International Journal of Science and Research (IJSR)
ISSN (Online): 2319-7064
Index Copernicus Value (2016): 79.57 | Impact Factor (2017): 7.296

The Characteristics of Pregnant Patients Suffering from Preeclampsiaat Regional Public Hospital of Mataram City on July 2017 - December 2017 Period

Alisza Novrita Sari

Islamic University of Indonesia, Yogyakarta, Indonesia

Abstract: ***The aims of this research were: 1) to know the rate of preeclampsia and severe preeclampsia, 2) to know the characteristics of preeclampsia sufferers, 3) to know the outcomes of babies born to woman suffering from preeclampsia. This was a retrospective descriptive research using secondary data from medical records. This research was conducted at the Department/ Functional Medical Staff of Obstetrics Gynecology at Regional Public Hospital of Mataram City. The research was conducted from July 2017 to December 2017. The population of the research was all patients at Regional Public Hospital of Mataram City included in the diagnostic criteria of preeclampsia in accordance with National High Blood Pressure Education Program (NHBEP) 2000. The data were selected based on inclusion and exclusion criteria. The number of the sample was 85 people obtained by the total sampling method in which it took all patients included in the diagnostic criteria of preeclampsia and met the inclusion and exclusion criteria. Based on the findings of this research, it showed that in the cases of hypertension in pregnancy, from 85 cases (3.8%), there were no maternal deaths found. From its distribution, the disease was dominated by severe preeclampsia (74.11%), maternal age>20-35 years (52.94%) and occurrence in late onset (82.36%). The number of pulmonary edema cases, due to complications of preeclampsia was 26 cases (30.59%), no complications was 52 cases (61.17%) and Acute Kidney Injury (AKI) cases was 7 cases (8.23%) during month period July 2017 - December 2017.***

Keywords: preeclampsia, hypertension, pulmonary edema, acute kidney injury

1. Introduction

Every year around the world, ten million women experience preeclampsia. Around the world, about 76,000 pregnant women die each year due to preeclampsia and other hypertensive disorders in pregnancy. In addition, the number of babies who die from this disorder is about 500,000 per year. Preeclampsia and its association with hypertensive disorders in pregnancy affect 5-8% of all births in the United States. Incidence rates for preeclampsia in the United States, Canada, and Western Europe range from 2-5%. In developing countries, the prevalence of preeclampsia and eclampsia ranges from 4% to 18% of all pregnancies in some parts of Africa. In Latin America, preeclampsia is the first cause of maternal death. High morbidity and mortality rates cause this disease to become a health problem in the society. The incidence of hypertension in pregnant women in Indonesia in 2007 was 12.7% (Sirait, 2012). A review of the World Health Organization (WHO) shows that 16% mortality rate in advanced countries is caused by hypertension (Khan et al., 2006). In developing countries like India, preeclampsia accounts for 24% of the proportion of maternal mortality (Singhai et al., 2009).

In Indonesia, according to Indonesian Health Demography Survey (SDKI) in 2009, Maternal Mortality Rate (AKI) was high enough; it was 390 per 100,000 of birthrate. Preeclampsia is considered to be a public health problem when the Case Fatality Rate (CFR) of Preeclampsia reaches 1.4% to 1.8%. The cause of preeclampsia is not known until now because it is not only caused by one but several factors. In addition, the number of the possibility of preeclampsia will lead to complications that may end in death, (Rizk et al., 1996). However, it is better to detect preeclampsia as early as possible through regular antenatal from the first trimester to the third trimester in order to prevent preeclampsia from becoming more severe. The predisposing factors of preeclampsia and eclampsia include primigravida, primipaternity, hyperplacentosis, extreme age, history of preeclampsia and eclampsia in previous pregnancies, family history of preeclampsia, antiphospholipid syndrome, obesity, and previous history of chronic disease (Sreenivas et al., 2014). Untreated preeclampsia may lead to complications of the fetus and mother (Motwani and Mehta, 1989). Complications of the fetus may be in the form of asphyxia, low birth weight, or premature preterm infant delivery. The high rates of maternal and infant morbidity and mortality caused by preeclampsia drew the attention of researchers to know the incidence and characteristics of preeclampsia, (Sciscione et al., 2003).

