THE RELATIONSHIP BETWEEN GRAVIDA WITH THE INCIDENCE OF PREECLAMPSIA

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Maternal Mortality Ratio (MMR) is an indicator of where the woman's health is one of the causes of preeclampsia. Gravida is a risk factor for preeclampsia. Incidence of preeclampsia in primigravida by 7-12% while multigravida of 5.5 to 8%. History of preeclampsia in a previous pregnancy is also a risk factor. Incidence of preeclampsia can be repeated so that it can be detected early. The objective of this study was relationship between gravida and preeclampsia. Observational analytic with cross sectional method was the study design. The study was conducted at the Dr. Moewardi Provincial Hospital on April-June 2013. The study population was pregnant women at Dr. Moewardi Provincial Hospital on May, 18th to June, 8th 2013. The sampling technique was accidental sampling. Total sample was 87 patients consisted of 38 primigravida, 25 sekundigravida, and 24 people multigravida. Data analysis using Chi-square. Results of analysis of 87 samples obtained by chi-square test p value 0.160 > 0.05. The conclusion is there is no relationship between gravida with the incidence of preeclampsia.

Keywords: Gravida, Preeclampsia

1. INTRODUCTION

Maternal Mortality Ratio (MMR) is one indicator for the degree of women's health. Based on data from the WHO, Maternal Mortality Ratio in the world at 260 per 100,000 live births (WHO, 2010). Indonesia Demographic Health Survey (IDHS) in 2012, states that Indonesia MMR of 120 per 100,000 live births. According to the Ministry of Health at Central Java Province, MMR for the province of Central Java in 2011 amounted to 116.01 per 100,000 live births (Dinkes Propinsi Jawa Tengah, 2012). MMR in Surakarta in 2012 amounted to 59.2 per 100,000 live births (DKK Surakarta, 2013).

The causes of maternal deaths in Indonesia are bleeding (27%), eclampsia (33%), infection (11%), complications of puerperal (8%), trauma obstetrics (5%), embolism obstetrics (5%), obstructed labor (5%), miscarriage (5%), and others (11%) (Kemenkes RI, 2012). Preeclampsia may could be eclampsia if it doesn't handled properly and the main cause of MMR in Surakarta was preeclampsia (100%) (DKK Surakarta, 2013).

Gravida is one of the risk factor of preeclampsia, it is the number of pregnancies that have experienced woman. Internationally, the incidence Preclampsia more common in primigravid by 7-12% while at multigravida of 5.5 to 8% (Manuaba, 2007). Preclampsia history of a previous pregnancy is also a risk factor for Preclampsia (Wiknjosastro, 2012).
Gravida is the number of pregnancies a woman has ever experienced (Varney, 2007). Judging from the level gravida grouped into three, among others: primigravid is a woman who is pregnant for the first time, sekundigravida is a woman who is pregnant for the second time, and multigravida was a pregnant woman who is more than two times (Varney, 2007).

Preclampsia is a specific set of symptoms that only appear during pregnancy over the age of 20 weeks (Varney, 2007). Preeclampsia is a collection of symptoms that occur in pregnancy, childbirth and the postpartum consisting of hypertension, proteinuria, and it could also generalized edema (Rukiyah and Yulianti, 2010). Clinical features of Preclampsia include hypertension is systolic and diastolic blood pressure more than equal to 140/90 mmHg, proteinuria is the presence of 300 mg of protein in the urine during 24 hours (more than equal to 1+ dipstick), and generalized edema should be considered.

The etiology of this disease until now not known with certainty. Many theories put forward by the experts who try to explain the cause, therefore called the "disease theory", but no one has give a satisfactory answer (Sofian, 2012). Risk factors for preeclampsia according to (Bothamley and Boyle, 2012) is primigravid, spacing pregnancies> 10 years of previous pregnancy with Preclampsia, twin pregnancy, certain medical conditions such as kidney disease, diabetes mellitus, shydatidiform mole, age extremes of less than 20 years or more than 35 years.

The incidence of Preclampsia as much as 6% of all pregnancies and 12% in primigravida (Manuaba, 2012). In normal pregnancy, the immune response does not reject the "products of conception" that is foreign. This is due to human leukocyte antigen protein G (HLA-G), which plays an important role in modulating the immune response, so that the mother does not reject the products of conception (placenta). The presence of HLA-G placental trophoblast can protect the fetus from cell lysis by Natural Killer (NK) mother. The presence of HLA-G will facilitate trophoblast cell invasion into the maternal decidua tissue. So HLA-G is a precondition for the occurrence of trophoblast invasion into the maternal decidua tissue, in addition to facing the Natural Killer cells. In the placenta of pregnant women with Preclampsia decreased HLA-G which is blocking antibodies (Wiknjosastro, 2012).

