ORIGINAL ARTICLE

Eclampsia as the leading cause of maternal death at Prof. dr. R.D. Kandou Hospital, Manado, Indonesia

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ABSTRACT

Objectives: To determine the characteristics of maternal deaths at Prof. dr. R.D. Kandou Hospital, Manado, Indonesia, from January 1 to December 31, 2019.
Materials and Methods: This was a retrospective descriptive study. Data were taken from the patient's medical record at Prof. dr. R.D. Kandou Hospital, Manado, in the period of January 1, to December 31, 2019.
Results: From January 1 to December 31, 2019 in Prof. dr. R.D. Kandou Hospital, Manado, there were1.215 single live births, with maternal mortality of 22 cases. In the distribution of characteristics based on age, most patients had age range of 20-34 years with a total of 15 patients (68.18%) and parity 2 - 4 with a total of 21 patients (95,45%), Antenatal Care (ANC) of 1 – 3 times visit in a total of 11 cases (50%), and most came from outside the city of Manado with a total of 12 patients (54.54%). The most common cause of maternal death was due to eclampsia, comprising 8 cases (36.36%).
Conclusion: Maternal death cases in Obstetrics and Gynecology Department of Prof. dr. R.D. Kandou Hospital, Manado, Indonesia, in 2019 reached 22 cases per 1.215 live births. Eclampsia was still the leading cause of maternal death.

Keywords: maternal mortality rate, maternal death, eclampsia

ABSTRAK

Tujuan: Mengetahui karakteristik kematian maternal di Bagian Obstetri dan Ginekologi RSUP Prof. dr. R.D. Kandou Manado, Indonesia, 1 Januari – 31 Desember 2019.
Bahan dan Metode: Deskriptif retrospektif. Data diambil dari rekam medik di Bagian Obstetri dan Ginekologi RSUP Prof. dr. R.D. Kandou Manado selama 1 Januari – 31 Desember 2019.
Hasil: Terdapat 22 kasus kematian maternal dari 1.215 kelahiran hidup tunggal pada periode 1 Januari – 31 Desember 2019 di RSUP Prof. dr. R.D. Kandou Manado. Usia 20 – 34 tahun memiliki persentase terbanyak dengan jumlah 15 kasus (68.18%), paritas 2 – 4 dengan jumlah 12 kasus (54.54%), riwayat Antenatal Care (ANC) terbanyak 1 – 3 kali dengan jumlah 11 kasus (50%) dan terbanyak berasal dari luar kota Manado dengan jumlah 12 kasus (54.54%). Penyebab kematian maternal terbanyak disebabkan karena eklampsia dengan jumlah 8 kasus (36.36%).
Simpulan: Kasus kematian maternal di Bagian Obstetri dan Ginekologi RSUP Prof. dr. R.D. Kandou Manado tahun 2019 mencapai 22 kasus per 1.215 kelahiran hidup. Eklampsia masih merupakan penyebab terbanyak kematian maternal.

Kata kunci: angka kematian ibu, kematian maternal, eklampsia

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INTRODUCTION

Maternal mortality is one indicator to observe the progress of a country's health, specifically in association with maternal and children health problems.[1] Maternal mortality may be categorized into proximate determinants, intermediate determinants, and contextual determinants. Proximate determinants are directly associated with maternal mortality, namely obstetrics disorders; meanwhile, intermediate determinants are associated with health factors, for instance, maternal health, maternal reproductive status, access to healthcare facilities, and healthcare facilities utilization behaviors. In addition to those determinants, contextual determinants are those associated with demographical and sociocultural factors. The attempts to decrease maternal death are accomplished through obstetrics complication management with providing standardized coverage and definitive treatments by a competent healthcare worker in primary and referral healthcare facilities.[2,3]

From the year 1990 to 2015, reducing the Maternal Mortality Rate (MMR) has been the fifth goal of the Millennium Development Goals (MDGs). With Sustainable Development Goals (SDGs), World Health Organization (WHO) has aimed to reduce global MMR as low as 70 cases out of 100.000 live birth in 2030.[4] According to Survei Antar Sensus (SUPAS), in 2015, Indonesia's MMR was as high as 305 cases out of 100.000 live birth. This number accounts for Indonesia as a country with the second-highest MMR in the South East Asia region, preceded by Laos with MMR as high as 357 cases out of 100.000 live birth.[5] This study aimed to investigate the characteristics of maternal deaths in Prof. dr. R.D Kandou Hospital, Manado, Indonesia, in 2019.