Based on the above information, researchers interested to find out the characteristics of pregnant women suffering from preeclampsia. Descriptive research and analysis of preeclampsia were conducted at Regional Public Hospital of Mataram City. By obtaining the findings of this research on the characteristics of pregnant women suffering from preeclampsia, it is expected to provide information so that prevention, appropriate diagnosis, intervention and treatment can be performed as early as possible, and reduce mortality rates due to preeclampsia. Based on the background of the research, the formulation of the research problems are: 1) what is the rate of preeclampsia and severe preeclampsia at Regional Public Hospital of Mataram City?, 2) how are the characteristics of preeclampsia sufferers at Regional Public Hospital of Mataram City?, 3) how are the outcomes of the babies born to woman suffering from preeclampsia in RSUD Kota Mataram?.The aims of this research were: 1) to know the rate of preeclampsia and severe preeclampsia, 2) to know the characteristics of preeclampsia sufferers, 3) to know the outcomes of babies born to woman suffering from preeclampsia at Regional Public Hospital of Mataram City.

2. Research Method

This was a retrospective descriptive research using secondary data from medical records. This research was conducted at the Department/ Functional Medical Staff of Obstetrics Gynecology at Regional Public Hospital of Mataram City. The research was conducted from July 2017 to December 2017. The population of the research was all patients at Regional Public Hospital of Mataram City included in the diagnostic criteria of preeclampsia in accordance with National High Blood Pressure Education Program (NHBEP) 2000. The data were selected based on inclusion and exclusion criteria. The number of the sample was 85 people obtained by the total sampling method in which it took all patients of Regional Public Hospital of Mataram City included in the diagnostic criteria of preeclampsia from July 2017 to December 2017 and met the inclusion and exclusion criteria.

3. Results

From a descriptive retrospective study of data in at Regional Public Hospital of Mataram City, we obtained 85 cases (3.8%) of hypertension in pregnancy from the total of 2228 baby deliveries at Regional Public Hospital of Mataram City from July 2017 - December 2017 period. There was no maternal mortality caused by hypertension in pregnancy.

Table 1: The Distribution of Preeclampsia and Eclampsia by its Classification

No	Case	Jul	Aug	Sep	Oct	Nov	Dec	N	Percentage
1	PE	4	4	5	5	6	4	28	32.94%
2	SPE	11	8	10	9	9	10	57	67.05%
Total		15	12	15	14	15	14	85	100

From Table 1, in the distribution hypertension cases in pregnancy, according to the classification, there were 57 cases (67.05%) in severe preeclampsia and 28 cases in preeclampsia (32.94%). Severe preeclampsia became the majority of preeclampsia cases at Regional Public Hospital of Mataram City.

Table 2: The Distribution of Preeclampsia and Eclampsia by Maternal Age Group

No	Age	Total	Percentage
1	< 20 years	11	12.94%
2	20-35 years	45	52.94%
3	> 35 years	29	34.11%
Total		85	100

From Table 2, in the maternal age of preeclampsia cases at Regional Public Hospital of Mataram City, the maternal age of 20-35 years dominates in about 45 cases (52.94%). This research conducted a grouping of maternal age, i.e. age ≥ 35 years which was one category of high-risk pregnancy. From the table, the ≥ 35 years age distribution was found only in 29 cases (34.11%).

Table 3: The Distribution of Preeclampsia and Eclampsia by Age of Pregnancy Group

No	Age	Total	Percentage
1	< 34 week	10	10.58%
2	34 - < 37 week	25	28.23%
3	>37 week	50	58.82%
Total		85	100

From Table 3, in the distribution of hypertension cases in pregnancy, based on preeclampsia and eclampsia by the classification of the age of pregnancy, there were 507 cases (58.82%) for severe preeclampsia at 37 weeks of pregnancy. The second position was 34 - < 37 weeks of pregnancy which was in 258 cases (28.23%).

Table 4: The Distribution of Preeclampsia and Eclampsia by Early Onset or Late Onset Groups

No	Onset	Total	Percentage
1	Early Onset (<34 week)	15	17.64%
2	Late Onset (>34 week)	70	82.36%
Total		85	100

From Table 4, the distribution of preeclampsia and eclampsia by the Early Onset group was 15 cases (67.05%) and the Late Onset group was 70 cases (82.36%).

Table 5: The Distribution of Preeclampsia and Eclampsia by Mother's Occupation Group

No	Occupation	Total	Percentage
1	Housewife	75	88.24%
2	Career Woman	10	11.76%
Total		85	100

From Table 5, in the distribution of preeclampsia and eclampsia based on mother's occupation group, there were 75 cases (88.24%) in the housewife group and 10 cases (11.76%) in the career-woman group.

