DOI: 10.30651/jqm.v9i01.24220

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Research Article

Relationship between Age and Parity with Late Onset Severe Preeclampsia at PKU Muhammadiyah Surabaya Hospital

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ARTICLE INFO

Submitted : 10 th October 2024
Accepted : 31st December 2024
Published : 25th January 2025

Keywords:
Late-onset severe preeclampsia, Age, Parity

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ABSTRACT

Maternal and fetal mortality is 31.15% due to undetected preeclampsia leading to eclampsia. Pre-occurrence of eclampsia is often characterized by severe preeclampsia symptoms such as increased blood pressure, and proteinuria, furthermore, preeclampsia is also divided into 2 types, based on the time of symptom onset, in early-onset type preeclampsia appears at <34 weeks of gestation while for late-onset appears at >34 weeks of gestation. Extreme age and multigravida parity are risk factors for severe preeclampsia. This study aims to determine the relationship between age and parity with late-onset severe preeclampsia. This study used a cross-sectional study design, sampling method used nonprobability sampling techniques with observational analysis on pregnant women diagnosed with preeclampsia at PKU Muhammadiyah Surabaya Hospital for January 2022 - November 2023. The data collection instrument used medical record data, which was analyzed using Chi-Square. In the analysis obtained for the relationship between age and preeclampsia, the large p-value is 0.16 <0.05. The relationship of parity with preeclampsia is 0.004 < 0.05, thus proving a relationship between age and parity with late-onset severe preeclampsia at PKU Muhammadiyah Surabaya Hospital. In conclusion, there is a relationship between age and parity with late-onset severe preeclampsia at PKU Muhammadiyah Surabaya Hospital.

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INTRODUCTION

Severe preeclampsia is one of the most common causes of maternal and child mortality. According to WHO data, it is estimated that the incidence of preeclampsia is higher in developing countries than in developed countries. The population rate of mothers experiencing preeclampsia in developed countries is 1.3% - 6%. This number is less than the incidence in developing countries which is 1.8% - 18% (Khan et al., 2022). The incidence rate of preeclampsia in Indonesia, especially in the East Java region in 2020, was 128.273 per year, or 5.3% of all pregnancies.

Preeclampsia is a condition in which pregnant women experience placental dysfunction and a systemic inflammatory response to endothelial activation and coagulation (Ramos et al., 2017). Signs of severe preeclampsia include blood pressure in patients over 140 mmHg, which is usually accompanied by urinary protein (Insani et al., 2020; Lalenoh, 2018). Severe preeclampsia is divided into two, namely severe preeclampsia with early onset and severe preeclampsia with late onset. Preeclampsia with early onset occurs at <34 weeks of gestation. Meanwhile, preeclampsia in late-onset occurs at a gestational age of more than ≥34 weeks (Johariyah et al., 2020; Sulistyowati, 2017; Tutik Ekasari & Natalia, 2019).

In other studies, preeclampsia is described as a pregnancy condition that experiences placental dysfunction and causes an increase in blood pressure in pregnant women (Rana et al., 2019). According to (Suyuthi, 2020) Preeclampsia is defined as a specific condition in pregnancy characterized by dysfunction of the placenta and a maternal response that causes systemic inflammation with endothelial activation and coagulation. The diagnosis can be made through hypertension caused by pregnancy or accompanied by other organ system disorders at a gestational age above 20 weeks (Aneman et al., 2020). Preeclampsia is often defined by hypertension and proteinuria, which occurs during pregnancy (Suyuthi, 2020).

Preeclampsia itself still has no clear cause, but several risk factors cause preeclampsia such as the pregnant woman's age. This is important due to its involvement in the increase and decrease of organ function, especially during pregnancy. Thus, the author wants to know the relationship between age and parity with severe preeclampsia of the late-onset type (Dinkes Jawa Timur, 2020).

METHOD

The research is quantitative with observational analysis, and a cross-sectional study design. The population in this study were pregnant women who came for prenatal care at PKU Muhammadiyah Surabaya Hospital in January 2023-November 2023. The ethics letter number is 1121/II.3.AU/FK/F/2023. The sample used was pregnant women diagnosed with preeclampsia who met the inclusion criteria, which is diagnosed as late-onset severe preeclampsia at PKU Muhammadiyah Surabaya Hospital. Nevertheless, the exclusion criteria are chronic hypertension, obesity, and metabolic diseases.

The sampling technique used was non-probability sampling. The variables used were severe preeclampsia as the dependent variable, with age and parity as independent variables. The sample size used in this study was 42, in which a comparison was then made between severe preeclampsia and mild preeclampsia with a ratio of 1:1, concluding the total sample as 84 samples. Data analysis was carried out using statistical calculations using Chi-square with a p-value <0.05 which showed a relationship between variables.

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RESULTS

Preeclampsia

In this study, the number of samples was analyzed to determine the number of pregnant women with severe preeclampsia and mild preeclampsia at PKU Muhammadiyah Surabaya Hospital.

The table describes PKU Muhammadiyah Surabaya Hospital patients who are divided into two types of preeclampsia, severe preeclampsia and mild preeclampsia. It revealed severe preeclampsia patients as 42 patients (50%) and mild preeclampsia patients as 42 as well (50%).

