

Comparison Of Mother's Risk Factor, Mother And Baby Outcomes In Early-Onset Preeclampsia And Late Onset Pre-Eclampsia In 11 Hospitals In West Java

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Citation

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Abstract

Preeclampsia is a complication of pregnancy that is frequently encountered and became one of the three main causes of maternal mortality. Preeclampsia is divided into two groups: early onset preeclampsia (<34 weeks) and late onset preeclampsia (≥ 34 weeks). There are differences of complications that occur in patients with early onset preeclampsia and late onset preeclampsia, more severe complications occur in early onset preeclampsia compared with both the maternal and neonatal.

The purpose of this study was to assess the risk factor characteristics that occur in early onset preeclampsia and late onset preeclampsia events and outcomes in both maternal and perinatal at 11 hospitals in West Java.

This study is observational analytic cross-sectional by taking the data from the Maternal Perinatal Registration Indonesia (MPRI) in the period March 1st until September 30th 2012 with a data delivery ($n = 12812$), preeclampsia ($n = 1175$) consisting of early onset preeclampsia ($n = 110$), late onset preeclampsia ($n = 1065$) conducted research in Hasan Sadikin Hospital in the period April-June 2016

There is a significant difference ($P < 0.05$) in different characteristics of risk factor assessed from parity ($P = 0.014$), ANC ($P = 0.000$) and a history of diabetes ($P = 0.043$). There is no significant differences in maternal outcome ($P = 0.748$) between early onset and late onset of preeclampsia ($P > 0.05$). A significant difference ($P < 0.05$) is found in perinatal outcomes research based on Apgar score ($P = 0.000$), the incidence of stillbirth and early neonatal mortality ($P = 0.000$). Found a significant difference in infant weight variables on early onset of preeclampsia 1632.740 ± 657.36 grams compared to a normal pregnancy <34 weeks 1828.93 ± 845.76 g ($P = 0.032$) and also a significant difference in infant weight variables on late onset of preeclampsia 2899.108 ± 613.67 grams compared to a normal pregnancy ≥ 34 weeks 2942.23 ± 578.155 gram ($P = 0.032$).

In this study, it was concluded there are differences in risk factors between early onset preeclampsia characteristics and late onset preeclampsia, there was no difference in maternal outcomes research on the subject and found that the early onset of preeclampsia worse in perinatal outcomes compared with the late onset of preeclampsia.

INTRODUCTION

Preeclampsia is one of the major causes of morbidity and mortality of mother and fetus. The World Health Organization (WHO) reported the number of deaths caused by pre-eclampsia by 16% in developing countries.¹ Preeclampsia resulting in 3-25 fold increased risk of severe obstetric complications and is the cause of 30-40% of perinatal deaths in Indonesia.²

Multifactorial causes of preeclampsia are not allowing us to

get one of the major culprits. Immunology, genetics, or biochemistry factors, as well as inflammatory factor as one of the bases of preeclampsia is still much debated.^{3,4} Based on American College Obstetricians and Gynecologists (ACOG), preeclampsia can be classified into two groups by the onset: early onset preeclampsia if it occurred at <34 weeks, and the late onset at ≥ 34 weeks. This classifications is based on the differences in fetomaternal outcome that differed significantly between the two.¹

The most important part that contribute significantly to the occurrence of preeclampsia is placenta. The placenta has a role in the form of transport of substances from mother to fetus, producing hormones that are useful during pregnancy, as well as a barrier. Placental abnormalities in early onset preeclampsia such as the occurrence of placental infarction and decrease the volume of terminal villous surface is heavier when compared with the late onset or slow onset of preeclampsia.^{5,6}

There are differences of complications that occur in patients with early and late onset preeclampsia. More severe complications occur in early onset preeclampsia both for the maternal and neonatal. Research conducted Chang JJ et al. In 2010 describes perinatal outcomes such as mortality, small for gestational age, and preterm birth is higher in early onset preeclampsia.⁷ Maternal outcomes will also become more severe, it is suspected because of early onset preeclampsia more closely related to the occurrence of placental ischemia when compared with the late onset preeclampsia described on research conducted by Huppertz B in 2008.⁸