Table 6: Distribution of Preeclampsia and Eclampsia by the Type of Hypertension in Pregnancy

No	Type of Hypertension in Pregnancy	Total	Percentage
1	Chronic Hypertension	0	0%
2	Preeclampsia	22	25.88%
3	Severe preeclampsia	63	74.11%
4	Superimposed Eclampsia	0	0%
5	Eclampsia	0	0%
6	Impending Eclampsia	0	0%
	Total	85	100

From Table 6, in the distribution of preeclampsia and eclampsia by type of hypertension in pregnancy, there were 22 cases (25.88%) in the preeclampsia group, 63 cases (74.11%) in the severe preeclampsia group, and no cases were found in the other groups.

Table 7: Distribution of Preeclampsia and Eclampsia by its Complications

No	Complications	Total	Percentage
1	Pulmonary edema	26	30.59%
2	Maternal Mortality Rate	7	8.23%
3	No Complications	52	61.17%
.	Total	85	100

From Table 7, in the distribution of preeclampsia and eclampsia by its complications, there were 26 cases (30.59%) in the pulmonary edema group, 7 cases (8.23%) in the Maternal Mortality Rate group and 52 cases (61.17%) in the no-complications group.

Table 8: Distribution of Preeclampsia and Eclampsia by the Outcomes of Infant Weight

No	Infant Weight	Total	Percentage
1	Very low birth weight	0	0%
2	Low birth weight	30	34.12%
3	Normal birth weight	55	65.88%
	Total	85	100

From table 8, in the distribution of preeclampsia and eclampsia by the outcomes of infant weight, there were 30 cases (34.12%) in the low birth weight group, 55 cases (65.88%) in the normal birth weight group, and no cases in the very low birth weight group.

Table 9: The Distribution of Preeclampsia and Eclampsia by the Outcomes of Infant Apgar Scores

No	Apgar Score	Total	Percentage
1	No asphyxia	50	58.82%
2	Moderate asphyxia	30	35.29%
3	Severe asphyxia	5	5.88%
	Total	85	100

From table 9, in the distribution of preeclampsia and eclampsia by the outcomes of infant Apgar scores, there were 50 cases (58.82%) in no asphyxia group, 30 cases (35.29%) in the moderate asphyxia group and 5 cases (5.85%) in the severe asphyxia group.

4. Discussion

Hypertension in pregnancy is one of the major factors of maternal morbidity and mortality, especially in developing countries (Ghulmiyyah and Sibai, 2012). In this research, there were 85 cases of hypertension in pregnancy or 3.8% of the total baby deliveries at Regional Public Hospital of Mataram City during July 2017 - December 2017 period. Several reports from other tertiary hospitals in Indonesia also provided fewer proportions such as Hasan Sadikin Hospital by 13% (in 1996 - 1999) and Moh Hoesin Hospital of Palembang by 12.7% of 3058 baby deliveries in 2009 (Dianty et al., 2012). In developed countries, the proportion of hypertension in pregnancy also increased by 6.72% in 1998 and 8.34% in 2006 (Kuklina et al., 2009).

No rates of maternal deaths were found in this case. In developing countries like India, preeclampsia and eclampsia account for 24% of maternal deaths (Singhai et al., 2009). WHO conducted a review of maternal mortality due to hypertension in pregnancy in developed countries with 12.3% yield in the United States between 1998 and 2005 and 10% in France in 2003-2007 (Cunningham et al., 2014). The differences in incidence and mortality in developing and developed countries may result from genetic, racial, socioeconomic, screening skill, prevention and management of this disease to reduce morbidity and mortality.

In this research, in the distribution of preeclampsia and eclampsia by type of hypertension in pregnancy, there were 22 cases (25.88%) in the preeclampsia group, 63 cases (74.11%). Similar findings were also obtained in Benoit & Rey's research of 749 patients where severe preeclampsia dominated the distribution by 62.7% (Benoit & Rey, 2011).

In this research, the highest maternal age distribution was age >20-35 years in that was found in 45 cases (52.94%), high risk age (35 years) was found in 29 cases (34.11%). Minire conducted a research with a 30-year-age limit and obtained a higher proportion at 30 years (68.6%) and a significance value of 0.004 (Minire et al., 2013). These results were in line with risk factors for preeclampsia in which young age is associated with risk factors for preeclampsia (Cunningham et al., 2014).