MATERIALS AND METHODS

This study was designed as a retrospective descriptive study. Data was taken from medical records of patients in Obstetrics and Gynecology Department at Prof dr. R.D. Kandou Hospital, Manado, Indonesia, dated from January 1 to December 31, 2019.

RESULTS AND DISCUSSION

According to the Obstetrics and Gynecology Department study at Prof. dr. R.D. Kandou Hospital, Manado, in January 1 to December 31, 2019 period, 1.215 cases of single live birth were registered, 22 cases of which were maternal death. Characteristics of maternal deaths are shown in the following tables.

Table 1. Characteristics of maternal deaths according to age and parity

Characteristics	N	%
Age		
< 20	2	9.09
20 – 34	15	68.18
≥ 35	5	22.73
Parity		
1	9	40.91
2 – 4	12	54.54
≥ 5	1	4.55
Total	22	100

Table 1 presents the highest number of patients were from 20 – 34 years of age group, comprising 15 patients (68.18%), whereas the highest parity ranged from 2 – 4, comprising 12 patients (54.54%). In contrast, <20 years old of age group and ≥ 5 parities has the lowest number of patients, in each amounting to 2 patients (9.09%) and 1 patient (4.55%).

Table 2. Antenatal care (ANC) number of visit

ANC Number of Visit	N	%
0	2	9,09
1 – 3 times	11	50
≥ 4 times	9	40.91
Total	22	100

Table 2 presents the number of visits to Antenatal Care (ANC) in which the highest number of visitations ranged from 1 – 3 times, amounting to 11 cases (50%).

Table 3. Distribution of referral origin in maternal mortality cases

Referral Origin	N	%
Manado City	10	45.46
Outside of Manado City	12	54.54
Total	22	100

Table 3 presents the highest number of patients which originated from outside of Manado City, comprising 12 patients (54.54%).

Table 4. Maternal mortality causes

Causes of Mortality	N	%
Hemorrhage	6	27.27
Sepsis	6	27.27
Eclampsia	8	36.36
Amniotic Fluid Embolism	1	4.55
Heart Failure	1	4.55
Total	22	100

Table 4 presents hospital admission cases in which the most frequent cause of maternal mortality was eclampsia, amounting to 8 cases (36.36%). Sepsis and hemorrhage each accounted for 6 cases (27.27%), respectively, whereas amniotic fluid embolism and heart failure were each responsible for 1 case (4.55%). Whereas, total maternal mortality cases at Prof. dr. R.D. Kandou General Hospital Manado was up to 22 cases out of 1.215 live birth.

DISCUSSION

Based on research conducted at the Obstetrics and Gynecology Department of Prof. dr. R.D. Kandou, Hospital, Manado for January 1 to December 31, 2019 Table 1 presents the highest number of mortalities at the age of 20 – 34 years old, consisting of 15 people (68.18%). This finding is in accordance with a study conducted by Blanc et al. in 2013 in a total of 38 countries, which stated that the 20 - 34 years of age group had the highest maternal mortality cases due to such age group being the most frequent age of women to give birth; therefore, preventive measures that are directed towards this age group to reduce the numbers of mortality would effectively be beneficial.[6]

In terms of parity, 2–4 parities accounted for the highest number of patients as high as 12 patients (54.54%); meanwhile, ≥ 5 parities held the least patient, which was only in 1 patient (4.54%). These findings were consistent with a study conducted by Aeni in 2013 and Zein in 2014 regarding risk factors for maternal death, which stated that there was no correlation between parity and mortality risk.[7,8] However, these results were inconsistent with 4T theory about pregnancy risk factors categorized as ‘too much', which explains that too many births contribute to maternal mortality. Based on this inconsistency, another potential cause that may not have been studied, namely the period between pregnancies, might potentially influence maternal mortality besides the number of parity.

