The Correlation of Maternal Age and the Incidence of Preeclampsia at Aura Syifa Hospital

Anggita Retnosari[1], Ira Titisari[2], Eny Sendra[3]
[1,2,3]Midwifery Department, Health Polytechnic Ministry of Malang, Indonesia

Article Information	Abstract
	Preeclampsia is a condition when hypertension and proteinuria occurs after 20 weeks of pregnancy. The exact cause of preeclampsia is currently unknown, but many factors influence the occurrence of preeclampsia, especially the age factor. This study was aimed to determine the correlation between maternal age and the incidence of preeclampsia. This study was analytical survey designed with retrospective study method. From Aura Syifa hospital, 142 medical records in of pregnant women in 2017 were taken 105 samples by using simple random sampling technique. The result of this study indicated that delivered mothers who were in reproductive age (20-35 years old), 25.8% of them had preeclampsia and 31,1% had severe preeclampsia. The data analyzed by suing chi-square correlation and the result was ρ (0.00) < α (0.05) which meant that there was a correlation between maternal age and the incidence of preeclampsia. It would be better for couples planning pregnancy in healthy reproductive age for minimize the risk of preeclampsia. © **2021 Journal of Ners and Midwifery**

INTRODUCTION

In Indonesia, hypertension is a problem that still can be found in primary health services. The prevalence of the incidence is about 25,8% while the target in 2019 is 23,4%. In East Java, there were 27% people had hypertension. Meanwhile in East Java, there were approximately 28% people experiencing hypertension. Hypertension is a silent killer which consist of 4 different types, namely chronic hypertension, gestational hypertension, preeclampsia, and eclampsia (Kemenkes RI, 2015).

Preeclampsia is a special condition during pregnancy, where hypertension and proteinuria arise after 20 weeks pregnant mothers who initially have normal blood pressure (Lowdermilk et al., 2013).

Hypertension increases in systolic and diastolic blood pressure $\geq$ 140/90 mmHg and urine protein $\geq$ + 1 or protein elimination reach 300 mg within 24 hours, since 20 weeks gestational age. The risk factors that can cause hypertension in pregnancy are primigravida,, primiparity, hydatidiform mole, diabetes mellitus, multiple pregnancies, large babies, family history of those who have experienced preeclampsia or eclampsia, kidney disease or indeed have hypertension before becoming pregnant, obesity and unhealthy reproductive age which is before 20 and after 35 years old (Prawirohardjo, 2016).

In East Java, especially Kediri district, the highest cause of maternal mortality rate was preeclampsia (33%) and followed by bleeding (30%), infection (25%) and heart attack (17%) in 2016. In Kediri district, there is 37 public health center, the highest cases of preeclampsia in 2018 occured in Mojo public heal center (3.55%), Puhjarak public health center (3.1%), Pare and Papar public health center (2.6% for both of them) (Dinkes Kabupaten Kediri, 2019).

Aura Syifa Hospital is one of referral center hospital in Kediri district. From preliminary study there, out of 2090 data of mothers in 2016, there were 3.74% of them diagnosed with preeclampsia and 6.36% with severe preeclampsia. In 2018, the number increased by 6.98% (Medical Records of Aura Syifa Hospital).

METHOD

This study was an analytical survey method with a retrospective Study design. This study was conducted at the Aura Syifa Hospital in Kediri Regency on February 28 - March 31, 2019. The population was 142 medical records data for women with preeclampsia and heavy preeclampsia. The data were taken by simple random sampling and obtained 105 samples of medical records which met the exclusion and inclusion criteria which was 1)Data of mothers with preeclampsia; 2)Data of delivered mothers in unhealthy reproductive age and diagnosed with preeclampsia; 3)Data of mothers with history of preeclampsia.

The data were analyzed by using chi-square statistical test with significance value of 0.05, which was ρ (0.00) < α (0,05). From this, we can conclude that Ho was rejected and Ha was accepted, there was correlation between maternal age and the incidence of preeclampsia.

This study had obtained ethical clearance with number 068/KEPK-POLKESMA/2019, on March 8, 2019.