Preeclampsia is a health problem that requires special attention because maternal and perinatal mortality caused by preeclampsia is still high, especially in developing countries. Until now, preeclampsia and eclampsia is still the "the disease of theories", because the incidence of preeclampsia remains high and result in high maternal morbidity and mortality.⁹

Maternal Mortality Rate (MMR) is the one indicator to view the health status of women and the millennium development goals contained in MDG-5 goal of improving maternal health where the target to be achieved by 2015 is to reduce the risk of maternal mortality.¹⁰

In Indonesia, preeclampsia and eclampsia is the cause of 30% -40% of maternal deaths, while in some hospitals in Indonesia have shifted bleeding as a major cause of maternal deaths. Therefore, attention is needed, as well as serious handling of maternity with this disease. The latest results of the Indonesia Demographic and Health Survey (IDHS) mentions that during the period 2007 to 2012 the cases of maternal mortality surged sharply. In 2012, MMR reach up to 359 / 100,000 of population, increased by 57% compared to the conditions in 2007, which only amounted to 228 / 100,000 of population.¹⁰

West Java Province with an area of 35377.76 km², with a total population are 46,497,175 inhabitants¹¹, is a large province with a high population of urban and rural, which may cause difficulties in data collection. The collection of data is not effectively lead to obscurity incidence of health issues and their implications. Data unreported or lack of basic data makes it difficult to help understand and conquer this.

High population density in West Java, which is about 46 million people, or 20% of Indonesia's population,¹² makes West Java province that can represent conditions throughout Indonesia, so the data is drawn from the population of West Java through MPRI is expected to represent of Indonesia in general and the study's findings are expected to bear a policy to overcome the incidence of Preeclampsia that can be applied nationally.

West Java province has 54 government hospitals,¹¹ accept all cases referred from the health center, midwife, paraji, and other hospitals. Dr. Hasan Sadikin hospital as the main referral hospital in West Java, as well as a teaching hospital, has a network spread across several districts / cities. In the period of March to September 2012, we recorded Obstetrics and Neonatal Care Record / Maternal and child Care Monitoring (MCM). MCM sheet was recapitulated in Maternal Perinatal Registration Indonesia (MPRI). One of the goals MPRI is to provide basic data on maternal mortality rate (MMR) and infant mortality rate (IMR) in West Java, so that this data can be used for decision making in order to reduce MMR and IMR.¹²

MPRI (Maternal Perinatal Registration Indonesia) datas covering identities, registrations and status references, characteristics, obstetric history, the antenatal data, 1st stage and 2nd of labor, labor, complications of pregnancy and childbirth, transfusions, maternal outcomes, neonatal outcomes, and payment systems. MPRI is a recording system structured with the same method on a particular period in which a large amount of data in eleven hospitals in West Java.

Preeclampsia risk factors, especially maternal risk factors summarized in MPRI, grouped in the characteristics of the risk factors and outcomes The data is preliminary data that can be processed to look for the incidence of preeclampsia-eclampsia with the distribution of risk factors in the study sample. In this study, the risks that being studied are age, education, parity, gestational age, antenatal care visits,

history of comorbidities and history of pregnancy complications, outcomes both maternal and neonatal.

This study discusses Preeclampsia on all deliveries, as well as to facilitate research. MPRI of the data that can be used, obtained the number of deliveries deliveries spread over eleven hospitals in West Java which is monitoring deliveries with sheet MCM (Mother and chlid Care Monitoring).

Through MPRI data from the general hospital in West Java was expected to study the characteristics of the risk factors and outcomes of preeclamsia both for maternal and neonatal in according to the incidence of early onset and late onset of preeclampsia that has not been done before.

METHODS

This research is an observational analytic cross-sectional study. The data is collected by observation without treatment, to see the cause effect, the secondary data were to analized the characteristics of risk factors of the incidence in early and late onset preeclampsia in eleven hospitals in West Java conducted in March -September 2012.

This study is a population-based hospital analytic observational study that were only observation and analized for the relationship between the variables studies according to the state of nature without manipulation or intervention.

This study was conducted after obtaining a research ethics feasibility of this study begins by identifying MPRI, then searching for demographic factors, clinical and operational outcomes based on the diagnosis. The exclusion criteria are carried out if the variables is not in the MPRI data.

