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CORRELATION OF AGE AND PARITY WITH HYPERTENSION INCIDENCE AMONG PREGNANT WOMEN

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ABSTRACT

Background: Hypertension in pregnancy is the second cause of maternal death and complicates about 5-10% of pregnancies. Hypertension in pregnancy is associated with an increased risk of intracerebral hemorrhage, placental abruption, intrauterine growth retardation, occurs in prematurity, and intrauterine death. The incidence of hypertension occurs in women aged over 45 years.

Aims: To determine the correlation between age and parity with the incidence of hypertension in pregnant women.

Methods: This type of research is a quantitative approach with Case Control design. For statistics, this study used chi-square test. The sample of this research is 200 pregnant women with purposive sampling technique. The data used are secondary data. Research instrument using checklists. The technique of collecting data using observation sheet.

Results: The statistic test found that the proportion of age <20 years -> 35 years experienced hypertension that is 60.5% (72 pregnant women) and the proportion of primipara parity experienced hypertension that is 63.8% (90 pregnant women). The result of the statistical test of chi-square analysis relation between maternal age and hypertension with p-value = 0.001 and relationship between parity and hypertension with p-value = 0.000.

Conclusion: There is a relationship between age and parity of pregnant women with the incidence of hypertension.

Keywords: Pregnancy Hypertension, Age, Parity

INTRODUCTION

Hypertension is a significant cause of maternal and fetal / neonatal morbidity and mortality. Based on Indonesia Health Demographic Survey (IHDS), in 2008 maternal mortality rate (MMR) was at 228 per 100.000 live births, and increased in 2012 to 359 per 100.000 live births. This number is high compared to other Southeast Asian countries such as Malaysia, Singapore and Brunei Darussalam. As comparison, MMR in Malaysia is only at 62 per 100.000 live births, in Singapore 14 per 100.000 live births, even in Brunei Darussalam fall to 13 per 100.000 live births [1]. Hypertensive disorder in pregnancy is the second most common cause of maternal deaths with 5.2 deaths per one million women suffering from pre-

eclampsia, and 2.4 per million mothers suffering from eclampsia. Hypertension is the most common medical illness in pregnancy, occurring in approximately 10% of all pregnancies [2,3]. A careful observation of this condition identifies that the incidence of hypertensive diseases varies according to geographic and racial location. Cardiovascular changes, which occur as a result of pregnancy, may induce hypertension in women who are normotensive before pregnancy, or may aggravate the condition of pre-existing hypertension. Hypertensive disorders include various vascular disorders, such as gestational hypertension, preeclampsia, HELLP syndrome, eclampsia, and chronic hypertension [2,4].

Hypertension can cause kidney failure, respiratory (i.e., asphyxia, aspiration of vomiting, pulmonary edema), and vision. Hypertension in mothers can cause intrauterine growth restriction (IUGR) and hypoxia in infant, fetal distress, even death. As effort to reduce morbidity and maternal mortality rate (MMR) and infant mortality rate (IMR) caused by hypertension, midwives play an important role through the implementation of pregnancy surveillance. One of the indicators that gets attention carefully is the blood pressure that should be within normal limits. This can be known if the mother checked the pregnancy on a regular basis [5].

Hypertension in pregnancy is influenced by several risk factors such as age, parity, race / ethnic group, heredity, gene factor, diet and nutrition, climate or season, behavior and socioeconomic, and also hyperplacentosis. In pregnant women aged over 35 years, latent hypertension may occur [6]. Older primigravida risk higher for severe preeclampsia [7,8]. The risk of pregnancy in a mother who is too young usually arises because they are not ready psychically (not ready being a mother) or physically (immature reproductive organs). These lead to an increase of pregnancy/childbirth poisoning to preeclampsia or eclampsia, and spasm of blood vessels resulting in higher blood pressure and causes edema and proteinuria. Unlike pregnancy at the age of reproduction either where the physical condition of women in the prime state, the uterus is capable of providing maximum protection or condition for pregnancy. Generally mentally prepared affects the behavior of caring and keeping her pregnant carefully [7,9,10]. Women over 35 are more likely to experience a variety of hypertension and preeclampsia-related health problems. This happens because of changes in the tissues of the uterus and the birth canal is not flexible anymore as well as the blood vessels, also caused by blood pressure which increases with age, resulting in edema and proteinuria. Aged 35 years is not considered vulnerable, only at this age of reproductive ability began to decline so that the age above 35 years is a phase to consider pregnancy [9–11].