Table 1. Percentage of preeclampsia patient

Characteristics	(n = 82)	%
Severe preeclampsia	42	50%
Mild preeclampsia	42	50%

Table 2. Cross-tabulation results of age and preeclampsia characteristics

	Severe PE		Mild PE		Approximate Significance (P- value)	Contingency coefficient
	n	%	n	%		
Extreme age	17	20,2%	28	33,3%	0,016	0,254 (0,2-0,399)
Reproductive age	25	29,8%	14	16,7%		

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Table 3. Cross-tabulation results of parity and preeclampsia characteristics

	Severe PE		Mild PE		Approximate Significance (P- value)	Contingency coefficient
	n	%	n	%		
Primigravida	24	28,6 %	11	13,1 %	0,004	0,3 (0,2-0,399)
Multigravida	18	21,4 %	31	36,8 %		

Based on the table, there are 17 pregnant women of extreme age diagnosed with severe preeclampsia (20.2%), while pregnant women of reproductive age diagnosed with severe preeclampsia are 25 patients (29.8%). It showed pregnant women diagnosed with mild preeclampsia with extreme age were 28 patients (33.3%), and pregnant women with reproductive age were 14 people (16.7%). The p-value of 0.016 is considered to be p <0.05, proving the relationship between age and severe preeclampsia. The contingency coefficient or the value of the relationship was 0.254, meaning it has a weak relationship.

There were 24 severe preeclampsia patients (28.6%) who were primigravida, while 18 others were multigravida (21.4%). There were 11 primigravida mild preeclampsia patients (13.1%), and 31 multigravida mild preeclampsia patients (36.8%). A p-value of 0.004 was obtained, thus proving the relationship between parity and severe preeclampsia. The contingency coefficient between variables was 0.3 (0.2-0.399) which showed that the relationship between parity and severe preeclampsia is weak.

DISCUSSION

It was found that severe preeclampsia manifested as late-onset, thus, the researcher concluded that severe preeclampsia in PKU Muhammadiyah Surabaya Hospital occurs at more than 34 weeks of gestation. Late-onset preeclampsia tends to have a better prognosis than early onset, however, careful monitoring is required to prevent serious complications such as HELLP syndrome and eclampsia. Proper management, including monitoring of blood pressure and renal function, is essential. In addition, according to (Sulistyowati, 2017), most severe preeclampsia occurred in patients with late-onset severe preeclampsia compared to early onset. This is in line with research conducted by (Dewiyanti, 2022), showing that more severe preeclampsia patients manifest as late-onset than early onset at Umbu Rara Meha Waingapu Hospital.

There were 17 patients with severe preeclampsia of late-onset type with extreme age (20.2%) and 25 patients with optimal age (29.8%). The study found 28 patients with mild preeclampsia and extreme age (33.3%), while there were 14 patients with mild preeclampsia and reproductive age (16.7%) Thus, it can be concluded that severe preeclampsia occurs more at extreme age. This is in line with research conducted by (Mustofa et al., 2021) which took place at PKU Muhammadiyah Surabaya Hospital. The study showed that severe preeclampsia often occurred at extreme age in 37 patients (51.4%) while 35 patients had severe preeclampsia at optimal age (48.6%). Another study conducted by (Dasarie et al., 2023) at Kayuagung Hospital,

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found that 59 patients had severe preeclampsia with extreme age (62.8%) and 35 patients with optimal age (37.2%). However, this is not in line with research conducted (Hutahaean, 2022) at the Martua Sudarlis Primary Clinic in Medan with the results of 22 patients (73.3%) with preeclampsia at optimal age, with 8 patients in extreme age (26.7%).

In this study, using chi-square analysis, a value of p <0.05 or 0.016 was obtained. This shows a relationship between age and severe preeclampsia of late-onset type, with a relationship strength of 0.254 (0.2-0.399) demonstrating a weak relationship between age and severe preeclampsia.

It was found that there were 24 patients (28.6%) with late-onset severe preeclampsia with primigravida parity and 18 patients (21.4%) with multigravida parity. Furthermore, there were 11 people (13.1%) with late-onset mild preeclampsia with primigravida parity and 31 people (36.8%) with multigravida parity. The results of this study are in line with research conducted by (Dewiyanti, 2022), where most pregnant women who experienced severe preeclampsia were multigravida, specifically 80 patients, and only 33 primigravida patients.

After analytical data processing, the results obtained are a p-value of 0.004, which means the p-value <0.05, proving the relationship between parity and late onset severe preeclampsia at PKU Muhammadiayah Hospital with a relationship strength of 0.3 (0.2-0.399). This aligns with research conducted (Hutahaean, 2022) at Martua Sudarlis Primary Clinic Medan. The research conducted at the PKU Muhammadiyah Hospital in Surabaya, it was found that all preeclampsia patients were patients with late onset severe preeclampsia. Most of the ages of pregnant women with preeclampsia at the PKU Muhammadiyah Surabaya Hospital are of extreme age.