Data Analysis

Independent variables (demographics, clinics, and type of delivery) and dependent variables (maternal preeclampctic) are using a descriptive analysis to see the distribution of frequencies and percentages of the various variables.

The level of significance were set at $p \leq 0,05$ or statistically significant, and if $p > 0.05$ it was not statistically significant. The data are recorded in a special form and then processed through SPSS version 21.0 for Windows.

RESULTS

This research was conducted during the month of April 2014 in the Department of Obstetrics and Gynecology Hospital Dr. Hasan Sadikin. The research subject is the case of preeclampsia in Hospital Dr. Hasan Sadikin Hospital and ten

network hospital of Padjadjaran University Faculty of Medicine Bandung, namely Bandung Mother and Child Hospital (Astana Anyar), Cianjur Regional Hospital, Cibabat Regional Hospital, Garut Regional Hospital, Majalaya Regional Hospital, Soreang Regional Hospital, Subang Regional Hospital, Sumedang District Regional Hospital, R. Syamsudin Regional Hospital and Bandung Regional Hospital (Ujung Berung).

Data recorded in MPRI found 12,812 labor that were valid and could be used because the rest of the data was not filled in completely. Total deliveries with preeclampsia from all of the data that can be calculated and met the inclusion criteria was 1,175 datas. After being processed according to operational definitions, early onset preeclampsia cases from hospital data in West Java amounted to 110, or about 9.4%. From all Preeclampsia data, and the incidence of late onset preeclampsia amounted to 1065, or around 90.6%

The result - more research results presented in the tables below:

Table 1

Preeclampsia distribution at the General Hospital of West Java period from March to September 2012

General Hospital	Preeclampsia	Number of Birth	%
Rs. Hasan Sadikin	257	2429	10.58
Bandung Mother and Child Hospital (Astana Anyar)	104	1420	7.32
Rs. Cianjur	153	1208	12.66
Rs. Cibabat	130	1027	12.65
Rs. Garut	119	1461	8.14
Rs. Majalaya	79	701	11.26
Rs. Soreang	104	950	10.94
Rs. Subang	61	724	8.42
Rs. Sumedang	71	1002	7.08
Rs. Syamsudin	37	1162	3.18
Bandung Regional Hospital (Ujung Berung)	60	728	8.24
Total	1175	12812	9.17

According to the table 1 the prevalence of preeclampsia in a hospital in West Java during the period from March to September 2012 is 9.17%, with the greatest percentage of cases in Cianjur Regional Hospital is 12.66% and the least percentage of cases in Syamsudin Regional Hospital is 3.18%.

Table 2

Based on Onset of Preeclampsia Occurrence

Preeclampsia	N	%
Early onset	110	9,4
Late onset	1065	90.6
TOTAL	1175	100

Table 3

Risk Factors and Disease History Accomplished

Variables	Preeclampsia				p-value
	Early onset N=110	%	Late Onset N=1065	%	
Age (year)					1.000
<20	9	8.2	100	9.4	
20-35	70	63.6	668	62.7	
>35	31	28.2	297	27.9	
Parity					0.014**
Primigravida	27	24.5	386	36.2	
Multigravida	83	75.5	679	63.8	
ANC visit					0.000**
>4	84	76.5	102	9.6	
≤4	26	23.6	963	90.4	
Education					1.000
Elementary School	36	32.7	381	35.8	
Junior High School	33	30	324	30.4	
Senior High School	31	28.2	277	26.0	
Undergraduate	10	9.1	83	7.8	
Hypertension					0.475
Yes	34	30.9	295	27.7	
No	76	69.1	770	72.3	
Diabetes					0.043**
Yes	2	1.8	4	0.4	
No	108	98.2	1061	99.6	
Renal Dysfunction					0.209
Yes	3	2.7	59	5.5	
No	107	97.3	1006	94.5	
Cardiovascular Disease					0.383
Yes	2	1.8	10	0.9	
No	108	98.2	1055	99.1	

Table 3 explains that the risk factors that show a significant difference between early onset preeclampsia and late onset preeclampsia are Parity, prenatal care visit and history of diabetes.

