height (< 155 cm) of pregnant women was demonstrated as an independent risk factor of preterm birth in our study. This finding is compatible to the studies in Swedish women.^{3,4}
5. The mean age of pregnant women was 33 ± 4 y in Taipei city. It is higher than other areas.⁵ Investigators had reported that pregnant women of advanced age should be regarded as a risk group for very preterm birth.^{6,10} We noted that the proportion of pregnant women of age ≥ 40 y was significant higher in preterm than full-term group. However, it turned to be not an independent risk factor of preterm birth after multivariate analysis.

V CONCLUSION

The preterm birth rate was 12.1% in Taipei city in 2015. The risk factors associated with preterm births are twin pregnancy, lower maternal height (< 155 cm) and presence of maternal preeclampsia/eclampsia, GDM, SLE and infection. Physicians should be alert in caring pregnant women with these risk factors to prevent preterm birth and related morbidities.

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4.2.2 Scientific Poster (Abstract) Taiwan

Risk Factors Associated with Preterm Birth in Pregnant Women: A Retrospective, Cross-Sectional, Case-Control Study in a Medical Center in Taipei

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Background: Preterm birth is the major cause of neonatal mortality and morbidity in the world. In Taiwan, 8-10% of newborns are born prematurely. The pregnant women's age and health conditions are different from the past. Understanding the risk factors associated with preterm birth in pregnant women is crucial for future prevention.

Methods: We retrospectively reviewed the medical records of women delivering newborn infants in a tertiary medical center in Taipei city in 2015. The women delivering babies with gestational age less than 37 weeks were grouped into preterm group, otherwise was grouped into full-term group. Potential factors of enrolled mothers were analyzed. Their delivery conditions and infants' characteristics were also compared between 2 groups.

Results: A total of 1,729 pregnant women (15-48 years old) gave births in Taipei Veteran General Hospital in 2015, including 1,520 full-term and 209 (12.1%) preterm births. A total of 1,788 infants were delivered, including 49 pair of twins. After multivariate logistic analysis, significant risk factors associated with preterm birth were twin pregnancy (OR = 31.676, 95% CI = 15.849-63.309), presence of maternal preeclampsia/eclampsia (OR = 10.786, 95% CI = 2.674-43.511), systemic lupus erythematus (SLE) (OR = 7.920, 95% CI = 4.227-14.842), infection (OR = 2.618, 95% CI = 1.863-3.677), gestational diabetes mellitus (GDM) (OR=2.580, 95% CI = 1.342-4.963), and maternal body height < 155 cm (OR = 1.852, 95% CI = 1.208-2.841). Before and at delivery, the preterm group had significantly higher proportion in tocolysis requirement (OR = 5.341, 95% CI = 3.945-7.231), maternal blood loss \geq 500 mL (OR = 3.273, 95%CI = 2.433-4.402), and cesarean section (OR = 3.435, 95% CI = 2.513-4.693). Compared to full-term infants, the preterm infants had significantly smaller Apgar scores, lower placenta weight, and less proportion of skin-to-skin contact with their mother right after birth.

Conclusion: The preterm birth rate was 12.1% in Taipei city in 2015. The risk factors associated with preterm births are twin pregnancy, lower maternal height (< 155cm) and presence of maternal diseases during pregnancy, especially preeclampsia/eclampsia, SLE, GDM and maternal infection. Physicians should be alert in caring pregnant women with these risk factors to prevent preterm birth and related morbidities.

4.3.1 Scientific Poster-China



Introduction

Noninvasive prenatal testing (NIPT) is a prenatal screening technology that tests fetuses' chromosomal abnormalities by analyzing intact cell-free fetal DNA (cffDNA) from maternal blood samples. So far, it has become a competitive alternative to invasive tests. However, factors such as high cost, non-standardized implement and other ethical issues have prevented NIPT itself from being accepted by pregnant women and professional societies. Thus, based on several up-to-date researches from PubMed and an original opinion survey conducted by ourselves, we reach a comparative insight of people's thoughts about NIPT across Asia and hoping our research will emphasize the need of improving and standardizing NIPT's application and regulations.

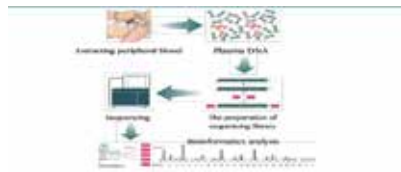


Figure 1: The operation process of NIPT

Methodology:

This study analyzes original prospective surveys and summaries the work of several up-to-date research to gain a comprehensive understanding. A total of 303 university students underwent a prospective randomized trial to indicate a section of the general public's awareness, attitude and preference on NIPT.

Result

Looking at the development of this decade, NIPT detection is more and more refined, from the initial chromosome to DNA, and then developed into RNA. It is foreseeable that next-generation technologies may extract and analyze smaller RNA molecules, with increased precision.