RESULT

Table 1 Distribution of Age

Ages	N	Percentage (%)
< 20 & > 35	39	37,1
20-35	66	62,9

Source : Primary Data Aura Syifa Hospital

Based on the data in Table 1, most of the respondents (62.9%) who were diagnosed with preeclampsia and severe preeclampsia were in health reproductive age, 20 – 35 years old.

Table 2 Distribution of Preeclampsia

Diagnose	N	Percentage (%)
Preeclampsia	44	41,9
Severe Preeclamtion	61	58,1

Source : Primary Data Aura Syifa Hospital

According to the data shows in Table 2, 44 respondents had preeclampsia (41.9%) and 61 respondents who had severe preeclampsia were around 58.1%.

From Table 3, there were 105 medical records from mothers diagnosed preeclampsia and severe preeclampsia who delivered at Aura Syifa Hospital, in 2017. The number of preeclampsia was higher in unhealthy reproductive age than healthy age. But

Table 3 Analysis of The Relation between Maternal Age and The Incidence of Preeclampsia

Age	PE		Severe PE		Total	ρValue
	N	%	N	%		
< 20 & > 35 yo	17	43.8	22	56.41	100%	= 1.000
20-35 yo	27	40.90	39	59.09	100%	

Source : Primary Data

in the same place, the number of severe preeclampsia is higher in health reproductive age than the unhealthy one which will be explained in discussion.

The data was analyzed using chi-square test and the result was obtained that ñ-value of (0.00) < á (0.05), which could be concluded that Ha is accepted and Ho is rejected, it means there was relation between maternal age with the incidence of preeclampsia.

DISCUSSION

According to Table 1, there were still pregnancy in unhealthy reproductive age which was < 20 and 35 years old.

Some women especially those who are busy working often delay pregnancy until the age of 30 and even for some reason may be due to being late to marry and getting pregnant first at age 35. Actually, this condition is not so problematic as long as it's fit and healthy. However, some studies show that as we get older, there will be some problems in the mother such as complications of preeclampsia, and in infants such as chromosomal abnormalities that result in babies with down syndrome (Rahmatulah & Kurniawan, 2019).

The occurrence of pregnancy at the age of < 20 years is also a result of early marriage, which still exists in Indonesia. This is done to avoid casual sex, escape from poverty, worry about not immediately getting a partner, and cultural environmental factors (Puspasari & Pawitaningtyas, 2020).

In table 2, showed that most of the data (58.1%) mothers diagnosed with severe preeclampsia and the rest were diagnosed with preeclampsia.

Severe preeclampsia is an increase in maternal blood pressure more than the equal pressure to 160/110 mmHg accompanied by proteinuria +2. The incidence of preeclampsia itself usually occurs after the gestational age when mothers entering the age of the 3rd trimester or more than 20 weeks

(American College of Obstetrician and Gynecologist, 2013).

Problems arise in preeclampsia and severe preeclampsia that only occurs during pregnancy triggered by abnormal placenta causes the endothelial damage to blood vessels. This damage causes systemic reaction which lead to organ damage in certain degree, and the effect can be seen in mothers and the baby (Nursal et al., 2015).

Preeclampsia is hypertension accompanied by proteinuria and specific syndrome which can cause changes in the organ system including the kidneys (Situmorang et al., 2016). Preeclampsia usually causes kidney disorders, where there is vasoconstriction in the blood which causes vasoconstriction and reduced the flow inside the kidneys. So the rate of filtration in Glomelurus has decreased and caused the increase of creatine and urea level. Because the function of the stress is impaired so that we could found protein content in the urine (Saraswati & Mardiana, 2016).

Preeclampsia is multisystem disorder with unknown exact etiology which can occur ante, intra also in postpartum. Proteinuria is also not always a sign of preeclampsia. Preeclampsia without proteinuria also occurs when hypertension is followed by thrombocytopenia, pulmonary edema, visual impairment, impaired liver function, renal insufficiency, and other kidney disorders. (Hasanah et al., 2020).