Based on the parity risk factor, in 110 early onset preeclampsia cases, multigravida patients was 83 or 75.5% Chi-square test, in 1065 late onset preeclampsia cases, multigravida patients was 679 or 63.8% obtained p value 0.014 (less than 0.05), meaning there significant differences or statistical significance of the variables Parity in early and late onset of preeclampsia

Risk factors in patients with a history of antenatal care (ANC) in early onset preeclampsia, many occur in those who perform ANC visits > 4 times (84 or 75.5%) while those in late onset preeclampsia, most of whom visit ANC ≤ 4 times (963 or 90.4%). The level of significance or p-value of 0.000 means there is a significant relationship of ANC variable in pregnancy between early onset and late onset preeclampsia.

Diabetes risk factors history on early onset preeclampsia present in 2 cases or 1.8% and 4 cases or 0.4% on late onset preeclampsia. Based on Chi-square test, p values obtained 0.043 or less than 0.05, means there is a significant differences or statistical significance of the variable history

of diabetes between early onset preeclampsia and late onset preeclampsia.

Table 4

Type of Delivery

Variabel	Group				p-value
	Early onset N=110	%	Late onset N=1065	%	
Delivery					0,010**
Spontaneous	57	51.8	551	52	
Forceps	4	3.6	90	8.5	
Vacuum	2	1.8	71	6.7	
Manual aid	2	1.8	14	1.3	
C-Section	37	33.6	306	28.9	
Others	8	7.3	27	2.5	

Table 4 illustrates the type of delivery in the event of early onset preeclampsia and late onset preeclampsia. On early onset preeclampsia, there are 57 spontaneous labor or 51.8% and on late onset preeclampsia there are 551 spontaneous labor or 52% Based on Chi-square test, p values obtained 0.01, means that there are significant differences or statistical significance of a variable delivery type on early onset preeclampsia and late onset preeclampsia.

Table 5

Mother outcome

Variable	Preeclampsia				p-value
	Early onset N=110	%	Late onset N=1065	%	
Outcome					0.748
Alive	110	100	1064	99.9	
Death	0	0	1	0.01	

Table 5 describes the outcomes of mothers in early onset preeclampsia and late onset preeclampsia. Maternal mortality In late onset preeclampsia group is 1 or 0.01% Based on Chi-square test, p values obtained 0.748 or greater than 0.05, meaning there are no significant differences or statistical significance of variables maternal outcomes between early onset preeclampsia and late onset preeclampsia.

Table 6

Perinatal Outcome

Variable	Group		p-value
	Early Onset N=110	Late Onset N=1065	
Apgar Score			0,000**
Asphyxia <6	43 (39.1%)	129 (12.1%)	
Not Asphyxia >6	67 (60.9%)	936 (87.9%)	
Stillbirth			0,000**
Antepartum	16 (14.5%)	15 (1.4%)	
Intrapartum	4 (3.6%)	6 (0.6%)	
Early neonatal death	2 (1.8%)	5 (0.5%)	
Alive	88 (80%)	1039 (97.6%)	

Table 6 describes perinatal outcomes On early onset preeclampsia and late onset preeclampsia based on APGAR score. Early onset preeclampsia perinatal outcome has 43 asphyxia baby or 60.9% compared with 129 late onset preeclampsia asphyxia or 12.1% was obtained p-value of 0.000, meaning there are significant differences. For stillbirth variable, early neonatal death results with p value of 0.000 or $P < 0.05$ so there are significant differences for these variables in the incidence of eraly onset preeclampsia and late onset preeclampsia.

Table 7

Comparison of Baby's Weight between early onset preeclampsia and normal pregnancy < 34 weeks after delivery

Variable	Groups		p-value
	Early onset N=110	Normal <34 minggu N= 829	
Baby birthweight			0,032**
Mean±Std	1632.740±657.36	1828.93±845.76	
Median	1677.500	1792.50	

Table 7 describes the baby's weight comparison between early onset preeclampsia and Normal pregnancy <34 weeks. Early onset preeclampsia baby's weight by an average of 1632.740 ± 657.36 and normal pregnancy < 34 weeks delivery weight average was 1828.93 ± 845.76 . The results of the statistical tests in the study group on the information obtained in the baby weight variable with P value of 0.032, less than 0.05 ($P < 0.05$), which means a significant or statistically significant and is therefore explained that there are significant differences between the mean weight statistics among variables with early onset preeclampsia and normal delivery of <34 weeks pregnancy.