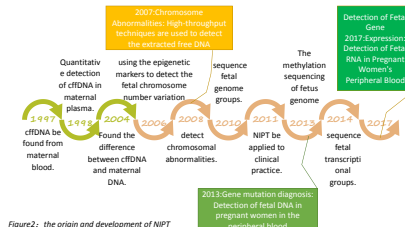


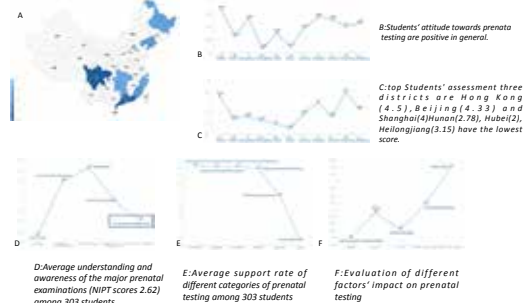
Figure 2: the origin and development of NIPT

Checkup Technology	Sampling Method	Prevalence ratio	Accuracy	Detection Rate	Technical Features
Screening of Pregnancy	Drawing peripheral blood	1% - 20%	80%-90%	80%-90%	FFV: 5% current defect T2E
NIPT	1% - 2%	99.99%	99.99%	99.99%	FFV: 10% recurrent high ratio
Placental Analysis	CVS Amniocentesis Cordocentesis	10-12% 10-12% 10-12%	100% 100% 100%	100% 100% 100%	cost of maternal blood collection
NIPT	Drawing peripheral blood	1%	99.99%	99.99%	cost of maternal blood collection

Table 1: The comparison of NIPT and traditional prenatal examination

Result:

NIPT Survey Report 2017.01.05: This original opinion analysis was conducted based on online questionnaire data collected from 303 Chinese medical students across China during 2017.12.24 to 2018.01.01. To insure the quality of this survey, questionnaires completed within 75 second and provinces with less than 4 data are already excluded from the original data base



NIPT could substantially reduce the need for invasive procedures and provide a very high quality of service for both mothers and fetuses in clinical routine. The results support the recommendation that NIPT should be offered under certain circumstances, and can still be enhanced on technologies, where the rules of epigenetics play a specifically important guiding role

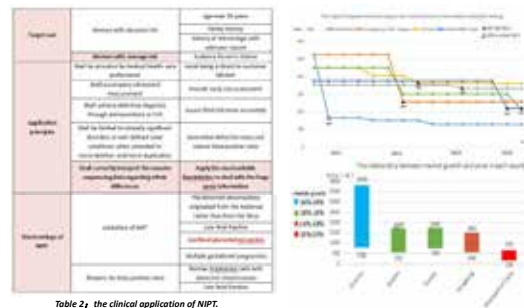


Table 2: the clinical application of NIPT.

the comparative economic impact of NIPT's cost in different cities in China and different countries indicate that the development of NIPT is closely related to the degree of price and health insurance.

Discussion:

Not only future precision will be guaranteed, a tremendous breadth of research into the use of cffDNA for developing noninvasive methods for extracting fetus-specific information will be opened. However, many questions still remain unanswered. For example: searching for fetal de novo mutations on a genome-wide scale using the maternal plasmaDNA sequencing data - allowing one to determine the maternal inheritance of the fetus on a genome-wide level without resorting to maternal haplotype dosage analysis - allowing us to investigate if there might be genomic locations that would be preferentially represented at the ends of plasma DNA fragments and whether such ends would exhibit differences depending on their tissue of origin



Conclusion

NIPT could substantially reduce the need for invasive procedures and provides a very high quality for the fetal in clinical routine. The results support the recommendation that NIPT should be offered under certain circumstances, and can still be enhanced on technologies and regulations.

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4.3.2 Scientific Poster (Abstract) China

**A Comprehensive Review and Prospective Research:
Original Opinion Survey and Application Analysis for NIPT**

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Noninvasive prenatal testing (NIPT) is a burgeoning prenatal screening technology that analyzes intact cell-free fetal DNA (cffDNA) from maternal blood samples for chromosomal abnormalities. With advances of high sensitivity (true positive rate) and specificity (true negative rate), the new technology promises to play an important role in prenatal testing. Since its first clinical practice in Hong Kong in 2011, NIPT has spread across the globe and has become a competitive alternative to invasive tests.

However, to the concern of pregnant women and professional societies, factors such as high cost, non-standardized implement and some ethical issues have obstructed its application. As relative research and guidelines concerning NIPT's implement are limited so far, the study aims to gain more understanding of public attitude towards NIPT and forward a comprehensive analysis of NIPT's clinical application and value estimates.

This study integrates the works of several up-to-date research from PubMed to reach a comparative insight of people's thoughts about NIPT across Asia. What's more, through conducting an original opinion survey that covers medical students from Mainland China, Hong Kong and Taiwan, we provide valuable insight of Chinese medical students' attitude towards prenatal testing and NIPT. The result indicates that most students think highly of both, and the diversity across regions is worth paying attention to.

Furthermore, the study compares clinical approaches and forwards proposals to optimize NIPT's clinical procedures. It also investigates the economic impact of NIPT's cost by studying the charging situation in different countries. Both methods are useful supplement to existing principles and guidelines.

In general, the results emphasize the need to improve and standardize NIPT's application and regulations.

For the benefits of both maternal and fetal health, it's crucial to raise global awareness of the importance of prenatal testing. Future advances promise to expand the range of NIPT's implementation like single gene disorders, yet there is a long way ahead to popularize the technology worldwide and standardize its' application to ensure it fits into existing legal and ethical frameworks.

