

Adolescence Eclampsia and Maternal Mortality within Sociocultural Problem in Indonesia: A Case Report

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Abstract

Introduction: Preeclampsia and eclampsia in adolescent pregnancy is closely related, especially in low-middle income countries. It becomes a public health issue not only in the present but also in the future due to potential complications and as a reflection of the social conditions of a country. This case aims to highlight adolescence eclampsia and current sociocultural and economic problem in Indonesia.

Case Report: A 15-year-old, 9-months primigravida (G1P0A0), was referred to our center due to eclamptic seizure. Blood pressure was 160/110 mmHg and cervical dilation is 4 cm with adequate pelvic diameter. After 4 hours, cervical dilation progressed to 6 cm but followed by infrequent fetal heartbeat and CTG reveals category III with late deceleration. Emergency C-section was performed and patient admitted to ICU for 5 days afterwards. However, she was deteriorated and passed away.

Conclusion: In addition to physiological immaturity, adolescence pregnancies often face sociocultural problems that lead to higher rates of hypertensive disorders of pregnancy in this population. Early recognition and knowledge of risk factors for preeclampsia are essential for good management, and a faster referral system will reduce maternal mortality.

Keywords: Adolescence Pregnancy, Eclampsia, Maternal Morbidity, Sociocultural Problem

Eklamsia pada Remaja dan Kematian Ibu dalam Masalah Sosial Budaya di Indonesia: Sebuah Laporan Kasus

Abstrak

Pendahuluan: Preeklamsia dan eklamsia pada kehamilan remaja sangat erat kaitannya, terutama di negara-negara berpenghasilan menengah ke bawah. Hal ini menjadi masalah kesehatan masyarakat tidak hanya di masa sekarang, tetapi juga di masa depan karena potensi komplikasi dan sebagai cerminan kondisi sosial suatu negara. Laporan kasus ini bertujuan untuk menyoroti eklamsia pada remaja dalam kaitannya dengan masalah sosial budaya dan ekonomi saat ini di Indonesia.

Laporan Kasus: Seorang perempuan berusia 15 tahun, primigravida 9 bulan (G1P0A0), dirujuk ke Rumah Sakit Hasan Sadikin, Bandung karena kejang eklamsia. Tekanan darah 160/110 mmHg dan dilatasi serviks 4cm dengan diameter panggul yang memadai. Setelah 4 jam, dilatasi serviks berkembang menjadi 6cm, tetapi diikuti oleh detak jantung janin yang jarang dan CTG menunjukkan kategori III dengan deselerasi lambat. Operasi caesar darurat dilakukan dan pasien dirawat di ICU selama 5 hari. Namun, keadaan pasien memburuk dan meninggal dunia.

Kesimpulan: Selain imaturitas fisiologis, kehamilan remaja sering menghadapi masalah sosiokultural yang menyebabkan tingginya angka hipertensi kehamilan pada populasi ini. Pengenalan dini dan pengetahuan tentang faktor risiko preeklamsia sangat penting untuk manajemen yang baik, dan sistem rujukan yang lebih cepat akan mengurangi angka kematian ibu.

Kata kunci: Kehamilan Remaja, Eklamsia, Kematian Ibu, Masalah Sosiokultural

Introduction

Preeclampsia is one of the leading causes of maternal and perinatal morbidity in the world. Preeclampsia also usually occurs in first-time pregnant adolescent women. Although prevention of preeclampsia has been attempted for many decades, effective intervention can only be achieved upon the full elucidation of the risk factors and mechanisms of disease.¹ Preeclampsia and eclampsia in adolescent pregnancy has high correlation especially in low-middle income country such Indonesia. Study done by Macedo *et al* (2020) states the overall prevalence rate of preeclampsia or eclampsia in adolescent pregnancy was 6.7 % and revealed association of preeclampsia or eclampsia with country income, and highest prevalence were found in low-and medium-income country groups.² According to Indonesian SDGs Update in 2019, Indonesia maternal mortality is the highest among peer countries in ASEAN.³ Lack of access to a quality health-care also increases the maternal mortality.