Therefore, pregnant women need more attention in maintaining health conditions, especially at the age of too young / more than 35 years.

From table 3, showed the result of analysis data using chi-square test which obtained p-value 0,000 < 0, 05 so that Ha was accepted and Ho was rejected. This shows that there is a correlation between age and the incidence of preeclampsia in the Aura Syifa Hospital, Kediri Regency.

The age of less than 20 years, especially teenagers, is classified as a young and immature age both in terms of reproduction and emotional, coupled

with the sensitive views of the public so that not a few try to hide pregnancy rather than doing examinations to health workers. So that this pregnancy is not monitored properly by health workers and there are no known various risks and disorders that will be faced by this pregnancy. (Dielsa, 2020).

In terms of physical uterus and pelvis have not grown to adult size, while in terms of the mental mother is not ready to accept the duties and responsibilities as a parent and this can lead to excessive stress (Kusumawati & Mirawati, 2019).

Compared to pregnant women at a healthy age, complications experienced by pregnant women aged 35 years and over increased during pregnancy including gestational diabetes, placenta previa, preeclampsia, miscarriage, and others. Mothers who have the age of 35 years and above are more worried about the development of their fetus because they know the risk conditions faced, thus leading to prolonged stress conditions.. (Singal et al., 2015).

If stress occurs prolonged, the body will remain in a psychologically active state with the stress hormone adrenaline and excess cortisol thus paralyzing the mother's immune system. This results in a 1.5 times increased risk of preeclampsia (Hasanah et al., 2020).

At the age of over 35 years, women experience deterioration of the reproductive organs, including the uterus so that in the event of pregnancy will also pose a higher risk for the occurrence of Preeclampsia (Dielsa, 2020).

At the age of more than 35 years, there begins to be deterioration of reproductive health in women, so it will be risky for pregnant women, especially for mothers over 35 years of age who are also primigravida. This is because in the first pregnancy there are imperfections in the formation of blocking antibodies to placental antigens, resulting in an unfavorable immune response. (Asmana et al., 2016).

At the age of 35 years or more, susceptible to various diseases in the form of hypertension and eclampsia. This is because the change in the tissue of the obstetric organ and the birth canal is no longer flexible. In addition, this is also caused by blood pressure that increases with age. So that at the age of 35 years or more can increase the risk of preeclampsia (Kusumawati & Mirawati, 2019).

If you want to have excellent reproductive health should avoid "4 Too" where two of them are concerned with the age of the mother. The first T is too young to be pregnant at the age of less than 20 years. The risks that may occur if pregnant at the age of under 20 years include miscarriage, preeclampsia, premature birth baby, low birth weight (BBLR). While the second T is too old means pregnant over the age of 35 years. Risks that may occur if pregnant at too old age include miscarriage, preeclampsia, severe preeclampsia/ eclampsia, bleeding, low birth weight, and congenital defects (Marniati et al., 2016).

However, in table 3 it was also shown that mothers of healthy reproductive age (20-35 years) experienced more severe preeclampsia than mothers with high-risk ages. This is because preeclampsia is a multisystem disorder, which can be caused by various conditions, including primipara pregnancy, chronic hypertension, history of thrombophilia, multiple pregnancies, obesity, anemia, and even severe stress (American College of Obstetrician and Gynecologist, 2013). So there is still the possibility of preeclampsia at a healthy reproductive age, depending on the health condition of each pregnant woman.

CONCLUSION

Maternal age greatly affects the health condition of the mother during pregnancy until postpartum later. Mothers younger than 20 years of age or over 35 years are more at risk of preeclampsia.

SUGGESTION

Preeclampsia brings multisystem disorder in mothers. Pregnant women who have risky age, better to more often check their pregnancy not only in midwives but also in obstetricians, to prevent complications during pregnancy until postpartum. Also for prevention, it's better for couples planning for pregnancy in healthy age which is 20-35 years old.

REFERENCES

American College of Obstetrician and Gynecologist. (2013). Hypertension in Pregnancy. *American College of Obstetrician and Gynecologist*.