Regarding the number of Antenatal Care (ANC) visits, 1–3 ANC visits held the highest number of maternal mortalities with 11 cases (50%). The World Health Organization (WHO) ANC recommendation uses the Four-visit focused ANC (FANC) model, which has been replaced by the 2016 WHO ANC model, namely 8 visits to improve the quality of ANC and reduce maternal and perinatal mortality. In 2016, WHO recommends ANC with a minimum of 8 visits, with the first visit accomplished within the first trimester (> 12 weeks), 2 visits within the second trimester (20-26 weeks), and 5 visits within the third trimester (30, 34, 36, 38, and 40 weeks).[9]

Based on the referral's origin, most of the admitted patients were from outside of Manado City, accounting for 12 patients (54.54%), compared to within the city that covered up to 10 patients (45.45%). The fact that Prof. dr. R.D. Kandou Hospital is a type A referral center hospital in North Sulawesi, Indonesia, might justify a large number of patients that originated from outside of Manado City. According to a study conducted by Laili in 2013, a well-established and well-planned obstetric referral system would reduce maternal mortality. This is due to the referral system being a part of health attempts that fall within the national health system's scope, aiming to improve maternal and children's welfare. This referral is associated with the patient's visit to the health center, in this matter, namely community health centers, doctors' practices, and hospitals. The implementation of referrals, in this matter, is the referral timing following operational standards, which may assist in the early management of obstetric cases. In addition, patients with poorly educated knowledge about their health condition or pregnancy risk factor may lead to negligent behavior towards the pregnancy and tend to have their pregnancy less likely to be checked. Economic burden and delayed management in healthcare facilities by healthcare workers may also appear as promoting factors that lead to an inability to maximally treat obstetrics cases.[10,11]

Based on maternal mortality causes, this study's results indicated that the most frequent maternal mortality was due to eclampsia, which was in 8 cases (36.36%). Sepsis and bleeding covered up to 6 cases (27.27%), respectively, whereas amniotic fluid embolism and heart failure covered up to 1 case (4.54%). This result was consistent with the preceding research at Prof. dr. R.D. Kandou Hospital regarding the cause of maternal mortality in 2013 - 2015, which found that eclampsia was the highest cause of maternal mortality.[12]

According to the research conducted by Ghulmiyyah in 2012, eclampsia increases the risk of maternal death in developing countries. High maternal mortality may occur, especially in patients who have had multiple seizures outside the hospital and those who did not undergo prenatal care. In addition, this high mortality rate can be attributed to the lack of resources and intensive care facilities needed to manage maternal complications of eclampsia. Pregnancy complications with eclampsia were also associated with increased maternal mortality, such as placental abruption, DIC, pulmonary edema, aspiration pneumonia, and cardiopulmonary arrest.[13] However, this finding was inconsistent with maternal mortality causes according to the data from the Indonesian Ministry of Health 2014, namely hemorrhage during the 2010 – 2013 period.[1]

In this study, 22 cases of maternal death out of 1215 single live births were recorded. The number of maternal mortality cases in 2019 has decreased by 24 cases compared with those in 2018. Overall maternal mortality may be caused by low public awareness towards pregnancy health, despite the fact that many factors remain to be considered regarding this matter.

The mortality that occurs is due to common indications as hemorrhage, eclampsia, abortion, and infection. However, other factors are also essential; for example, lack of women's empowerment, educational background, family socioeconomic factor, community environment, political settings, and policies are likewise influencing factors. Men are also expected to actively participate in all reproductive matter problems in a more responsible manner. Apart from medical matters, a high number of maternal mortalities may also result from gender inequality issues, cultural values, economic matters, and lack of men's attention towards pregnancy and childbirth. Therefore, perspectives that consider pregnancy as a natural occasion must be adjusted in a sociocultural way, that such adjustment might lead women to gain more consideration from society. An attempt to improve maternal care is required by the government, private sector, and society, especially men.[14,15]

CONCLUSION

Maternal death cases in Obstetrics and Gynecology Department of Prof dr. R.D. Kandou Hospital, Manado, Indonesia, in 2019 were as high as 22 cases out of 1.215 live birth cases. Eclampsia remained the most frequent cause responsible for maternal mortality cases.

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