This present study brings the aims to present the correlation between age and parity with incident of hypertension in pregnant women. Based on Routine Health Program Report of Provincial Health Office of 2012, the cause of maternal death in Indonesia is still dominated by bleeding (32%) and hypertension in pregnancy (25%), followed by infection (5%), old partus (5%), and abortion (1%). In addition to the causes of obstetrics, maternal mortality is also caused by other causes (nonobstetric), of 32% [1]. The number of pre-eclampsia incident in the world is 3-10%, and in Indonesia equal to 9.8-25.5%, while in the province of Lampung in 2011 reached to 24.21%. In 2012, total of 178 cases of maternal death were found in Lampung, with vary causes of death: 59 cases of hypertension, 40 cases of bleeding, 4 cases of infection and 71 cases of other causes. In Central Lampung District, the incidence of preeclampsia in 2011 was 12.5% [12]. Based on medical record data of General Hospital Ahmad Yani Metro City we received, it is found hypertension in pregnant women. In 2013, of 1062 pregnant women, there were 113 (10.6%) of pregnant women with hypertension, and increase to 152 cases (12.7%), in 2014, of 1196 pregnant. This number increased in 2015, where from 1417 pregnant women, 181 (12.8%) pregnant women recorded having hypertension [13–15].

METHODS

This research used quantitative research with case control design. The study involved a total of 200 pregnant women, selected by purposive sampling technique, at General Hospital *Ahmad Yani Metro City* in 2015. Purposive sampling used with particular consideration and purposes of selection made by the researcher, based on previously known characteristics or traits of the population [16]. All patients experienced hypertension and has completed their medical record data aged in two categories differed by their risk: (1) less than 20 years or more than 35 years, and (2) in between 20 and 35 years. The respondents were at different parity level: primipara and multipara (grande multipara). In the patient's medical record should include the variables to be studied including the age and parity of the mother. This research was to find the relationship between maternal age and parity with hypertension incidence using additional data obtained from the medical record where data was analyzed by Chi-square test.

RESULTS

Table 1. Maternal age and hypertension incidence in pregnant women

	Events Hypertension						<i>p value</i>	OR (CI 95%)
	Yes		No		Total			
	n	%	n	%	n	%		
<20 years or >35 years	72	36.00	47	23.50	119	59.50	0.001	2.90 (1.61 – 5.22)
20-35 years	28	14.00	53	26.50	81	40.50		
TOTAL	100	50.00	100	50.00	200	100		

From results in table 1, it can be seen that, of 200 pregnant women, there were 100 participants experienced hypertension, and 72 (36%) of them were in the group with aged less than 20 years or more than 35 years, while, only 28 participants (14%) in the group aged 20-35 years. Looking to the pregnant women who have no hypertension in their medical report (50%), we noted that more than half (65.4%) of the participants were those aged between 20 and 35 years. By statistical Chi Square test, the data show there is a relationship between maternal age and the incidence of hypertension (p value = 0.001). The degree of closeness show the difference of those two age groups where the risk among respondents aged less than 20 or more than 35 years, the possibility to have hypertension will increase 2.9 times.

Table 2. Maternal parity and hypertension incidence in pregnant women

Parity	Events Hypertension				Total		<i>P- value</i>	OR (CI 95%)
	Yes		No					
	n	%	n	%	n	%		
Primiparous	90	45.00	51	25.50	141	70.50	0.000	8.647 (4.036 – 18.526)
Multipara and grande multipara	10	5.00	49	24.50	59	29.50		
TOTAL	100	50.00	100	50.00	200	100		

Table 2 exhibits how the maternal parity relate to hypertension incidence. It can be seen that, of 200 pregnant women, there were 141 participants or 70.50% identified in primipara parity the majority; and 90 of them having hypertension. While only 59 pregnant women were in the relationship between maternal

parity and the hypertension incidence becomes clear, with significance level was less than 0.001. Moreover, from the results, we can suggest that mother with the first experience in pregnancy will have more possibility to having hypertension 8.65 times.