At primigravida blocking the formation of antibodies against the antigen placenta imperfect will be more perfect in a subsequent pregnancy (Rukiyah and Yulianti, 2010). Decreased HLA-G in the placental decidua, inhibit trophoblast invasion into decidua while trophoblast invasion is very important that decidua tissue becomes soft and loose so as to facilitate the spiral arteries dilate. As a result of inhibition of trophoblast invasion of spiral arteries undergo vasoconstriction lead to decreased uteroplacental blood flow and pass the placental hypoxia and ischemia. Placental ischemia and hypoxia will produce oxidants also called free radicals (Wiknjosastro, 2012).

In subsequent pregnancies either sekundigravida or on multigravida with a distance of ten years or more after a previous pregnancy are also accompanied by Preclampsia then the woman would be considered by the body as a primigravida. Causing the woman is at risk for experiencing Preclampsia back as in primigravida (Skjaerven, 2002).

Free radicals can cause damage and disruption of the endothelial cell membrane endothelial function called endothelial dysfunction. This endothelial dysfunction will ultimately lead to the appearance of clinical signs Preclampsia such as increased blood pressure and proteinurine (Wiknjosastro, 2012).

This study aims to determine the relationship between gravida with Preclampsia events, knowing gravida at Preclampsia events, and to determine the incidence of occurrence Preclampsia.
2. RESEARCH METHODOLOGY

The design of this research is analytic observational study with cross sectional method in which the independent variables and the dependent variable was observed only once at the same time. The target population in this study were all pregnant women whose gestational age of 20 weeks. The actual population in this study were all pregnant women age pregnancy> 20 weeks in Provincial Hospital of Dr. Moewardi in May-June, 2013.

Subjects in this study were all pregnant women or maternity or childbirth that met the inclusion criteria. The sampling technique in this study using a non-probability sampling method used was accidental sampling by selecting a subject based on respondents who met while doing research at the Provincial Hospital of Dr. Moewardi in May and June 2013. The subject of the research, according Taufiqurrahman (2009) which is required in this study is

\[ n = \frac{Z^2 \cdot p \cdot q}{d^2} \]

Description :

\( n \) : major subject of research

\( p \) : estimate the prevalence of the disease under study or exposure of population (6%)

\( q \) : 1-p

\( Z \alpha \) : value of Z on the degree of significance (95% = 1.96)

\( D \) : absolute precision desired on both sides of proportion population (5%)

With the calculation formula as follows:

\[ n = \frac{(1.96)^2 \cdot 0.06 \cdot 0.94}{(0.5)^2} \]

\[ n = \frac{3.8416 \cdot 0.06 \cdot 0.94}{0.0025} \]

\[ n = 86,666,624 \]

\[ n = 86,666,496 \]

With the above calculation obtained a minimum of 87 major research subjects.

Research instruments are the tools used for data retrieval. The instrument used in this study is the observation sheet to make observations and interviews on the mother, laboratory results on medical records of Provincial Hospital of Dr. Moewardi to know the results of laboratory proteinuria and tensimeter mercury with brands Riester Novapresameter type that has been done calibrated by Hospital Internal Calibration of Provincial Hospital of Dr. Moewardi on June 4, 2012 to determine the mother's blood pressure.

The analysis used in this research is the analysis of univariate and bivariate. In this study, the variables were analyzed using univariate is gravida pregnant women and Preclampsia incidence in pregnant women, the age of pregnant women who develop preeclampsia, and
gestational age of pregnant women who develop preeclampsia. After univariate analysis, followed by bivariate analysis. In this study, to determine the relationship between gravida mothers with preeclampsia Chi-square test was done on the condition that the cells have the expected value is less than 5, a maximum of 20% of the number of cells, but if the conditions are not met then the merger of the cell. After the merger of the cell will form a table B x K new and appropriate hypothesis test. The statistical test used in analytical research unpaired categorical. The data will be processed using the program Statistical Product and Service Solutions (SPSS) 16.00 for Windows (Dahlan, 2012).

3. RESULTS AND DISCUSSION

3.1. Result

This study was conducted at Provincial Hospital of Dr. Moewardi period of 18 May-8 June 2013. From an observational study conducted in patients with pregnant women 20-35 years of age, gestational age over 20 weeks, and are willing to become respondents as criteria for inclusion and exclusion criteria, namely diabetes mellitus, chronic renal disease, molahidatidosa, multiple pregnancy, spacing pregnancies> 10 years of previous pregnancies with preeclampsia, the importance of the number of samples 87.