Table 8

Comparison of Baby's Weight between early onset preeclampsia and normal pregnancy ≥ 34 weeks after delivery

Variable	Group		p-value
	Early onset	Normal ≥ 34 week	
Birthweight (gram)			0.032**
Mean±Std	2899.108±613.67	2942.23±578.155	
Median	2927.50	2980.00	

Table 8 describes the baby's weight comparison between late onset preeclampsia and normal pregnancy ≥ 34 weeks. Late onset preeclampsia baby's weight by an average of 2899.108 ± 613.67 gram and normal pregnancy delivery ≥ 34 weeks weight average of 2942.23 ± 578.155 gram. The results of the statistical tests in the study group on the information obtained in the baby weight variable with P value of 0.032, less than 0.05 ($P < 0.05$), which means a significant or statistically significant and is therefore explained that there are significant differences between the mean weight statistics among variables with late onset preeclampsia and childbirth from normal ≥ 34 weeks pregnancy.

DISCUSSION

In this study indicate that there are several variables significantly different risk factors and the incidence of early and late onset preeclampsia for example, parity and antenatal care (ANC). Parity is the number of live births or the number of children held by a woman. Parity factor has an influence on labor because pregnant women have a higher risk for the disorder during pregnancy. Based on the test results by the statistical p value of 0.014 ($0.00 < 0.05$), it is statistically significant said that this study showed a significant difference between the proportion of parity in early onset preeclampsia and late onset preeclampsia events in this study. In early onset preeclampsia found mostly in multigravida as many as 83 cases or 75.5% were in late onset preeclampsia found mostly in multigravida as 679 or 63.8%.

Parity is the number of fetuses weighing more than or equal to 500 grams ever born alive or dead. When your weight is unknown, gestation age are used which is 24 weeks 96. The second or third of labor history is the safest if it viewed from a case of maternal death. 13

First parity relates to the lack of experience and knowledge of mothers in prenatal care. The second or third parity is the most secure. The first parity and parity more than the third

time is a risk of having preeclampsia. Women with a high parity (more than 4 times) have decreased the function of reproductive system, but it is usually the women too busy taking care of the household so often experience fatigue and lack of attention to the fulfillment of nutritional needs.¹⁴

In primigravidas often having stress when encounter a labor. Emotional stress that occurs in primigravida cause increased release corticotropic-releasing hormone (CRH) by the hypothalamus, which then causes an increase in cortisol. The effects of cortisol is to prepare the body to respond to all stressors by increasing sympathetic response, including response aimed at increasing cardiac output and maintain blood pressure. In women with preeclampsia / eclampsia, not decreased sensitivity to vasopectida-vasopectida, so that a large increase in blood volume directly improve cardiac output and blood pressure.¹⁵

All women have a risk of preeclampsia during pregnancy, childbirth, and postpartum. Preeclampsia occurs not only in primigravida / primipara, the grandemultipara also at risk for preeclampsia. Especially during pregnancy and childbirth which more than three times. Excessive stretching of the uterus that causes excessive ischemia can cause preeclampsia. ¹⁶

Many factors affect the frequency of antenatal care.¹⁰¹ These factors such as maternal age, maternal education, occupation, income, pregnancy interval and the number of pregnancies and marital status. Lack of knowledge from the pregnant women about the risks of pregnancy and infant mortality cause pregnant women do not meet health services for screening in pregnancy and low nutrient intake.¹⁷

Economic status plays an important role in the ability of pregnant women to antenatal care. The low economic state is proportional to the reduction made antenatal care of pregnant women and reduced intake of nutrients that increase the incidence of preeclampsia.¹⁷

Preeclampsia risk factors can be controlled by primary prevention of preeclampsia. Good antenatal care, screening, early detection, intervention and prevention of preeclampsia preeclampsia is to be managed.¹⁷ In this study, risk factors associated with early onset preeclampsia and late onset preeclampsia showed 0.000 p where $p < 0.05$ was obtained, which means a significant proportion difference of ANC variable between early onset and late onset preeclampsia.

