

ORIGINAL ARTICLE:**Pre-referral management of patients with severe preeclampsia and eclampsia in a district hospital, Southeast Sulawesi, Indonesia****Daniel Yoseph Pardomuan^{1*}, Budi Prasetyo², Rizki Pranadyan²**¹Medika Utama Permata Hospital, Balikpapan, Indonesia, ²Social Obstetric Division, Department of Obstetrics and Gynecology, Faculty of Medicine, Universitas Airlangga, Dr. Soetomo Hospital, Surabaya, Indonesia**ABSTRACT**

Objective: This study aims to determine the enforcement of diagnosis, management and description of the referral system of PEB and eclampsia patients at Level I Health Facilities and South Konawe Hospital in January-December 2017

Materials and Methods: This study used an observational descriptive design, carried out in the Maternity Room of South Konawe Hospital on 1 January-31 December 2017. There were 47 cases of PEB/Eclampsia from 420 total cases. Most cases of PEB/Eclampsia in Konsel Hospital suffered by pregnant women aged > 35 years, as many as 27 cases (59%). age 21- 34 years, 15 (31%) and the lowest among women aged <20 years, as many as 5 cases (10%). Multigravida, which is 38 cases (81%) and 9 cases (19%) in primigravida. Pregnancy > 34 weeks is 46 cases (98%) and 1 case (2%) at <34 weeks gestation. There were 39 referral cases (83%) all of which were counseled and 8 non-referral cases (17%), where completeness of the tools, medicines and referral letters obtained 39 cases (100%) incomplete.

Results: The administration of antihypertensive drugs was given to 89% of cases, and MgSO₄ was not given to 100% of cases of PEB/Eclampsia referred to RSUD Konawe Selatan due to fear of officers in providing such therapy to PEB/Eclampsia patients. Examination of urine protein as a support for PEB/Eclampsia cases was recorded in 69% of referral cases at the Konawe Selatan General Hospital.

Conclusion: From the whole data, it was found that the pre-requisite conditions had not been fulfilled properly. Referral should be well prepared in order to achieve patient safety and decrease in MMR.

Keywords: Preeclampsia, Referral, South Konawe

ABSTRAK

Tujuan: Penelitian ini bertujuan untuk mengetahui penegakan diagnosa, tatalaksana serta gambaran sistem rujukan pasien PEB dan Eklampsia di Fasilitas Kesehatan Tingkat I dan RSUD Konawe Selatan bulan Januari- Desember 2017

Bahan dan Metode: Penelitian ini menggunakan desain deskriptif observasional, dilakukan di Kamar Bersalin RSUD Konawe Selatan tanggal 1 Januari–31 Desember 2017. Didapatkan 47 kasus PEB/ Eklampsia dari 420 total keseluruhan kasus. Kasus PEB/Eklampsia di RSUD Konsel terbanyak diderita oleh wanita hamil usia \geq 35 tahun, sebanyak 27 kasus (59%). usia 21–34 tahun, 15(31%) dan terendah pada wanita usia < 20 tahun, sebanyak 5 kasus (10%). Multigravida, yaitu 38 kasus (81%) dan 9 kasus (19%) pada primigravida. Usia kehamilan \geq 34 minggu yaitu 46 kasus (98%) dan 1 kasus (2%) pada usia kehamilan < 34 minggu. Didapatkan 39 kasus rujukan (83%) yang seluruhnya dilakukan konseling dan 8 kasus bukan rujukan (17%), dimana kelengkapan alat, obat-obatan maupun surat rujukan didapatkan 39 kasus (100%) tidak lengkap.

Hasil: Pemberian obat antihipertensi diberikan pada 89% kasus, dan MgSO₄ tidak diberikan pada 100% kasus PEB/ Eklampsia yang dirujuk ke RSUD Konawe Selatan yang disebabkan ketakutan petugas dalam memberikan terapi tersebut kepada pasien PEB/ Eklampsia. Pemeriksaan protein urin sebagai pemeriksaan penunjang untuk kasus PEB/ Eklampsia tercatat pada 69% kasus rujukan di RSUD Konawe Selatan.

Simpulan: Dari keseluruhan data didapatkan bahwa syarat prarujukan belum terpenuhi dengan baik. Sebaiknya rujukan dipersiapkan dengan baik guna tercapainya keselamatan pasien dan turunnya AKI.