Adolescence pregnancy may place the mother's and the fetus' health at risk due many changes happens during pregnancy, thus becoming a public health issue not only in the present but also in the future due to potential complications and as a reflection of the social conditions of a country.⁴ From a biological viewpoint, hypertensive disease of pregnancy, anemia, gestational diabetes, and complications during childbirth likely to occurs in adolescent pregnancy rather than normal pregnancy.⁵ From social viewpoint, teenagers are not physically or mentally prepared for pregnancy or delivery, which increases the risk of problems and even life-threatening health effects. Early school leaving also added the knowledge and wealth gap for the country.⁶ This case report wishes to highlight adolescence eclampsia and current sociocultural and economic problem of adolescence pregnancy in Indonesia.

Case Report

A 15-year-old primigravida (G1P0A0) with 9 months of pregnancy came to emergency department with seizure from 8 hours before admission. Seizure already happens twice prior hospitalization. She was referred from Subang District General Hospital (60 kilometres from our centre) due to ICU was fully occupied. She had 9 times of antenatal care with midwife without any ultrasound examination or any Obstetrician assessment. Physical examination reveals blood pressure at 160/110 mmHg, and adequate contraction 3-4x/10'/40". Internal examination reveals the patient at 4 cm dilation with adequate pelvic diameter. Observation of labour and forcipal extraction was first planned. Based on history and physical examination, the patient was diagnosed with eclampsia. After 4 hours of observation the labour progress to 6 cm dilation but followed by infrequent fetal heartbeat (140-90-120 bpm). CTG was performed reveals category III with late deceleration. Emergency C-section was performed, born term male infant with APGAR 3-5-7. Uterine contraction was not adequate during operation, and B-Lynch suture was performed. Patient admitted to ICU for 5 days afterwards. On ICU patient also diagnosed with hospital acquired pneumonia and hypertensive heart disease. The patient's condition deteriorated after 2 days in ICU, she had lung edema, and her saturation begins to fall. The patient was intubated again and unfortunately, she passed away.

Discussion

Complications in adolescent mothers are a constant dilemma since many factors are involved, such as inadequate prenatal control, sociocultural conditions, economic factors and healthcare factors in associated country. Previous research also stated that there's

association of preeclampsia or eclampsia with low-and medium-income country groups.²

Adolescent pregnancy practically not allowed by our constitution.⁷ As dictated in UU No. 16 2019, minimum age of marriage for woman and man is 19 years old. On the other hand, the provisions of the Compilation of Islamic Law (KHI) article 15 paragraph (1), have not revised the age limit of 16 years old for woman.⁸ Even the law in our constitution adapt *lex superior derogat legi inferiori* but the practice could sometimes differ. This difference could lead to earlier marriage and increase the adolescence pregnancy rate. Other than legal cause, early marriage caused by social view of our society after woman menstruate, she already become eligible candidate for marriage. In this case our patient married at 14 years old with 17 years old man. This early marriage is due to their respective parents agreeing to have both married. Low economy status of both family with highest level of education in elementary school contributes to such condition.⁹

It's quite alarming that marriage still occurs in early ages in Indonesia. Even it's write down in Compilation of Islamic Law (KHI) article 15 paragraph the limit of marriage is 16 years old which is already considerably premature.⁹ Due to some understanding marriage could be done after menstruation occurs in woman, marriage even earlier than 16 years old still commences in Indonesia. The child could be registered because it's right to every neonate born in Indonesia to have a birth certificate. But unregistered marriage itself is a problem because without prior legal rights could hinder equality of law for both sides.

Approach religion and civil leader in educational purpose the adolescent marriage is bear multitude risk for the woman and child health. The minimum age of marriage at 19 years old should be standardized in either religion and civil law. Family planning should also be reinforced in early marriage, failure

to do so will lead to more pregnancy in a shorter time period and have bad implications to mother morbidity and mortality. Based on adolescence profile, intrauterine device would suit the best for such cases because it will delay pregnancy until she was in appropriate age to pregnant and give time for reproductive organs to mature. Quality of healthcare in Indonesia especially in rural areas has a wide disparity compared to city.