4.4.1 Scientific Poster-Indonesia



UNIVERSITAS INDONESIA
Veritas, Probitas, Sanctitas | Est. 1949

Maternal Factors Associated with Preeclampsia among Asian: Systematic Review of Large Cohort Studies

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Background

Maternal mortality is still a major problem in developing countries. World Health Organization estimates Maternal Mortality Rate (MMR) in developed countries in 2015 is 239 per 100,000 live births. The MMR of developed countries, on the contrary, is as low as 12 per 100,000 live births. The significance of the problem is also shown in data of maternal death risk: it is 1 in 180 in developing countries, compared to 1 in 4900 in developed countries.¹ In Indonesia, 305 mothers died in every 100,000 live births, this indicates the country's failure to achieve Millennium Development Goals (MDGs).² It is important to make new strategies to reduce MMR as Sustainable Development Goals, an agenda that serves as a continuation of MDGs, aim to lessen maternal death to 70 deaths per 100,000 live births.³

Pre-eclampsia serves as one of the problem's cause. Every day, at least 76,000 deaths from 200,000 mothers all over the world are accounted to pre-eclampsia (25%).⁴ Thus, pre-eclampsia has become a global issue. Furthermore, treatment of preeclampsia in the US has cost more than 2.18 billion US dollar per year.⁵ With the MMR significantly lesser in developed country, it can be conceived how developing countries are economically burdened. In addition, a population-specific systematic review of maternal factors associated with preeclampsia among Asian has not been done before.

Objective

To identify factors associated with preeclampsia among Asian in order to reduce its incidence through increasing awareness and screening quality of preeclampsia.

Method

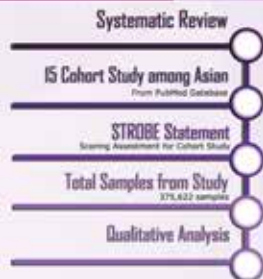


Figure 1. Selection and Analysis Method



Figure 2. Conceptual Framework

References

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2. ...
3. ...
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5. ...

Result

Table 1. Characteristics of Studies and STROBE's scoring

Author (Year)	Country	Year	Study Type	Sample Size (n)	STROBE Score
Li X et al (2015)	China	2011	Cohort	20,400	22
...
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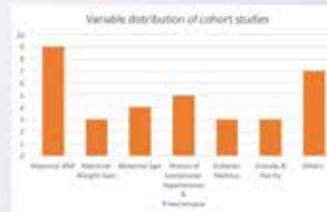


Figure 3. Bar Diagram of Variable Distribution of Cohort Studies

- The total of participants included were 375,622 from 15 studies.
- STROBE Statement, stands for Strengthening the Reporting of Observational Studies in Epidemiology, was used to assess the included cohort studies for systematic review to improve the quality of reporting. The best study regarding to the STROBE Statement is Li X, et al. 2015 with the score of 20.4 out of 22.
- Risk factors of preeclampsia which are most discussed in studies and problematic in Asia are maternal BMI and History of gestational hypertension and preeclampsia.
- Highest Odds Ratio from included studies are pre-gestational obese (OR: 7.85); Chronic hypertension (OR: 7.174); previous history of gestational hypertension or preeclampsia (OR: 8.85).
- Protective factors are weight gain below IOM in overweight pre-gestational weight (OR: 0.76), isolated anti-TPO antibody, normal BMI, BPD >90 (OR: 0.86), maternal weight gain <10kg, and maternal weight gain ≥ 16 kg (OR:0.6)

Discussion

Preeclampsia is described as an pregnancy-specific syndrome which could affect every organ system virtually. There are several factors of preeclampsia, nevertheless we will discuss the top-3 factors related to occurrence of preeclampsia

Maternal Body Mass Index

Studies have confirmed that inappropriate pre-gestational weight is associated with increased risks of preeclampsia. According to Hung TH, women with overweight and obese pre-gestational BMI carried a 3.7 fold and 7.85 fold increased risk of preeclampsia respectively.⁶ Li X also showed overweight pre-gestational BMI to escalate the risk of preeclampsia by 1.96 and obese by 3.41.⁶ On the other hand according to Park JH, Leung TY, underweight category is less influential and tends to be a protective factor.⁷ Although, underweight pregestational BMI is a protective factor of preeclampsia, it increases risk of morbidity and mortality in infants. The positive relationship is supported by the fact that women with obese pre-gestational BMI have significantly elevated levels of IL-6 and C-reactive protein in serum, along with impaired endothelial function.⁸ Currently, Asia is widely using the BMI standard based on WHO's. However, referring to that standard, obese people in Asia are prone to having a larger waist circumference than Caucasian. This implies the need of adjustment of BMI Standard in Asia.⁹

Maternal Age

Several studies have confirmed that advanced maternal age is associated with adverse pregnancy outcomes. Advanced maternal age increases the risk of preeclampsia exponentially. According to Islam MM, maternal age equal to or more than 35 years increased the risk by 3 times.¹⁰ Li X also showed a similar increased risk by 3.34 times with maternal age above 35.¹¹ Moreover, in another study from Funai EF, maternal age above 40 increased the risk by 4.19 fold.¹² Maternal age is a multifactorial risk of preeclampsia, which is related with: glucose intolerance due to insulin insensitivity, abnormal lipid profile, hypertensive disorder, etc.¹³

History of Hypertension and Preeclampsia

Hypertension and history of preeclampsia have great contribution in increasing risk of preeclampsia. According to Yu S, risk of preeclampsia increase 7.714-fold in mother with chronic hypertension.¹⁴ On other study by Taguchi T showed that previous history of hypertension and preeclampsia had 8.85 times of risk of having preeclampsia in multipara gestation.¹⁵ Preeclampsia is initiated by placental ischemia which increases total peripheral resistance via cytokines reaction. Thus, it leads hypertension and becomes preeclampsia.¹⁶ Although pathophysiology of preeclampsia remains unclear, many studies showed that incidence of preeclampsia is higher among women with previous history of hypertension and preeclampsia. Therefore, for the mother having these risks, we suggest to be more aware before having another conception and should check for ante natal care when they are pregnant.