Diabetes is a disease in which the body does not produce

insulin in sufficient quantities or otherwise, the body is less able to use insulin in appropriate way (although the amount of insulin is sufficient). Insulin is a hormone produced by the pancreas, which serves to supply glucose from the blood into body cells to be used as fuel for the body ¹⁸

Pregnancy may affect the incidence of the disease in a person. During pregnancy, there were physiological changes in carbohydrate levels in the mother's body. It happened during the pregnancy required more energy than usual for fetal growth. However, intake or increased intake of carbohydrates that can make the supply of insulin in the body is not sufficient.

The role of this hormone is to control sugar levels in the blood that is converted from the carbohydrates. The result was stockpiling high sugar levels in the blood that cause a rise in blood sugar levels. The most typical symptoms were the amount of urine, drink too much , and eat too much. Diabetes pregnancy and delivery complication were hidramnion (too much amniotic fluid), dystocia (obstructed labor), hipoglicemia (drastic reduction in glucose levels), and a risk of preeclampsia.¹⁸

Diabetes risk factors history on early onset preeclampsia present in 2 cases or 1.8% and 4 cases or 0.4% Peal. Based on Chi-square test, p values obtained 0.043 or less than 0.05, meaning there are significant differences or statistical significance diabetes incidence between eraly onset and late onset preeclampsia.

Late onset preeclampsia conditions arising from factors such as maternal metabolic factors associated with obesity, chronic hypertension, kidney disease, antiphospholipid syndrome, diabetes, factor V Leiden, and its interaction with the normal placenta. Early onset preeclampsia condition may be related to genetic or environmental factors that cause abnormal placentation, while Peal can be caused by obesity, diabetes, cardiovascular abnormalities, or multiple pregnancy.¹⁹

Early onset preeclampsia showed 57 spontaneous labor or 51.8% while late onset preeclampsia showed 551 spontaneous labor or 52% Based on Chi-square test, p values obtained 0.01 or less than 0.05, meaning there are significant differences or statistical significance of a variable delivery type between early onset preeclampsia and late onset preeclampsia.

Management of preeclampsia is done by considering the

welfare of both maternal and perinatal. The main priority for handling preeclampsia is to prevent eclampsia and prevent trauma to the mother, support respiration and cardiovascular function. If seizure episode is occurred, make sure the airway and oxygenation is adequate. To minimize the risk of aspiration, the patient should be lying on her side, and after cleaning the patient's airway if vomiting or hypersecretion happened. Although seizures occurred briefly, the patient must be given oxygen as much as 8-10 liters. Preeclampsia is not an indication for cesarean section. The decision for cesarean delivery should be based on gestational age, fetal conditions, signs of labor and bishop score. Sibai recommend to do a cesarean delivery in a case of preeclampsia or eclampsia with gestational age less than 30 weeks and the bishop score <5.

In the case of eclampsia were accompanied by signs of labor, the membranes have ruptured, and no obstetrical complications it is advisable to do vaginal deliveries. In women with a gestational age > 30 weeks and at least bishops score is 5 then vaginal delivery is preferred. Pain during childbirth can be reduced with the administration of systemic opioids or epidural anesthesia.^{20,21}

Termination of pregnancy is the final management of preeclampsia and eclampsia to eliminates the causes. In premature infants, delay termination of pregnancy may cause a fetal death. The possibility of life in premature infants with low birth weight in preeclampsia-eclampsia cases will be greater if born soon than is retained in the womb. Termination can be done by induction of labor or cesarean delivery section depending on the state of the mother and fetus.^{20,21}

Early-onset preeclampsia occurs before 34 weeks gestation, while late onset preeclampsia occurs at the age ≥ 34 weeks gestation. Most cases of preeclampsia occurs near term, but about 10% of cases of preeclampsia occurs before 34 weeks gestation. The second category of preeclampsia have a different pathophysiology. Early-onset preeclampsia associated with impaired placental trophoblast invasion, abnormal uterine artery flow, intra uterine growth restriction, and poor maternal outcomes.²²

Shallow trophoblast invasion and spiral artery remodeling disorder is a fundamental pathophysiology of the early onset preeclampsia. The study shows that the process of defective placentation in early implantation is a crucial point that distinguishes the pathophysiology of early onset preeclampsia

and late onset preeclampsia. Disturbances occur during early implantation in early onset preeclampsia while their late onset preeclampsia, the disorder occurs when the maternal syndrome appeared at ≥ 34 weeks gestation due to dysfunction and dysregulation of maternal tolerance against inflammation.^{23,24}

Early onset preeclampsia bring worse effects than late onset preeclampsia both for the mother and the fetus. The comparison of maternal outcomes in early onset preeclampsia and late onset preeclampsia in this study showed p value 0.748 or $p > 0.05$, so there is no significant difference between early onset and late onset preeclampsia. This is due to limited data on outcomes of maternal complications that can be drawn from the data base so that MPRI because we only saw from maternal, not from other morbidities.