<table>
<thead>
<tr>
<th>Table 4.1 Distribution of respondents by status gravid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
</tr>
<tr>
<td>Primigravid</td>
</tr>
<tr>
<td>Sekundigravid</td>
</tr>
<tr>
<td>Multigravidaa</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

Source: Primary Data period of 18 May-June 8, 2013 in Obstetrics Poly and Mawar I Chamber

Based on Table 4.1 Distribution of respondents according gravida status showed that most large primigravid frequency is 43.7% and the smallest multigravidaa is 27.6%.

<table>
<thead>
<tr>
<th>Table 4.2 Distribution of respondents according to the incidence of preeclampsia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
</tr>
<tr>
<td>Preeclampsia occurs</td>
</tr>
<tr>
<td>Not Occur Preeclampsia</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

Source: Primary Data period of 18 May-June 8, 2013 in Obstetrics Poly and Mawar I Chamber

Based on Table 4.2 Distribution of respondents according to the incidence of preeclampsia showed that 19.5% had preeclampsia while the remaining 80.5% did not happen preeclampsia.

<table>
<thead>
<tr>
<th>Table 4.3 Distribution of respondents with preeclampsia by age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>20-25</td>
</tr>
<tr>
<td>26-30</td>
</tr>
<tr>
<td>31-35</td>
</tr>
</tbody>
</table>

Source: Primary Data period of 18 May-June 8, 2013 in Obstetrics Poly and Mawar I Chamber
Based on Table 4.3 Distribution of respondents with preeclampsia by age showed that the greatest percentage in the age of 20-25 years that is equal to 47.1% and the percentage of the smallest at the age of 26-30 years is 23.5%.

<table>
<thead>
<tr>
<th>Age Pregnancy (weeks)</th>
<th>Preeclampsia occurred</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-25</td>
<td>7</td>
<td>41.1%</td>
</tr>
<tr>
<td>26-30</td>
<td>5</td>
<td>29.4%</td>
</tr>
<tr>
<td>31-35</td>
<td>2</td>
<td>11.8%</td>
</tr>
<tr>
<td>36-40</td>
<td>2</td>
<td>11.8%</td>
</tr>
<tr>
<td>&gt; 40</td>
<td>1</td>
<td>5.9%</td>
</tr>
</tbody>
</table>

Source: Primary Data period of 18 May-June 8, 2013 in Obstetrics Poly and Mawar I Chamber

Based on Table 4.4 Distribution of respondents with preeclampsia according to gestational age showed that the greatest percentage at 21-25 weeks of gestation is equal to 41.1% and the smallest percentage of gestation > 40 weeks that is equal to 5.9% of the 17 people who develop preeclampsia.

<table>
<thead>
<tr>
<th>Age Pregnancy (weeks)</th>
<th>Preeclampsia occurred</th>
<th>Not Occurred Preeclampsia</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-25</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>26-30</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>31-35</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>36-40</td>
<td>2</td>
<td>24</td>
</tr>
<tr>
<td>&gt; 40</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
<td>70</td>
</tr>
</tbody>
</table>

Source: Primary Data period of 18 May-June 8, 2013 in Obstetrics Poly and Mawar I Chamber

Once the data is processed and then carried out the test data by using Chi Square test with a confidence level of 95% or $\alpha = 0.05$ to determine the relationship between gravida with preeclampsia. Results of the analysis of hypothesis testing with Chi Square showed that cells in table 4.5 above which have the expected value of less than 5 as much as 33% so it does not qualify Chi Square test and should be done merging cells. After re-analysis of Chi Square the $p$ value = 0.160.

3.2. Discussion

Research on pregnant women who meet the inclusion and exclusion criteria in Provincial Hospital of Dr. Moewardi on May 18 - June 8, 2013 as many as 87 respondents. This study
suggests that preeclampsia is the most widely experienced by primigravida. This is consistent with the theory contained in Wiknjosastro (2012) which states that the incidence of preeclampsia occurs more often in primigravida.

Test analysis of the relationship between gravida with preeclampsia using Chi Square confidence level of 95% or $\alpha = 0.05$ showed that $p$ value = 0.160 so the hypothesis is rejected, which means there is no connection between gravida with preeclampsia. This is because the $p$ value greater than 0.05.