The limitation of our review was the uneven distribution of respondents as some Asians might have migrated outside the continent and the study of which not as many as studies in Caucasians.

Conclusion

From this systematic review, maternal BMI (overweight and obese), maternal age and history of pre-gestational hypertension and preeclampsia were proven to be the most influential and common risks of preeclampsia among Asian. Moreover, other risks of which are inappropriate maternal weight gain, low mother's education and activity, DM and hypothyroidism. With this knowledge, we aim this review to improve the quality of preeclampsia screening and awareness of physicians and mothers regarding the problem. Furthermore, we hope that this review could develop a practical evidence-based list of risk factors related to preeclampsia among Asian which can be assessed by primary health care worker.

4.4.2 Scientific Poster (Abstract) Indonesia

Maternal Factors Associated with Preeclampsia among Asian: Systematic Review of Large Cohort Studies

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Aim: This paper reports a systematic review to identify factors associated with preeclampsia among Asian in order to reduce its incidence through increasing awareness and screening quality of preeclampsia.

Material and method: A systematic review was conducted on cohort studies concerning the factors associated with preeclampsia among Asian. Cohort studies were chosen as it is a study with time-period approach, therefore compatible to identify the risk of preeclampsia based on its pathogenesis during pregnancy time. 6133 records, related with preeclampsia among Asian, were found from Pubmed database. We exclude publications that did not meet inclusion criteria ($n = 6037$), then which meet exclusion criteria ($n = 81$). Finally, three reviewers extracted data from total included study ($n = 15$) and we assessed the studies with STROBE statement to show the quality of each studies.

Results and Discussion: There were 375.622 participants among 15 studies. The studies show that factors associated with preeclampsia are: maternal BMI, maternal weight gain during pregnancy, maternal age, history of gestational hypertension and preeclampsia, diabetes mellitus, gravida and parity, etc. Risk factors with highest odd ratio are pre-gestational obese (OR: 7.85); chronic hypertension (OR: 7.174); and previous history of gestational hypertension or preeclampsia (OR: 8.85). On the other hand, weight gain below IOM in overweight pre-gestational weight (OR: 0.76), isolated anti TPO antibody (OR: 0.7), normal BMI with BPD >90 (OR: 0.86), and maternal weight gain <10 kg (OR: 0.5) are shown to be protective factors of preeclampsia. Furthermore, maternal BMI, history of gestational hypertension and preeclampsia are risk factors of preeclampsia which most discussed and could be a complex issues among Asian countries.

Conclusion: From this systematic review, maternal BMI (overweight and obese), maternal age, and history of pre-gestational hypertension and preeclampsia, are proven to be the most influential and common risk factors of preeclampsia among Asian. Other risks of which are inappropriate maternal weight gain, mother's education, mother activity, DM and hypothyroidism. With this knowledge, we aim this review to improve the quality of preeclampsia screening and awareness of physicians and mothers regarding the problem. Furthermore, we hope that this review could develop a practical evidence based list of risk factors related to preeclampsia among Asian, which can be assessed by health care worker.

Key Word: Preeclampsia, maternal factors, Asian, hypertension, maternal BMI, maternal age.

4.5.1 Scientific Poster-Thailand

Maternal and offspring's characteristics associated with HOMA-IR in young adults : Prospective cohort study

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Background

Diabetes is an important chronic disease. It can cause not only many serious complications but also impose economic and social burdens. Therefore, the earlier stage like insulin resistance period is better. Many studies from Western countries found that both maternal environment during pregnancy and early offspring life's factors can lead to diabetes and insulin resistance of offspring during adult life (Barker's hypothesis) (Yoshizawa, 2012). However, this data was limited in Asia. Therefore, this study was conducted to determine the predictor of diabetes mellitus in Thailand by using the surrogate markers; the homeostasis model assessment-estimated insulin resistance (HOMA-IR).



Method

The design was a prospective cohort study with 20 years follow-up. First, pregnant women (gestational age less than or equal to 24 weeks) were recruited at first attendance at the antenatal care clinics (ANC) in our centers during 1989-1990. Various predictors were collected at subsequent ANC visits, during delivery and one year after delivery (for offspring). Then, in 2010, we followed up both mothers and offspring again. The HOMA-IR was calculated from fasting plasma glucose multiplied by fasting plasma insulin level and divided by 22.5.

Baseline characteristics were described by gender of the offspring. Pearson correlation coefficient of HOMA-IR was calculated for each predictors of mothers and offsprings. The characteristics which had p-value < 0.2 in the univariate analysis were selected to be analysed by multivariate analysis. Statistically significance was defined as a p-value of less than 0.05. This research proposal was submitted and approved by Research Ethics Committee, Faculty of Medicine, Chiang Mai University.