Based on the results of the research above, it is hoped that there will be further research related to these variables and paying attention to the sample size because at the research location, there are quite a few pregnant women diagnosed with severe preeclampsia in one year. Further research is needed on the relationship between age and parity with late-onset severe preeclampsia

CONCLUSION

There is an association between age and parity with late-onset severe preeclampsia at PKU Muhammadiyah Surabaya Hospital. The majority of mothers affected by severe preeclampsia are of the late-onset type. The majority of late-onset severe preeclampsia patients are patients with extreme age and most have had previous pregnancies or multigravida.

REFERENCES

Aneman, I., Pienaar, D., Suvakov, S., Simic, T. P., Garovic, V. D., & Mcclements, L. (2020). Mechanisms Of Key Innate Immune Cells In Early- And Late-Onset Preeclampsia. *Frontiers In Immunology*, *11*, 1864. Https://Doi.Org/10.3389/Fimmu.2020.01864

Dasarie, C. U., Hamid, S. A., & Sari, E. P. (2023). Hubungan Usia, Paritas, Dan Obesitas Dengan Kejadian Preeklamsia Di RSUD Kayuagung Tahun 2021. *Jurnal Ilmiah Universitas Batanghari Jambi*, *23*(1), 465. Https://Doi.Org/10.33087/Jiubj.V23i1.3178

Dewiyanti, K. (2022). *DETERMINAN KEJADIAN PREEKLAMPSIA BERAT PADA IBU HAMIL DI RSUD UMBU RARA MEHA WAINGAPU TAHUN 2020*. Poltekkes Kemenkes Yogyakarta.

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Dinkes Jawa Timur. (2020). Profil Kesehatan Provinsi Jawa Timur 2019. *Dinas Kesehatan Provinsi Jawa Timur*, 1–73. Www.Dinkesjatengprov.Go.Id

Hermawati, D. (2020). Hubungan Paritas Dan Usia Ibu Hamil Dengan Preeklampsia Di Rumah Sakit Kota Banda Aceh. *Idea Nursing Journal*, *11*(3), 62–69.

Hipni, R. (2019). Hubungan Paritas Dan Pendidikan Ibu Terhadap Kejadian Preeklampsia Di Rsud Idaman Banjarbaru. *Embrio*, *11*(1), 23–29. Https://Doi.Org/10.36456/Embrio.Vol11.No1.A1846

Hutahaean, N. (2022). Hubungan Umur Dan Paritas Ibu Bersalin Dengan Preeklamsia Di Klinik Pratama Martua Sudarlis Medan Tahun 2022. *Excellent Midwifery Journal*, *5*(2), 65–75.

Insani, U., Ns, S. K., & Kep, M. (2020). *Kebutuhan Keluarga Dalam Perawatan Ibu Hamil Dengan Preeklampsia*. Lembaga Chakra Brahmana Lentera.

Johariyah, J., Detty, S. N., & Widyawati, W. (2020). *Buku Panduan Bidan Waspada Preeklamsia*. Penerbit Almatera.

Khan, B., Allah Yar, R., Khakwani, A. Khan, Karim, S., & Arslan Ali, H. (2022). Preeclampsia Incidence And Its Maternal And Neonatal Outcomes With Associated Risk Factors. *Cureus*, *14*(11). Https://Doi.Org/10.7759/Cureus.31143

Lalenoh, D. C. (2018). *Preeklampsia Berat Dan Eklampsia: Tatalaksana Anestesia Perioperatif*. Deepublish.

Ramos, J. G. L., Sass, N., & Costa, S. M. H. (2017). Preeclampsia: Definitions Of Hypertensive States During Pregnancy Pathophysiological Foundations. *Uptodate*, *39*, 496–512. Https://Pubmed.Ncbi.Nlm.Nih.Gov/28793357/

Rana, S., Lemoine, E., Granger, J., & Karumanchi, S. A. (2019). Preeclampsia: Pathophysiology, Challenges, And Perspectives. *Circulation Research*, *124*(7), 1094–1112. Https://Doi.Org/10.1161/CIRCRESAHA.118.313276

Sulistyowati, S. (2017). Early And Late Onset Preeclamsia: What Did Really Matter? *Journal Of Gynecology And Womens Health*, *5*(4), 7–9. Https://Doi.Org/10.19080/Jgwh.2017.05.555670

Transyah, C. H. (2018). Hubungan Umur Dan Paritas Ibu Bersalin Dengan Kejadian Pre-Eklampsia. *Human Care Journal*, *3*(1). Https://Doi.Org/10.32883/Hcj.V3i1.100

Tutik Ekasari, S. S. T., & Natalia, M. S. (2019). *Deteksi Dini Preeklamsi Dengan Antenatal Care*. Yayasan Ahmar Cendekia Indonesia.

Yang, Y., Le Ray, I., Zhu, J., Zhang, J., Hua, J., & Reilly, M. (2021). Preeclampsia Prevalence, Risk Factors, And Pregnancy Outcomes In Sweden And China. *JAMA Network Open*, *4*(5), 1–14. Https://Doi.Org/10.1001/Jamanetworkopen.2021.8401