In the perinatal outcomes between early onset preeclampsia and late onset preeclampsia on variable APGAR score showed that early onset preeclampsia had 43 asphyxia baby or 60.9% compared with 129 asphyxia or 12.1% in late onset preeclampsia, was obtained p-value of 0.000 or less than 0.05, meaning there is significant difference of Apgar score between early onset preeclampsia and late onset preeclampsia.

For stillbirth variable, early neonatal death results p 0.000 or $P < 0.05$ so there are significant differences for these variables in the incidence score between early onset preeclampsia and late onset preeclampsia.

Weight determination for assessing intra uterine growth restriction in this study can not be done by MPRI data base so we did the average body weight examination of infants between early onset preeclampsia group compared with normal pregnancy <34 weeks and between late onset preeclampsia compared with the normal pregnancy ≥ 34 weeks.

Baby's weight variable comparison between early onset preeclampsia and normal pregnancy <34 weeks showed early onset preeclampsia average baby's weight were 1632.740 ± 657.36 and normal delivery average baby's weight were 1828.93 ± 845.76 . The results of the statistical tests in the study group obtained information on P value is 0.032, so that there is a significant difference in weight between the groups of early onset preeclampsia and normal pregnancy <34 weeks.

Baby's weight variable comparison between early onset preeclampsia and normal pregnancy >34 weeks showed late onset preeclampsia baby's weight by an average of 2899.108 ± 613.67 gram and normal delivery average baby weight were 2942.23 ± 578.155 gram. Statistics showed obtained P value of 0.032 so that there is a significant differences of weight between late onset preeclampsia and normal pregnancy ≥ 34 weeks.

Preeclampsia causes a condition characterized by a decrease in uteroplacental blood flow and ischemia, is a significant risk factor in the onset of IUGR and represent the most frequent cause of fetal IUGR. Based on the available data suggests that for every gestational age of pregnancy with fetal weight below the 10th percentile significantly increases the risk of death.⁹³ To that end, in infants 38-40 weeks gestation weighing 1250 grams have a mortality risk was significantly greater than babies born with the same weight at 32 weeks' gestation.²⁵

The outcomes of perinatal mortality and neonatal morbidity if measurable value to 5-minute Apgar <7, is the criteria for intubation and the need for care in the intensive care unit. Apgar score is an objective method for assessing the condition of the newborn and useful to provide information about the baby's condition as a whole and the success of resuscitation.²⁶

There are three main signs are used to determine how and when to perform resuscitation (breathing, heart rate, skin color) and is part of the Apgar score. Two additional signs (muscle tone and reflex stimulation) described the APGAR neurologis. The scores are usually in value at 1 minute later on the 5th minute. If the value in the 5th minute of less than 7, an additional assessment should be carried out every 5 minutes to 20 minutes. Although the Apgar score is not a good predictive value for the outcome, but the change in value that occurred during resuscitation can describe how babies respond to resuscitation.²⁶

CONCLUSIONS

There are characteristic differences in the incidence of risk factors between early onset preeclampsia and late onset preeclampsia. There were no differences in the incidence of maternal outcome between early onset preeclampsia and late onset preeclampsia. Early onset preeclampsia perinatal outcomes worse than late onset perinatal outcome.

Special attention is required for health workers to conduct

screening or early detection of risk factors for preeclampsia in early pregnancy, thereby reducing the complications that occur either by early onset preeclampsia and late onset preeclampsia that lead to the decreased levels of maternal and perinatal morbidity. Further studies should be done on an ongoing basis with larger scale and longer time so that the data generated is expected to represent the West Java and possibly represent the national data.

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