Kata Kunci: Preeklampsia, Rujukan, Konawe Selatan

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INTRODUCTION

The most common causes of maternal death in Indonesia are direct obstetric disorders which consisted of hemorrhage (28%), SPE/eclampsia (24%), infection (11%) and indirect obstetric disorders such as obstetric trauma (5%) and others (11%) (WHO, 2007). Based on the 2010 perinatal maternal audit and the analysis result of the recapitulation review of maternal deaths, it was found that the proportion of maternal death causes consisted of direct obstetric disorders such as bleeding (30.23%) preeclampsia/eclampsia (23.7%), infection and amniotic fluid embolism, whilst indirect causes contributed 42.1% of maternal mortality, including heart disease (26.3%), pulmonary tuberculosis, malaria and hepatitis.¹

Maternal mortality rate (MMR) is one of the indicators used to determine the success of public health system. Based on the 2007 SDKI, Indonesia had succeeded in reducing MMR from 390/100,000 live births (1992) to 334/100,000 live births (1997). Subsequently it decreased to 228/100,000 live births (Indonesian Ministry of Health, 2008) however in 2012 MMR experienced an increase to 359/100,000 live births.²

Preeclampsia is responsible for 5-8% of pregnancy complications and remains as one of the top 3 causes of maternal morbidity and mortality globally. Data from the Preeclampsia Foundation states that there are 76,000 maternal deaths and 500,000 perinatal deaths due to preeclampsia each year worldwide.³ Therefore, strategy and policies are needed in the field of health services, especially the health services related to every mother who gives birth and the newborns with the approach of "delivery assistance by trained health personnel in adequate health facilities which is ready 24 hours a day". Maternity check-up as early as possible is important for pregnant women. The maternity check-ups monitor the health of a pregnant woman and the fetal growth and development, as well as conduct screening for preeclampsia.

Based on data acquired from Dinas Kesehatan Kabupaten Konawe Selatan, there were 4 cases of Maternal Mortality Rate (MMR) in 2017. Among those cases, 2 of them were caused by severe preeclampsia (SPE) or eclampsia, while the other 2 were caused by hemorrhage. South Konawe is located in the Province of Southeast Sulawesi and consists of 22 districts, 357 villages, and 10 kelurahan. The capital of South Konawe is Andoolo. The total surface area of South Konawe is 451,420 Ha which taken up to 11.83% of the surface area of Southeast Sulawesi. Analysis found that many factors influence the high MMR caused by SPE/eclampsia in South Konawe. Among those factors are the obstetrics services which is not yet maximal and late referrals.⁴ The objective of this

study was to identify the diagnostic method, management, and referral system for patients with severe preeclampsia and eclampsia in primary health facility and South Konawe General Hospital from January–December 2017.

MATERIALS AND METHODS

The design of this study was descriptive observational study. This study was conducted in the maternity room of South Konawe General Hospital from 1st of January–31st of December 2017. Population of this research is the patients treated at the maternity room of South Konawe General Hospital. Sample of the research is the patients with SPE and eclampsia treated at the labor room of South Konawe General Hospital.

The type of data used in this data is secondary data. Secondary data were obtained through literature studies obtained from the data and documents of the maternity room of South Konawe General Hospital, previous studies and various other sources.

RESULTS

Table 1. Characteristics of SPE/eclampsia patients in South Konawe General Hospital from 1st of January–31st of December 2017

	Total	%
Age		
15-20	5	10
21-34	15	31
≥35	27	59
Marital status		
Married	47	100
Unmarried	0	0
Parity		
Primigravida	9	19
Multigravida	38	81
Gestational age (weeks)		
<28	0	0
28-33	1	2
34-39	37	78
>40	9	20

Most cases of SPE/eclampsia in South Konawe General Hospital were suffered by pregnant women aged ≥35 years old, which was 27 cases (59%). Followed by patients in their productive age between 21–34 years old. The lowest cases found in the age group <20 years old. Other characteristic of SPE/eclampsia cases in South Konawe General Hospital is that these cases found mostly in women with multigravida (38 cases, 81%) and only 9 cases were found in women with primigravida

(19%). According to gestational age, cases of SPE/eclampsia in South Konawe General Hospital mostly found in gestational age ≥ 34 weeks (46 cases, 98%) whilst only 1 case of SPE/eclampsia found in women with gestational age < 34 weeks.

Pre-referral of SPE/eclampsia patients in South Konawe General Hospital

The number of referred cases of SPE/eclampsia in South Konawe General Hospital from January–December 2017 was 39 cases while 8 other cases were not referred. Based on referred cases data, 39 cases were referrals from primary health facilities in South Konawe District and 8 cases were non-referrals cases (patients came straight to

the hospital). Based on the success of patients counseling at primary health facilities in South Konawe District, out of 47 patients, 39 patients had successful counseling while 8 cases had unsuccessful counseling.

Judging from the completeness of the equipment during referral primary health facilities in South Konawe District, all 39 cases (100%) of had incomplete equipment. Meanwhile, medication in all cases (39 cases, 100%) was also found to be incomplete. Communication between primary health facility as the referring side and South Konawe General Hospital as receiving hospital were done in all of the cases (39 cases, 100%).