Table 1: Characteristics of participants at birth and 20 years of age (592 cases)

Characteristics	Mean value (95% confidence interval)	
	Female offspring (320 cases)	Male offspring (272 cases)
Offspring's data		
Birthweight (grams)	2939.09 (2892.79 - 2985.40)	3040.63 (2987.44 - 3093.81)
Body mass index	20.92 (20.43 - 21.40)	21.79 (21.30 - 22.29)
Waist circumference (cm)	73.87 (73.43 - 75.08)	79.14 (77.88 - 80.43)
Plasma cholesterol (mg/dl)	169.49 (165.97 - 173.41)	167.53 (163.30 - 171.75)
Plasma high density lipoprotein (mg/dl)	39.04 (37.41 - 40.68)	53.29 (51.72 - 54.87)
Plasma triglyceride (mg/dl)	69.70 (66.04 - 73.36)*	82.76 (77.97 - 87.84)*
Systolic blood pressure (mmHg)	108.44 (107.27 - 109.61)	121.99 (120.67 - 123.31)
Diastolic blood pressure (mmHg)	71.88 (70.73 - 73.03)	76.24 (74.96 - 77.56)
Smoking history, n(%)	14 (4.38)	89 (32.72)
Maternal data		
Age at 1990 (years)	26.47 (25.96 - 26.99)	25.93 (25.40 - 26.46)
Body mass index at 1990	21.37 (21.09 - 21.64)	21.34 (21.04 - 21.63)

* Geometric mean (95% CI)

Result

There were 592 offspring's (272 males and 320 females). 7 maternal characteristics and 12 offspring's characteristics were selected for multivariate analysis. There were no statistically significant association between predictors in 1989-1990 with HOMA-IR. Whereas body mass index (BMI) of mother, BMI of offspring, plasma triglyceride of offspring and diabetes history of offspring's in 2010 visit, were positively associated with log-HOMA-IR.

Discussion

This study found that body mass index (BMI) of mother, BMI of offspring, plasma triglyceride of offspring and diabetes history of offspring's in 2010 visit, were positively associated with log-HOMA-IR. Those factors are reported in other studies (Alias-Hernandez et al., 2017; Bermudez et al., 2016; Costa, Campagnolo, Lumey, & Vitolo, 2017; Manios et al., 2008; Peplies et al., 2016). Surprisingly, one of the factors is BMI of mother. We suppose that obesity (high BMI) is considered as genetic disease (Choquet & Meyre, 2011; Say, 2017). In addition, obesity is a risk factor for diabetes and insulin resistance. In the future, obese mothers who have genetic defects may develop diabetes. So her offspring who inherited those genes may develop insulin resistance too. Moreover, in-utero environment in this study which conduct in Thai people don't show effect on HOMA-IR. It may be affected by ethnic factors. This study may implicate to prevent risky young adult to develop insulin resistance in the future, especially offspring who has obese mother.

Table2: Univariate and multivariate analysis of log-HOMA-IR and characteristics of mothers and offspring

Baseline characteristics	Univariate analysis			Multivariate analysis		
	Correlation coefficient	95% CI	p - value	Correlation coefficient	95% CI	p - value
Maternal Characteristics						
Body mass index 2010	0.0463	-0.013-0.098	0.1274	0.0191	0.001-0.037	0.044
Fasting plasma glucose 2010	-0.0202	-0.011-0.007	0.4591	-0.0003	-0.007-0.003	0.189
Plasma glucose tolerance 2010	0.0850	0.000-0.006	0.0480	0.0010	-0.000-0.002	0.164
Plasma triglyceride 2010	0.0612	-0.001-0.006	0.1441			
Systolic blood pressure 2010	0.0724	-0.002-0.019	0.1054			
Gestational age at delivery (years) 1990	0.0141	-0.014-0.014	0.0940	0.0223	-0.010-0.055	0.179
Fat intake at 21 trimester	0.0788	-0.001-0.010	0.0837			
Offspring's Characteristics						
Age 2010	-0.0842	-0.080-0.001	0.0436			
Body mass index 2010	0.3242	0.199-0.191	0.0000	0.0481	0.024-0.063	0.000
Waist circumference 2010	0.3343	0.044-0.071	0.0000			
Plasma glucose tolerance 2010	0.2373	0.012-0.026	0.0000			
Plasma cholesterol 2010	0.1023	0.001-0.010	0.0140	0.0012	-0.000-0.003	0.186
Plasma high density lipoprotein 2010	-0.1095	-0.027-0.004	0.0003			
Plasma triglyceride 2010	0.3362	0.010-0.016	0.0000	0.0029	0.002-0.004	0.000
Systolic blood pressure 2010	0.1086	0.004-0.020	0.0091			
Diastolic blood pressure 2010	0.1139	0.006-0.036	0.0062			
New normal weight (thickness) 2010	0.1040	1.332-12.077	0.0147			
Diabetes history 2010	11.4596	8.053-14.066	0.0000	1.7449	0.870-2.618	0.000
History of hypertension 2010	8.5147	5.825-11.194	0.0000			

CI = Confidence interval

Conclusion : HOMA-IR is statistically found to be associated with the increasing of body mass index of both mother and offspring as well as the elevated plasma triglyceride and the history of diabetes of the offspring.

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4.5.2 Scientific Poster (Abstract) Thailand

The maternal and offspring's characteristics associated with HOMA-IR in young adults: Prospective cohort study

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Introduction: Diabetes is an important chronic disease. Many studies from Western countries found that both maternal environment during pregnancy and early offspring life's factors can lead to diabetes and insulin resistance of offspring during adult life (Barker's hypothesis). However, this data was limited in Asia. Therefore, this study was conducted to determine the predictor of diabetes mellitus in Thailand by using the surrogate markers; the homeostasis model assessment-estimated insulin resistance (HOMA-IR).