Her high count of antenatal care, 9 times without any doctor or obstetrician examination proves it. In Indonesia we have "*Buku KIA*" which already has detailed instruction when to refer in hypertension in pregnancy case, ultrasound checklist, and other indicators but inability to utilize it properly hinders the referral system and leads to higher maternal morbidity and mortality. Factors identified at institution and policy levels that have constrained improvements in health care access and outcomes for the poor especially are lack of health inequity indicators; the generally weak capacity in the health care system, especially in planning and budgeting; and the leakage and limited coverage of programs for the poor.¹⁰ Looking at our referral system, we divided the patient into patient with National Insurance Coverage (JKN) and out of pocket patient (Figure 1). Disparities between units lead on late referral and late treatment. The patient was referred to our center due to the fact that the ICU at the original hospital was at capacity. Nevertheless, the referral process was delayed due to the significant distance between the local hospital and our center. Adolescents are one of the targets of family planning programs, it is important to socialize family planning programs for adolescents because their physical condition and growth of the body and reproductive organs are not yet perfect causing pregnancy and childbirth at the age of under 20 years to carry risks and infections of sexually transmitted diseases. Unplanned teenage pregnancy will

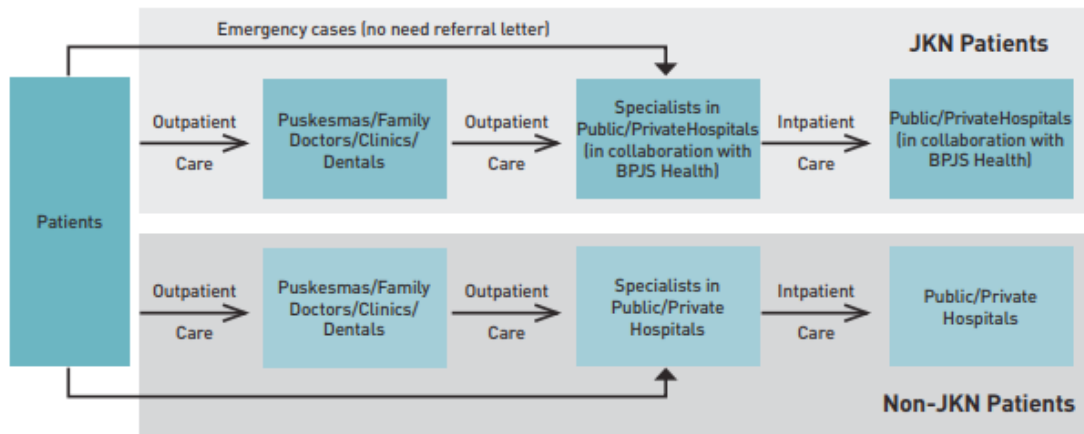


Figure 1 Pathways of JKN and non-JKN patients¹¹

have physical, emotional and psychosocial effects. In addition, teenage pregnancies have a higher risk of health complications such as eclampsia, puerperal endometriosis, and systemic infections when compared to older mothers. Adolescents also have social consequences of giving birth before the age of 18 including the risk of becoming victims of domestic violence, rejection from family and friends, hampered career opportunities because they have to drop out of school due to their pregnancy. Adolescent pregnancies who have already given birth must be educated about the use of contraception so that adolescents understand they have to manage the spacing of their next pregnancies to maintain reproductive health, help the growth and development of newborns and improve family quality. The active role of health workers in providing counseling and socializing about the risks of teenage pregnancy and the target of counseling is not only teenagers, but also the family.

Research by Nurdiawan *et al* (2020) found incidence of eclampsia significantly more frequent in teenage pregnancies compared in reproductive age (5.2% vs 1.9%).¹² Preeclampsia as we know, included in great obstetric syndrome. This spectrum of disease arises from problems in placentation. Uterine immaturity in very young teenagers is likely a major cause of defective deep

placentation and adverse reproductive outcome.¹ Preeclampsia divided into 2 phases, first phase disturbance occurs trophoblast penetration which are incomplete and is not invasive in patients with preeclampsia, after complete remodeling of the spiral arteries, placental perfusion decreases. This follows in second phase systemic endothelial dysfunction contributes greatly in pathophysiology of disease.⁴

In setting spiral arterioles with increased resistance due to widespread dysfunction, increase the vascular resistance and also increase the cardiac output percentage for reaching the placental sub-circulation.⁴ This contributes to hypertensive heart disease later on. On the other sides, ischemia promotes cerebral edema. In this condition glutamates tend to be higher, suggested 1000 to 1500 times normal levels accumulated in vasogenic edema fluid.¹³ This latter on cause seizure due to over excitation of neurons in cortex which we called eclampsia.