There is a disconnection between gravida with preeclampsia can be caused because there are other factors that influence such as age, gestational age, education level and occupation. Maternal age were examined in this study only the productive age between 20-35 years. It is intended to homogenize the subject. While the age of the mother at risk for preeclampsia is less than 20 years old and over 35 years (Bothamley and Boyle, 2012).

Gestational age of pregnant women who develop preeclampsia in this study predominantly at the gestational age 21-25 minggu. Uji analysis of the relationship of pregnancy with preeclampsia using Chi Square confidence level of 95% or $\alpha = 0.05$ showed that $p$ value = 0.002 which means there relationship with the incidence of preeclampsia pregnancy. This is because the $p$ value less than 0.05. This is consistent with research Adhie (2006) which states that in preeclampsia there will be increased levels of activin A earlier (at 15-19 weeks gestation) in which this will be a significant increase in gestational age 21-25 weeks whereas in normal pregnancy levels of activin A will remain low until 26-28 weeks gestation. After 28 weeks gestation activin A levels will tend to increase in accordance with increasing gestational age. Therefore, increased levels of activin A can be used to predict the age of onset of preeclampsia in subsequent pregnancies.

The education level of pregnant women can affect the results. This is assumed because educated mothers more quickly take a decision to carry out checks to the hospital and find better treatments. Moreover, the higher the mother's education level, the higher the level of knowledge on early recognition of the occurrence of preeclampsia, so that pregnant women not to be detected late, not late referenced and not too late to be addressed.

Employment of pregnant women is basically associated with socioeconomic status and activities of pregnant women. Socio-economic limitations will also affect the limitations in obtaining appropriate antenatal care, and meeting the needs of food and nutrition during pregnancy will affect the health of pregnant women and development. Moreover, according to the theory of dietary nutritional needs of pregnant women, especially calcium in pregnant women is quite high. Giving calcium 2-2.5 grams of calcium / day in pregnant women will reduce the incidence of preeclampsia (Manuaba, 2008).

Other similar studies carried out by Febri Rahmatika Wibi Saputro (2009) with the title "The relationship between the incidence of preeclampsia primigravid" showed that there was no relationship between primigravida with preeclampsia. In addition, the research conducted by Dyah Woro Kartiko Kusumo Wardani (2011) with the title "The relationship between age and Gravida mother with Genesis Preeclampsia in Pregnancy Poly dr. M. Soewandhi Surabaya "also showed no relationship between age and gravidia with preeclampsia.

While the research conducted by Sudarta Harefa Y. (2005) entitled "Maternal characteristics relationship with Genesis Preeclampsia / Eclampsia in Santa Elisabeth Hospital Medan Year 2003-2004" showed that there is a relationship between parity with the incidence of preeclampsia. Besides parity, other characteristics are researched and have a relationship with the incidence of preeclampsia is a maternal age, education level, occupation, and gestational age. Age of pregnant
women in this study had diinklusikan at the age of 20-35 years whereas in other studies such as Sudarta Harefa Y. (2005) all pregnant women age as respondents including those aged less than 20 years and more than 35 years, causing the results of research different.

This study goes according to plan, but researchers do not spite of several obstacles. Barriers that occur in the execution of this study is no consideration of other factors that may affect the results of studies such as level of education and employment so that the subject is not homogeneous and the results obtained are less than the maximum. In addition, due to limited time of the design of the study is cross-sectional, observation of risk factors and the effect is done only once at the same time. However, these obstacles can be minimized by homogenize the subject of age is a factor in the productive age between 20-35 years.

4. CONCLUSION

Based on the results of research and discussion that has been described previously, it can be concluded as follows. Respondents who experienced events preeklampsi dominated by pregnant women primigravid totaling 10 people from 17 people who develop preeclampsia while sekundigravida number 4 and multigravidaa many as 3 people. The incidence of preeclampsia in this study as many as 17 people (19.5%) and the rest do not happen preeclampsia many as 70 people (80.5%). The analysis of this study that there was no relationship gravid with preeclampsia. It is based on the analysis of Chi Square where the p value is 0.160.

5. SUGGESTION

For pregnant women, the gestational age of more than 20 weeks will increase the risk of preeclampsia, it is recommended to pregnant women for routine checkups so that it can be detected early if things happen that are not desirable as preeclampsia. For other researchers, in doing further research is expected to be examines other factors that could affect the occurrence of preeclampsia, such as age, gestational age, occupation, and educational level. In addition, in determining the design of case-control studies can be selected that has the power of inference and control of external variables is better than the cross sectional.

REFERENCES