Method: The design was a prospective cohort study with 20 years follow-up. First, pregnant women were recruited at first attendance at the antenatal care clinics (ANC) in our centers during 1989-1990. Various predictors were collected at subsequent ANC visits, during delivery and one year after delivery. Then, in 2010, we followed up both mothers and offspring again. The characteristics of mothers and offspring which had p -value < 0.2 in the univariate analysis were selected to be analyzed by multivariate analysis.

Results and Discussion: There were 592 offspring's (272 males and 320 females). 7 maternal characteristics and 12 offspring's characteristics were selected for multivariate analysis. Body mass index (BMI) of mother, BMI of offspring, plasma triglyceride of offspring and diabetes history of offspring's in 2010 visit, were positively associated with log-HOMA-IR. Interestingly, in contrast with Western reports, in-utero environment in this study in Thais did not have any significant association with HOMA-IR. Perhaps this association might be confounded by ethnic factors.

Conclusion: HOMA-IR is statistically found to be associated with the increasing of BMI both of mother and offspring as well as the elevated plasma triglyceride and the history of diabetes of the offspring. Our novel finding imply that any offspring who have high BMI mother have a high chance to develop insulin resistance and perhaps diabetes in future, so they should aware and prevent any modifiable risk factors.

Keywords: *Diabetes, HOMA-IR, Maternal, Offspring, Insulin resistance*

4.6.1 Scientific Poster-Philippines

Morphology and Viability Outcomes of *Danio rerio* Embryos upon Exposure to Radiofrequency waves

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ABSTRACT

The exponential increase in mobile phone usage has caused public concern regarding the possible teratogenicity of exposure to radiofrequency waves of pregnant women. This study aims to determine the effect on the viability and morphology of *Danio rerio* embryos exposed to varying durations and distances from source of cellular phone-grade radiofrequency (RF) waves. Six groups of 2-to-3- hours post-fertilization (hpf) *D. rerio* embryos (n=280) were exposed to 10 dBm, 900 MHz electromagnetic radiation at 1 cm and 30 cm distances from the source for 1 min, 10 min and 100 min, and were compared to a negative control group. *D. rerio* viability was tallied at 24, 48, 72, 96 and 120 hpf, while morphology of the caudal and pectoral fins, eyes and the brain were observed at 120 hpf. No significant difference between the mortality rates of the exposed and unexposed groups were found upon doing Chi-square Test of independence at $\alpha=0.10$. Among the exposed groups, there is significant difference between the mortality rates of the set-ups exposed at 30 cm distance for 10 min and 30 cm distance for 100 min suggesting dose-dependent effect of RF exposure. Morphologic abnormalities in the caudal fin, pectoral fin, eyes and brain of the exposed embryos were observed, hinting on the teratogenic potential of radiofrequency wave exposure. Instrumental limitations, however, limited the analysis of morphology outcomes. Recommendations include increasing exposure dosage for confirmation of dose-dependent effects on mortality, and using larger sample size for determination of significant correlation between exposure and dysmorphism. Other physiological factors may also be observed.

Keywords: Radiofrequency wave, cellular phone-grade RF, viability, morphology

INTRODUCTION

Cellular phones have an integral role in modern telecommunication. With the exponential increase in cellular phone usage, possible adverse health effects of exposure to the radiofrequency energy from these phones had been a public concern. Several studies on its impact on public health has been conducted. While several epidemiological studies report that the level of exposure to RF by an average person does not produce significant increase in mortality and morbidity, there are still some that present observations of tumorigenesis, reproductive decline, cardiovascular symptomatology, and genetic alterations [1, 2]. It is generally agreed that further research is needed to determine the generality of such effects and their possible relevance, if any, to different populations including pregnant women and fetuses, using various animal models and if possible, in vivo studies. In relation to this, the study aims to determine the effect of cellular phone-grade radiofrequency waves on the viability and morphology of *Danio rerio* embryos at varying durations of exposure and distances from source.

D. rerio is the model organism used primarily in embryotoxicity and teratogenicity studies for its high genomic homology [3] and early developmental similarity among vertebrates. Currently, little is known on the potential effects of radiation exposure to zebrafish embryo development and maturation [4]. This study thus aims to determine whether cellular-grade RF radiation affects the mortality of *D. rerio* embryo and whether this effect is associated with distance from RF radiation source and exposure time.

METHODOLOGY

MAINTENANCE OF ZEBRAFISH

Twenty-four 4-5 months old zebrafish breeders acquired from Bureau of Fisheries and Aquatic Resources were placed in ten clear aquarium tanks, separating the males from females. They were fed three a day and a 14-hour light 10-hour dark photoperiod cycle was implemented.

BREEDING OF ZEBRAFISH

Mating cages were constructed to prevent fishes from eating their eggs. A 14-hour light 10-hour dark photoperiod cycle was maintained.

PACKAGING OF EGGS

Spawning eggs were packed into a single petri dish. Twenty new petri dishes each containing 40 eggs were prepared and were then covered with aluminum foil. Each petri dish corresponds to a treatment group.

VIABILITY OF EGGS

Two hours post-fertilization, the viability of the eggs were checked using a stereomicroscope. Nonviable eggs were removed and replaced with viable eggs from the pool.

EXPOSURE TO RADIOFREQUENCY WAVES

Of the seven treatment groups, six were exposed to radiation using a radiofrequency emitter inside a sealed chamber while one group was not exposed and served as the control group. These groups were placed 7 cm from the probe and the other three were placed 30 cm away, as shown in Figure 2.