Asmana, S. K., Syahredi, S., & Hilbertina, N. (2016). Hubungan Usia dan Paritas dengan Kejadian Preeklampsia Berat di Rumah Sakit Achmad Mochtar Bukittinggi Tahun 2012 - 2013. *Jurnal Kesehatan Andalas*, 5(3), 640–646. https://doi.org/10.25077/jka.v5i3.591

Dielsa, M. F. (2020). Hubungan Usia dan Status Gravida Ibu dengan Kejadian Preeklampsia di RSI Ibnu Sina Simpang Ampek Pasaman Barat. *Jurnal Bidan*

Komunitas, *3*(2), 80–85. https://doi.org/10.33085/jbk.v3i2.4615

Hasanah, M., Rahayu, D. E., & Rahmawati, R. S. N. (2020). Huungan Kualitas Tidur Ibu Hamil dengan Kejadian Preeklampsi di RSUD Gambiran Kota Kediri. *Repository Poltekkes Kemenkes Malang*.

Kemenkes RI. (2015). *Profil Kesehatan Indonesia 2014*. https://pusdatin.kemkes.go.id/resources/download/pusdatin/profil-kesehatan-indonesia/profil-kesehatan-indonesia-2014.pdf

Kusumawati, W., & Mirawati, I. (2019). Hubungan Usia Ibu Bersalin dengan Kejadian Preeklamsi (Di RS Aura Syifa Kabupaten Kediri Bulan Maret Tahun 2016). *JURNAL KEBIDANAN*, *7*(1), 63–70. https://doi.org/10.35890/jkdh.v7i1.28

Lowdermilk, D., Perry, S., & Cashion, M. C. (2013). *Keperawatan Maternitas*. Elsevier.

Marniati, Rahmi, N., & Djokosujono, K. (2016). Analisis Hubungan Usia, Status Gravida dan Usia Kehamilan dengan Pre-Eklampsia pada Ibu Hamil di Rumah Sakit Umum dr. Zaionel Abidin Provinsi Aceh. *Journal of Healthcare Technology And Medicine*, *2*(1), 99–109.

Nursal, D. G. A., Tamela, P., & Fitrayeni. (2015). Faktor Risiko Kejadian Preeklampsia Pada Ibu Hamil Di Rsup Dr. M. Djamil Padang Tahun 2014. *Jurnal Kesehatan Masyarakat Andalas*, *10*(1), 38–44.

Prawirohardjo, S. (2016). *Ilmu Kebidanan* (T. Rachimhadhi & G. H. Wiknjosastro (eds.)). PT. Bina Pustaka Sarwono Prawirohardjo.

Puspasari, H. W., & Pawitaningtyas, I. (2020). Masalah Kesehatan Ibu Dan Anak Pada Pernikahan Usia Dini Di Beberapa Etnis Indonesia; Dampak Dan Pencegahannya. *Buletin Penelitian Sistem Kesehatan*, *23*(4), 275–283. https://doi.org/10.22435/hsr.v23i4.3672

Rahmatulah, I., & Kurniawan, N. U. (2019). *Menjalani Kehamilan & Persalinan yang Sehat*. Gramedia Pustaka Utama.

Saraswati, N., & Mardiana, M. (2016). Faktor Risiko Yang Berhubungan Dengan Kejadian Preeklampsia Pada Ibu Hamil (Studi Kasus Di Rsud Kabupaten Brebes Tahun 2014). *Unnes Journal of Public Health*, *5*(2), 90–99. https://doi.org/10.15294/ujph.v5i2.1010

Singal, N., Singal, K. K., Goyal, S., & Mohindru, R. (2015). Pregnancy after 35. *Bangladesh Journal of Medical Science*, *14*(3), 228–235. https://doi.org/10.3329/bjms.v14i3.8496

Situmorang, T. H., Damantalm, Y., Januarista, A., & Sukri. (2016). Faktor - Faktor Yang Berhubungan Dengan Kejadian Preeklampsia Pada Ibu Hamil Di Poli Kia Rsu Anutapura Palu. *Healthy Tadulako Journal*, *2*(1), 34–44.