From the findings of the research, the characteristics of the patient suffering from preeclampsia, based on occupation, showed that it was dominated from housewife group by 75 people (88.24%) and the career woman by 10 people (11.76%). The research was supported by Djannah et al. (2010) which showed that preeclampsia was dominated by the housewife group, which amounted to 63.5% because the work was associated with physical activity and stress which was a risk factor for preeclampsia.

Based on the onset, case of pregnancy at age > 34 weeks or late onset was the most found in 70 cases (82.36%) compared to age of pregnancy of < 34 weeks or early onset which was found in 15 cases (17.64%). It showed the similarity of the findings with severe preeclampsia case studies in Dr. Mohammad Hoesin Regional Public Hospital Palembang in 1992-1994 period and cases of eclampsia in 2000-2002 periods (Adriaansz et al., 1995; Firmansyah, 2002). The findings were also similar to the research conducted in Public Hospital of Ulin Banjarmasin in 1995-1999 periods, whereas severe preeclampsia and eclampsia occurred at 37 weeks (70.91%) (Harson et al., 2003).

In the case of hypertension in pregnancy, the outcome of infant who die was 2.35% in 5 cases (5.88%) with severe asphyxia (Apgar score 1-3), moderate asphyxia in 30 cases (35.29%) and without asphyxia in 50 cases (58.82%). A research by Sibai showed 12 cases of IUFD from 39 baby deliveries (30.8%). Apgar score below 4 also occurred in 51.8% of cases (Sibai et al., 1987). O'Dwyer's research also found 9 cases (21%) of perinatal deaths in the same cases that were largely due to severe prematurity (O'Dwyer et al., 2014). The condition of preeclampsia alone causes early termination ≥ 34 weeks. In case of severe complications such as pulmonary edema, the termination will be done immediately regardless of the condition of the fetus by prioritizing the stabilization of maternal conditions (ACOG, 2013). The presence of earlier termination will result in a fetus with heavy prematurity. The condition of hypoxia due to pulmonary edema in cases of preeclampsia which was often followed by decreased uteroplacental circulation will further aggravate the fetal condition that may lead to IUFD and increase perinatal morbidity and mortality.

Based on the outcomes of infant weight born with hypertension in pregnancy, there were no cases in the very

low birth weight baby (0%),30 cases (34.12%) in the low birth weight baby , and 55 cases (65.88%) in the normal birth weight baby.

5. Conclusion

From the findings of this research, it can be concluded that the number of cases of hypertension in pregnancy in Regional Public Hospital of Mataram City during the period of July 2017 - December 2017 was 85 cases (3.8%). No maternal deaths were found. From the distribution, the disease was dominated by severe preeclampsia (74.11%), age > 20 - 35 years (52.94%) and Late Onset (82.36%). The number of cases of pulmonary edema due to complications of preeclampsia was 26 cases (30.59%), no-complications case was 52 cases (61.17%) and Acute Kidney Injury case (AKI) was 7 cases (8.23%) during July 2017 - December 2017.

The number of population of mother's occupation was housewife amounted to 75 people (88.24%) and the career-woman population was 10 people (11.76%). The infant death was 2.35% in 5 cases (5.88%) with severe asphyxia (Apgar score 1-3), moderate asphyxia in 30 cases (35.29%) and no asphyxia in 50 cases (58, 82%).In the outcomes of infant weight born with hypertension in pregnancy, there were no cases in the very low birth weight baby (0%), 30 cases (34.12%) in the low birth weight baby, and 55 cases (65.88%) in the normal birth weight baby.

6. Suggestions

Data collection and completion of medical record is necessarily to be improved for research purposes to accessibly check other variables to do the same research. The high incidence rate of preeclampsia and severe morbidity, namely pulmonary edema, needs evaluation and service planning at Regional Public Hospital of Mataram City. From the characteristic data, both descriptive and analysis, they can be used for evaluation and planning of safe motherhood program at population level.

7. Acknowledgement

The authors gratefully acknowledge this study have no financial conflicts of interest.