One group at each distance was removed after 1 minute, 10 minutes and 100 minutes radiation exposure.

PACKAGING TO WELL PLATES

The 280 embryos from 7 treatment groups were placed randomly in these 96 well plates for observations. The experimenters were blinded from the treatments of the groups.

VIABILITY OF FISHES

The viability of the zebrafish embryos were observed at 24, 48, 72, 96, and 120 hour timepoints. Viability was determined by the presence of either a heartbeat or spontaneous movements.

MORPHOLOGICAL CHARACTERISTICS

At 120-h time point, the embryos were anesthetized using 1% lidocaine. The characteristics observed include formation of the caudal fin, pectoral fin, brain, eye. These were evaluated on a binary notation. The evaluations were blinded of the treatment and control group assignments.

STATISTICAL TESTS

To determine whether a difference occurs among the groups, Chi-square Test of independence at $\alpha=0.10$ will be used per character. To determine further which of the groups led to the difference, post-hoc Chi-square Test of independence will be used with applied Bonferroni correction.

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RESULTS AND DISCUSSION

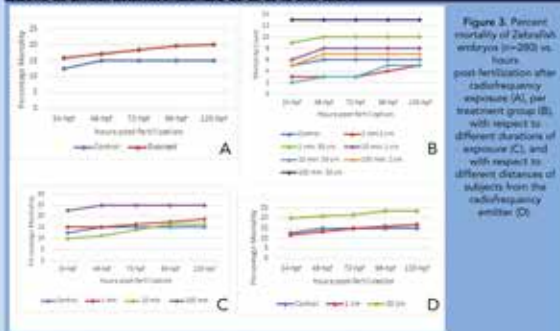


Figure 3. Percent mortality of zebrafish embryos (n=280) vs. hours post-fertilization after radiofrequency exposure (A), per treatment group (B), with respect to different durations of exposure (C), and with respect to different distances of subjects from the radiofrequency emitter (D).



Figure 4. Representative images showing normal (top row) and abnormal (bottom row) development of caudal fin, pectoral fin, eyes and brain.

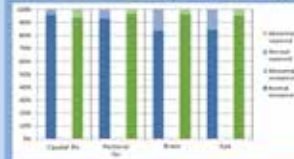


Figure 5. Proportions of normal and abnormal morphologies of zebrafish embryo groups observed for their caudal fin, pectoral fin, brain and eye in exposed and unexposed groups at 120 hours post-fertilization.

The radiofrequency waves used are cellular phone grade, with power level of 10 dBm and frequency of 900 MHz. RF waves belong to the portion of the electromagnetic spectrum with the lowest frequency (3 kHz to 300 GHz) and energy and longest wavelength (1 mm to 100 km). Unlike ultraviolet, X-rays and gamma rays, these can neither destroy chemical bonds nor induce ionization. The specific power level and frequency used in this study represent settings used by phone service providers, i.e. GSM (Global System for Mobile Communications) 900, in the Philippines. Other frequencies (i.e. 1800 MHz) are also being used by different networks, and other power levels (i.e. 5 to 23 dBm) are also possible depending on the signal reception, with higher output power needed in areas with weaker signals. Data show that despite the generally higher and increasing death rates among the exposed groups with α -vis the control group, exposure to radiofrequency waves ($p = 0.67$ to 1.00), at cumulative duration of exposure ($p = 0.18$ to 0.49) and at distances from source investigated herein ($p = 0.20$ to 0.41), did not cause any significant difference in mortality rates. Specifically, higher mortality rates were seen at groups exposed for 100 min and those at the 30 cm mark from the source. The absence of a statistically significant increase in mortality rate is consistent with similar studies [5, 6, 7, 8], and implies that genes vital for survivability, like the housekeeping gene beta-actin 2, were most likely not affected to an extent that it will cause a fatal mutation. RF waves, being a non-ionizing radiation, cannot induce direct DNA damage, which could explain the absence of strong correlation. Abnormalities in the development of the brain, eyes, pectoral fins, and caudal fins were observed. These gross developmental markers were chosen for their easily observed characteristics. Among all treatment and control groups, there were a total of 5 out of 116 zebrafish with pectoral fin abnormalities (either one or both fins absent), 12 out of 190 with caudal fin abnormalities (absent or disrupted), 11 out of 159 with brain abnormalities (small size, cleavage), and 13 out of 196 with eye abnormalities (asymmetry). These abnormalities are caused by mutations in the genes involved in their development. Some genes involved in the development of the pectoral fins are *lka*, *xyt*, *con*, *lrm*, *dkf*, *box*, *sto*, *lks*, *lpp*, and *lkl*. Another set of genes for the development of the caudal fins are *pgy*, *mfn*, *lcf*, *swr*, *mes*, and *dlx* [6]. It must be noted that various genes need to work correctly to establish a normal fin; however, proper differentiation of larval fins is not a prerequisite to form adult fins, as a different set of genes encodes these. Eye development involves *ast*, *bel*, *hml*, *smi*, *nes*, *pic*, *tbl*, and *msa*, while *mbf*, *lks*, *stc*, *acc*, *nos*, *sik*, *pac*, *rat*, and *wit* are some of the genes for brain development [7]. Mutations in some of the genes mentioned may have caused the abnormalities observed in the zebrafish.