DISCUSSION

Hypertensive during pregnancy (Preeclampsia and Eclampsia) is one of three major causes of maternal death, following with bleeding and infection [3]. Hypertensive disease in pregnancy in the form of preeclampsia and eclampsia may contribute to high morbidity and mortality rates for both mother and infant [10,9]. This present study orchestrates how age and maternal parity contribute to hypertension incidence. The age may affect the behavior of caring and keeping her pregnant carefully [18], yet the discussion will also stress the safe at healthy reproductive age for pregnancy and childbirth at the age between 20 to 30 years [19,20]. Pregnant women aged less than 20 years are vulnerable to the incidence of hypertension in pregnant women at a young age due to the lack of understanding of healthy reproductive age [17]. In this age, the state of the reproductive apparatus is not yet ready for pregnancy yet increase the incidence of hypertension in pregnancy and may lead to pregnancy intoxication. It is also evident that Preeclampsia and Eclampsia are elevated at too young mothers' ages and are associated with poor socioeconomic factors, concealed pregnancies, lack of antenatal care and poor nutrition.

For women get pregnant at the age more than 35 years, the physical condition of women may not in the prime state where the uterus capable of providing maximum protection or condition for pregnancy. Women aged > 35 years have a risk of 3-4 times getting Preeclampsia and Eclampsia than younger women [21,22]. Moreover, at the age of 35 years or more, where at that age there is a change in the network and the uterus and the birth canal is not flexible anymore. At that age tends to get other diseases in the body of pregnant women, one of them hypertension and eclampsia [7,9,11]. The increasing age of women is associated with changes in the cardiovascular system and theoretically Preeclampsia and Eclampsia are associated with pathology in the endothelium that is part of the blood vessels [10,9,11].

The study suggests the primigravida women have greater risk to having hypertension. It may a result of experiencing stress in the very first time in facing childbirth. The stress among the primipara releases the corticotropic release hormone (CRH), elevated by the hypothalamus, which following with an increase in cortisol. The effect of cortisol is to prepare the body to respond to all stressors by increasing sympathetic responses, including responses aimed at increasing cardiac output and maintaining blood pressure [6,10].

There are about 85% of preeclampsia occurring in the first pregnancy. Preeclampsia occurs in 14% to 20% of fetal pregnancies of more than one and 30% of patients have severe uterine anomalies. In mothers with chronic hypertension, kidney disease, incidence accounted for 25% [19,23]. Women who are newly mothers or with new partners have a 6 to 8 times risk of developing hypertension (preeclampsia-eclampsia) than multigravids [7,20,22]. Primary prevention against hypertension is not clear (disease of theories). Prevention and treatment of hypertension disease can be avoided by termination of pregnancy [24]. It is not always easy to implement within our current culture. The first prevention can be done by knowing the history of mothers who have risk factors for the occurrence of hypertension in pregnancy [6,10,23].

CONCLUSION

This study suggests that age and maternal parity significantly determined the hypertension incidence. The present observation exhibits that women aged between 20 and 35 years face less possibility of having hypertension than women aged less than 20 and more than 35 years, by 2.90 times. The results clearly shows first experience in pregnancy and childbirth increase the hypertension incidence by 8.65 times. The outcome of this research is useful for anticipation in order to avoid risk factors for the occurrence of

hypertension in pregnancy and monitor early in pregnancy, thus preventing the occurrence of high morbidity and mortality in the mother and baby. Recommendation to all heads of hospitals and heads of health facility, also the midwives is to further improve services in the examination and collaborate with doctors to prevent the occurrence of preeclampsia. As well as conducting health education activities especially in pregnant women to provide health education, family planning program and more intensive examination among the pregnant women who have hypertension or at the risk group.

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