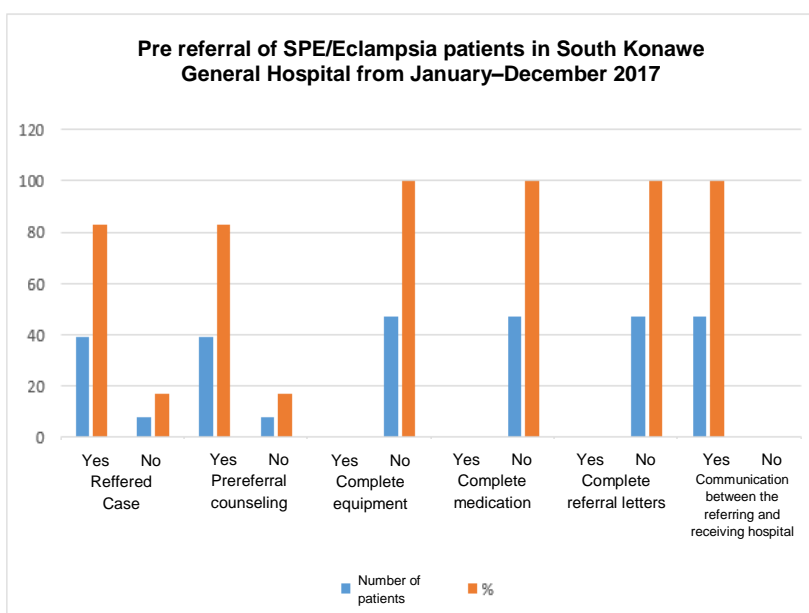


Figure 1. Referred cases of SPE/eclampsia in South Konawe General Hospital from January–December 2017

Table 2. The overall view on diagnosis and management of SPE/Eclampsia patients at primary health facility in South Konawe from January–December 2017

	Total	%
Diagnosed with SPE/eclampsia		
Yes	33	84
No	6	16
Urine protein examination		
Yes	27	69
No	12	31
Administration of anti-hypertensive agents		
Yes	35	89
No	4	11
Gestational age (weeks)		
Yes	0	0
No	39	100

Diagnosis and management of severe preeclampsia/eclampsia patients at primary health facilities in South Konawe

There were 33 cases of patients diagnosed with SPE/eclampsia at primary health facility in South Konawe, whilst the 6 other cases were not diagnosed. Anti-hypertensive agent administration in the cases of SPE/Eclampsia were found in 35 out of 39 referral cases. Meanwhile, none of the SPE/Eclampsia patients were given MgSO₄ therapy at primary health facility.

Out of 39 referral cases at South Konawe General Hospital from January–December 2017, 33 of them had a diagnosis of SPE/eclampsia unlike the 6 other cases. The inability to diagnose the 6 cases were due to the absence of urine protein examinations result as a consequence to unavailability of examination equipment at the Puskesmas. As for the administration of anti-hypertension, out of 39 referral cases from primary health facilities in South Konawe during the period of January–December 2017, 35 of them were given anti-hypertensive agents as instructed by the hospital while 4 cases were not given anti-hypertensive agents. Patients were still referred even if their blood pressure drops. Out of 39 cases of SPE/eclampsia referred from primary health facilities in South Konawe from January to December 2017, all 39 cases were not given MgSO₄ at primary health facilities in South Konawe.

DISCUSSION

In 2017, there were 4 cases of MMR in South Konawe District of which 2 cases were caused by SPE/Eclampsia and 2 others caused by hemorrhage. Many factors influenced the high MMR due to SPE/Eclampsia in South Konawe. Among them, the obstetric services were yet optimal and late to make referrals. South Konawe was a district located in the Province of Southeast Sulawesi and consisted of 22 districts, 357 villages, 10 Kelurahan, while the total population in 2017 was 286,433. South Konawe had 335 village midwives and 24 health centers in 2017 but only 8 Puskesmas made direct referrals to the South Konawe General Hospital, this was due to geographical constraints.

According to the characteristics of SPE/Eclampsia patients at South Konawe General Hospital from January to December 2017, 27 cases (59%) were pregnant women aged >35 years old, 15 cases (31%) were aged 21–34 years old, and 5 cases (10%) aged 15–20 years old. From the data obtained, there was a significant difference between pregnant women aged >35 and 21–34 years old who suffer from SPE/eclampsia. This was in accordance with several theories which stated that one of the risk factors for preeclampsia

was woman's age at the time of pregnancy. While pregnant women with young age and nulliparous history were more prone to preeclampsia, women with older age were more susceptible to chronic hypertension superimposed with preeclampsia.⁵ Based on the parity, cases of SPE/Eclampsia at the South Konawe General Hospital in January–December 2017 were pregnant women with multigravida history in 38 cases (81%) and primigravida history in 9 cases (19%).