Conclusion

Adolescent pregnancy is associated with a lot of maternal and fetal complications therefore it's mandatory for similar cases to be routinely checked by Obstetrician. In addition to physiological immaturity, adolescence pregnancies often face sociocultural problems

that lead to higher rates of hypertensive disorders of pregnancy in this population. Social, economic, and cultural belief factors contribute high rates of adolescent pregnancy in Indonesia even it's already regulated by National Law. Disparities in healthcare systems contribute to higher morbidity rates. It is also worth noting that competent midwives and a functioning maternal referral system have a significant role in preventing maternal mortality.

Reference

1. Brosens I, Muter J, Ewington L, Puttemans P, Petraglia F, Brosens JJ, et al. Adolescent Preeclampsia: Pathological Drivers and Clinical Prevention. *Reprod Sci*. 2019 Feb;26(2):159–71.
2. Macedo TCC, Montagna E, Trevisan CM, Zaia V, de Oliveira R, Barbosa CP, et al. Prevalence of preeclampsia and eclampsia in adolescent pregnancy: A systematic review and meta-analysis of 291,247 adolescents worldwide since 1969. *Eur J Obstet Gynecol Reprod Biol*. 2020 May;248:177–86.
3. UNICEF. Roadmap of SDGs Indonesia: A Highlight [Internet]. Ministry of National Development Planning/ National Development Planning Agency. 2019 [cited 2024 May 24]. Available from: <https://www.unicef.org/indonesia/reports/roadmap-sdgs-indonesia>
4. Rosales-Ortiz S, Sánchez Rodríguez O, Borbolla-Ramos M, D. García-Pérez K. Adolescence and Preeclampsia. In: Prediction of Maternal and Fetal Syndrome of Preeclampsia. IntechOpen; 2019.
5. de Carvalho RCM, Campos H de H, Bruno ZV, Mota RMS. Predictive factors for pregnancy hypertension in primiparous adolescents: analysis of prenatal care, ABPM and microalbuminuria. *Arq Bras Cardiol*. 2006 Oct;87(4):487–95.
6. Chakole S, Akre S, Sharma K, Wasnik P, Wanjari MB. Unwanted Teenage Pregnancy and Its Complications: A Narrative Review. *Cureus*. 2022 Dec;14(12):e32662.
7. DPR RI. Undang-Undang Nomor 19 Tahun 2019. 2019.
8. Mahkamah Agung RI. Himpunan Peraturan Perundang-Undangan yang Berkaitan dengan Kompilasi Hukum Islam dengan Pengertian dalam Pembahasannya. Perpustakaan Nasional RI. Jakarta; 2011.
9. Bastomi H. PERNIKAHAN DINI DAN DAMPAKNYA (TINJAUAN BATAS UMUR PERKAWINAN MENURUT HUKUM ISLAM DAN HUKUM PERKAWINAN INDONESIA). *Jurnal Pemikiran Hukum dan Hukum Islam*. 2016;7(2).
10. Utomo B, Sucahya PK, Utami FR. Priorities and realities: addressing the rich-poor gaps in health status and service access in Indonesia. *Int J Equity Health*. 2011;10(1):47.
11. Mahendradhata Y, Trisnantoro L, Listyadewi S, Soewondo P, Marthias T, Harimurti P, et al. The Republic of Indonesia health system review. *Health Syst Transit* [Internet]. 2017 [cited 2024 May 24];7(1). Available from: <https://iris.who.int/handle/10665/254716>
12. Nurdiawan W, Koto ARH, Zulvayanti Z, Atik N, Susiarno H, Hidayat D, et al. Comparison of Maternal and Neonatal Outcomes in Teenage and Reproductive Age Pregnancy at Tertiary Hospital in West Java, Indonesia. *Open Access Maced J Med Sci*. 2021 Oct 8;9(B):1080–4.
13. Baethmann A, Maier-Hauff K, Schürer L, Lange M, Guggenbichler C, Vogt W, et al. Release of glutamate and of free fatty acids in vasogenic brain edema. *J Neurosurg*. 1989 Apr;70(4):578–91.