CONCLUSION

For the percentage mortality of the fishes, the exposed group's rates remained consistently higher than that of the unexposed group's, but the differences are not statistically significant. Also, no significant differences were seen among groups exposed to radio waves at variable distances from the source as well as differing durations of cumulative exposure except between 10 and 100 minutes at 30 cm. On the other hand, the percentage of embryos who later on developed morphological abnormalities of the caudal fin is greater among the exposed treatment groups compared to the control. The same cannot be said however with regards to the other parameters.

4.6.2 Scientific Poster (Abstract) Philippines

Morphology and viability outcomes of *Danio rerio* embryos upon exposure to radiofrequency waves

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ABSTRACT: The exponential increase in mobile phone usage has caused public concern regarding the possible teratogenicity of exposure to radiofrequency waves of pregnant women. This study aims to determine the effect on the viability and morphology of *Danio rerio* embryos exposed to varying durations and distances from source of cellular phone-grade radiofrequency (RF) waves. Six groups of 2-to-3- hours post-fertilization (hpf) *D. rerio* embryos (n=280) were exposed to 10 dBm-, 900 MHz-electromagnetic radiation at 1 cm and 30 cm distances from the source for 1 min, 10 min and 100 min, and were compared to a negative control group. *D. rerio* viability was tallied at 24, 48, 72, 96 and 120 hpf, while morphology of the caudal and pectoral fin, eyes and the brain were observed at 120 hpf. No significant difference between the mortality rates of the exposed and unexposed groups were found upon doing Chi-square Test of Independence at $\alpha=0.10$. Among the exposed groups, there is significant difference between the mortality rates of the set-ups exposed at 30 cm distance for 10 min and 30 cm distance for 100 min suggesting dose-dependent effect of RF exposure. Morphologic abnormalities in the caudal fin, pectoral fin, eyes and brain of the exposed embryos were observed, hinting on the teratogenic potential of radiofrequency wave exposure. Instrumental limitations, however, limited the analysis of morphology outcomes. Recommendations include increasing exposure dosage for confirmation of dose-dependent effects on mortality, and using larger sample size for determination of significant correlation between exposure and dysmorphology. Other physiological factors may also be observed.

Keywords: *Radiofrequency wave, cellular phone-grade RF, viability, morphology*

4.7 Scientific Poster (Abstract) Japan

The Investigation of Advanced Maternal Age as a Risk Factor of Low Birth Weight; systematic review

AMSA Chapter Japan

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Background

In Japan, the proportion of low birth weight (LBW) infants has increased from 5.1% to 9.5% in the past 40 years, and the average of birth weight has decreased. Generally, the average birth weight tends to be higher in developed countries. But it doesn't go for Japan, which should be a developed country. While various factors are considered, this time we focus on the social change in Japan that late marriage progresses and the advanced maternal age is increasing. Considering this factor is important not only for protecting the maternal and neonatal health but as an opportunity to rethink the current Japan. (104words)

Brief research methodology

A systematic review of PubMed of electronic database was conducted to search for associations between advanced maternal age and LBW, till December 2017 without time or country restrictions. The keyword terms were ""maternal age" AND LBW AND ("cross-sectional studies" OR "case-control studies" OR "cohort studies")". Identified were 103 articles.

Of these, from the review of the title and abstract of the papers, finally 18 papers were identified. The data extracted from each paper were design, country, the number of subjects, adjusted factors and results.

Key findings

We examined 18 papers which investigated the associations between advanced maternal age and LBW. Those that showed a statistically significant association were 13, among which those that found adverse association were 13, and those that found preventive association were 0. On the other hand, no association was observed in 5 papers.

There were many studies on the associations between low age birth and LBW, which is a problem in developing countries. However studies on advanced maternal age as a risk factor of LBW are not enough, which is a problem in developed countries.

In this study, we found that more than half accounted for adverse relationships, although available papers are limited. Therefore it is possible that advanced maternal age is related to LBW.

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4.8 Scientific Poster (Abstract) Mongolia

The effect of chronic hepatitis on the pregnancy and delivery of women

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Background: Throughout the world, over 300 million people have chronic hepatitis B virus (HBV) infection, and more than 75 percent of those affected are of Asian origin [1]. In Mongolia there is a high prevalence of hepatitis B, C, and delta virus infections among apparently healthy individuals [2]. Many reports are available with varied results on the effects of chronic HBV infection on the outcome of pregnancy. A few studies from Hong Kong and Israel have found that chronic HBV-infected mothers have increased risk for preeclampsia and threatened preterm delivery [3,4].

The aim of this retrospective study is to evaluate the prevalence of chronic hepatitis in pregnant women and assess any complications of pregnancy and delivery.

Methodology: The study group was comprised of 52 randomly chosen pregnant women who were diagnosed with chronic hepatitis at the "Khuree" Maternity hospital. Participants completed a 23-item questionnaire and patient histories were used to gather data on maternal abnormalities and complications of pregnancy. Statistical analyses were done with the Statistical Package for the Social Sciences (SPSS) version 17.0 software.

Results: From the women, 63,5% were diagnosed with hepatitis B virus. As for complications of birth 36,5% of the mothers had incidences premature rupture of membranes and 59,6% showed eclampsia. 82.7% were delivered by Caesarean section. Prothrombin time (PT) had lengthened to 15.10±5.9-20.73. However, the PT time compared to preeclampsia is showed no significance ($p=0.62$).

This study shows that chronic hepatitis can cause complications in pregnancy and special attention should be paid to pregnant women with this disease.

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