This shows that cases of SPE/Eclampsia in South Konawe mostly occurred in multigravida women. This was probably because most women in South Konawe used pill and injection contraceptives. Preeclampsia was frequently found in nulliparous women and the risk reduced in multiparous women. However it had been reported that the protective effect of multiparity diminished if the women changed partner. Reduced risk of preeclampsia was found in later pregnancies of women with previous history of preeclampsia who changed partners. On the contrary, women without previous history of preeclampsia might develop preeclampsia if they changed partners. Hormonal contraceptive use also increased the risk of developing preeclampsia.⁶

It was previously reported that preeclampsia could arise at <34 weeks of gestational age, this type of preeclampsia was also called early-onset preeclampsia, meanwhile preeclampsia at >34 weeks of gestational age was called the late onset-preeclampsia. Based on the data obtained from South Konawe General Hospital, 46 cases (98%) of SPE/eclampsia occurred at gestational age >34 weeks (late onset-preeclampsia). Recently, it had been suggested that early and late onset preeclampsia had different pathophysiology. Early onset preeclampsia only occurred in 5-20% of all preeclampsia cases worldwide, however it showed rather more severe clinical manifestations compared to late onset preeclampsia. Characteristic of this type of preeclampsia might be inferred by inadequate trophoblastic invasion to the maternal spiral arteries while showing signs of fetal growth restriction. On other hand, late onset preeclampsia made up to 80% of all cases of preeclampsia worldwide. This type of preeclampsia was associated with normal fetal growth with no sign of growth restriction. Most of late onset preeclampsia occurred in pregnant women with risk factors similar to those of metabolic syndrome, such as diabetes, obesity, insulin resistance, and chronic hypertension which enabled antenatal screening.^{7,8}

Based on the referral data obtained from South Konawe General Hospital, out of 47 cases, 39 (83%) were referral cases while 8 others (17%) were not referral cases (patients came straight to the hospital). In addition, all SPE/eclampsia patients at the South Konawe General

Hospital had received prior counseling at primary health facilities regarding the pregnancy condition and the risks, but only 39 of them (83%) were successfully counseled to agree on referral to the South Konawe General Hospital. Meanwhile 8 other cases (17%) were unsuccessfully counseled because the patients claimed they were not feeling any complaints.

Communication between the referring health facility and South Konawe General Hospital as the receiving hospital was carried out in 100% of the cases (39 cases). However, referral letters, equipment and medications were found incomplete in 100% of the cases. Equipment was deemed complete by reviewing the vehicle used for referral, oxygen supplies, and infusion poles. Most patients were referred on private vehicles which were very different from ambulances which got equipped with medical devices such as oxygen cylinders, IV poles, and special bed for referring patients. Medications were deemed incomplete because of the unavailability of antihypertensive agent and anti-convulsants when the patients were referred. One of the reasons for that was the absence of ambulance when the patients were referred.

Through this it could be concluded that the referral system at primary health facilities in South Konawe was not running well because it failed to fulfill the referral requirements. This could lead to complications during the referral or at the receiving hospital.

The data obtained from South Konawe General Hospital showed that out of 39 cases of SPE/Eclampsia, only six (16%) were not diagnosed at primary health facilities. Urine protein examination was carried out in 27 cases (69%) of SPE/Eclampsia, antihypertensive was given in 35 cases (89%), and all 39 cases (100%) were not given the MgSO₄ therapy which was the main therapy for SPE/Eclampsia. From the obtained data it can be concluded that the absence of urine protein examination in some cases (31%) was the cause for undiagnosed SPE/Eclampsia, causing incorrect therapy to be given. Out of the SPE/Eclampsia referred patients, all of them were treatable and 23 cases had caesarean section delivery while 24 others had spontaneous delivery.

Through communication with health personnel working at primary health facilities during referral process, it became known that urine protein examination was available at every primary health facilities in South Konawe and always carried out for every pregnant woman in their second trimester. However the medical recording for this examination was underperformed and many health personnel left this out in the KIA book. MgSO₄ administration was not performed due to the fear of drug reactions and side effects by the personnel of

primary health facility. Even with the fact that some midwives had received PONED training before.

CONCLUSIONS

From January–December 2017, there were 47 cases of SPE/Eclampsia at South Konawe General Hospital in which 39 cases were referrals from primary health facilities in South Konawe district and 8 cases were not referral cases. The diagnosis and screening for SPE/Eclampsia patients in primary health facilities was reliable. Antihyper-tensive agents were given in 89% of the SPE/ eclampsia referred cases while MgSO₄ was not given in 100% of the cases. Urine protein examination as supporting examination for SPE/ Eclampsia was recorded in 69% of the referred cases at South Konawe General Hospital, while communication between primary health facilities and South Konawe General Hospital ran very well (100%). Overall data, the referral requirements had not been fulfilled properly. Referral should be well prepared in order to achieve patient safety and decrease MMR.

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