References

[1] ACOG, 2013. *Hypertension in pregnancy*. Washington DC: American College of Obstetricians and Gynecologists.
[2] Adriaansz, G., dkk. (1995). *Tinjauan preeklampsia berat di RSUP Palembang selama 3 Tahun (1992-1994)*, Palembang: Bagian/ SMF Obstetri dan Ginekologi FK Unsri Palembang.
[3] Benoit, J. & Rey, E., 2011. Preeclampsia: should plasma albumin level be a criterion for severity. *JOGC*, 33(9), pp.922-6.
[4] Cunningham, F. et al., 2014. *Williams Obstetrics*. 24th ed. New York: McGraw-Hill Education.
[5] Dianty, G., Pangemanan, W. & Azhari, H.Z., 2012. Multiple factor affecting length of hospital postpartal care in eclampsia patients. *Indones J Obstet Gynecol*, 36(2), pp.75-80.
[6] Djannah, Sitti, Ika SA, 2010. Gambaran Epidemiologi Kejadian Preeklampsia di RSU Muhammadiyah Yogyakarta tahun 2001-2009. *Jurnal, Buletin Penelitian Sistem Kesehatan*, Oktober 2010, vol.13, no.4, hal:378-385
[7] Firmansyah, dkk. (2003). Eklampsia di RS Perjan Dr. Mohammad Hoesin Palembang selama periode 1 Januari 2000-31 Desember 2002, *Kumpulan Makalah Ilmiah KOGI XII Yogyakarta*, Palembang: Perkumpulan Obstetri dan Ginekologi Cabang Palembang.
[8] Ghulmiyyah, L. & Sibai, B., 2012. Maternal mortality drom preeclampsia/eclampsia. *Semin Perinatol*, 36, pp.56-9.
[9] Harson, T., dkk. (2003). *Tinjauan preeklampsia berat/eklampsia di Rumah Sakit Umum Ulin Banjarmasin 1995-1999*, Palembang: Perkumpulan Obstetri dan Ginekologi Cabang Palembang.
[10] Khan, K. et al., 2006. WHO analysis on causes of maternal death: a systematic review. *Lancet*, 367, pp.1066-74.
[11] Kuklina, E., Ayala, C. & WM, C., 2009. Hypertensive disorders and severe obstetric morbidity in the United States. *Obstet Gynecol*, 113(6), pp.1299-306.
[12] Minire, A., Mirton, M., Lauren, M. & Aferdita, M., 2013. Maternal complications of preeclampsia. *Med Arh*, 67(5), pp.339-41.
[13] Motwani, M.S.S. & Mehta, A., 1989. Pulmonary edema in severe preeclampsia (a case report). *J Postgrad Med*, 35(3), pp.183-5.
[14] O'Dwyer, S., Gupta, M. & J, A., 2014. Pulmonary edema in pregnancy and the puerperium - A review of 53 cases. *Arch Dis Child Fetal Neonatal*, 99(A 126).
[15] Rizk, N. et al., 1996. Obstetrical complications in pulmonary and critical care medicine. *CHEST*, 110(3), pp.791-909.
[16] Sciscione, A. et al., 2003. Acute pulmonary edema in pregnancy. *Obstet Gynecol*, 101(3), pp.511-5.
[17] Sibai, B., Mabie, B., Harvey, C. & Gonzalez, A., 1987. Pulmonary edema in severe preeclampsia-eclampsia: Analysis of thirty-seven consecutive cases. *AJOG*, 156(5), pp.1174-9.
[18] Singhai, S., Deepika, Anshu & Nanda, S., 2009. Maternal and perinatal outcome in severe pre-eclampsia and eclampsia. *JSAFOG*, 1(3), pp.25-8.
[19] Sirait, A., 2012. Prevalensi hipertensi pada kehamilan di Indonesia dan berbagai faktor yang berhubungan (Riset Kesehatan Dasar 2007). *Buletin Penelitian Sistem Kesehatan*, 15(2), pp.103-9.
[20] Sreenivas, S., Beevi, N. & Devi, U., 2014. Clinical Characteristics and Outcome of Obstetric Patients Who Required Mechanical Ventilation in a Tertiary Care Hospital in North Kerala. *Indian Journal of Clinical Practice*, 25(6), pp.552-56.

Author Profile

Author has graduated from Medical Faculty, Universitas Islam Indonesia, Yogyakarta. The academic and professional degree obtained by Author is General Practitioner. Author has been experienced for 1 year as internship doctor in Balangan Hospital, South Kalimantan. Now, author is a general practitioner in Mataram City's Hospital.