

Case Report**Biopsychosocial Aspect of Pregnant Women Suspected Brainstem Death****Aspek Biopsikososial pada Perempuan Hamil dengan Kecurigaan Mati Batang Otak****Dwiana Ocviyanti, Ribkhi A. Putri**

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Abstract

Objective: Diagnosis of brainstem death and the vital organ function support in the pregnant woman to prolong gestation to attain fetal viability is still controversial. The decision is influenced by ethical and legal issue in the country. Another consideration is the hospital cost and health insurance coverage. This article purpose is to report a case and discuss the biopsychosocial aspect of this issue, so the doctors know how to decide a similar case.

Methods: We reported a suspected brainstem death in pregnant women and discussed the holistic approach.

Case: This case is a 38-year-old women, third pregnancy, 22 weeks of gestation, referred from the secondary hospital in a comatose condition. She was diagnosed with brainstem dysfunction due to intracranial mass and cerebral oedema. She wasn't diagnosed with brainstem death due to the electrolyte imbalance that can cause this condition. We did the multidisciplinary management approach. We decided the termination of pregnancy would only be performed if the fetus reaches 28 weeks of gestational age (with survival rate on perinatology is 31%). From the husband point of view, since the attending doctors have not declared the mother to be dead, then the husband still want to keep the mother in full life support. The patient and the fetus died on the 8th day of hospitalization. The patient was fully paid for by Indonesian Health Insurance.

Conclusions: Maternal brainstem dysfunction and brainstem death during pregnancy are rare. In Indonesia, ethical and legal consideration to keep both mother and fetus are appropriate with the general social, cultural, and religious values. However, we recommend managing every single case individually with an intensive multidisciplinary approach due to the possibility of the different personal value of the patient.

Keywords: brainstem dysfunction, brain death, pregnancy, fetal, ethic, legal.

Abstrak

Tujuan: Diagnosis kematian batang otak dan dukungan fungsi organ vital pada perempuan hamil untuk melanjutkan kehamilannya sampai janin dapat hidup jika dilahirkan masih kontroversi. Keputusan ini dipengaruhi oleh etik dan hukum di suatu negara. Pertimbangan lainnya adalah biaya perawatan rumah sakit dan cakupan asuransi kesehatan. Artikel ini bertujuan melaporkan sebuah kasus dan mendiskusikan aspek biopsikososialnya, sehingga para dokter dapat mengambil keputusan pada kasus lain yang serupa.

Metode: Kami melaporkan kasus perempuan hamil dengan kecurigaan kematian batang otak dan mendiskusikan pendekatannya.

Hasil: Kasus perempuan usia 38 tahun, kehamilan ketiga, 22 minggu, dirujuk dari rumah sakit sekunder dalam kondisi koma. Pasien didiagnosis dengan disfungsi batang otak akibat massa intracranial dan edema serebri. Pasien tidak didiagnosis dengan mati batang otak karena kondisi ini masih dapat dikarenakan gangguan keseimbangan elektrolit. Kami melakukan pendekatan multidisiplin. Diputuskan terminasi kehamilan akan dilakukan hanya jika janin mencapai usia kehamilan 28 minggu (dengan harapan hidup dari perinatology 31%). Dikarenakan dokter belum mengatakan pasien sudah meninggal, suami pasien menginginkan pasien dalam topangan alat. Pasien dan janinnya meninggal pada hari ke-8 perawatan. Pembiayaan pasien dengan menggunakan BPJS.

Kesimpulan: Disfungsi batang otak dan kematian batang otak selama kehamilan adalah kasus yang jarang. Di Indonesia, etik dan hukum yang berlaku untuk menjaga kehidupan ibu dan janin sesuai dengan nilai sosial, budaya, dan agama. Namun demikian, kami merekomendasikan melakukan tata laksana setiap kasus secara individu dengan pendekatan multidisiplin dikarenakan perbedaan nilai pribadi pasien dan keluarga.

Kata kunci: disfungsi batang otak, etik, hukum, janin, mati batang otak, kehamilan.

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INTRODUCTION

The irreversible of brainstem function implies the death of the whole function of the brain. The worldwide, continuing vital organ support when brain death has been diagnosed is generally unethical and futile.¹ However, to attain fetal viability, prolong gestation by continuing maternal somatic support is mandated.^{1,2}

The management of this case depends on the characteristic of the country. Indonesia has a point of view on ethical and legal issue. Another consideration is the hospital cost and health insurance coverage.³ Biopsychosocial aspect of the every single patient is important due to the different personal and social value.

This paper discussed the biopsychosocial aspect of a pregnant woman with brainstem dysfunction, based on medical, ethical, social, and legal issues in Indonesia.

CASE

A 38-year-old woman was referred from the secondary hospital in a comatose condition. She had a history of increasing intracranial pressure symptoms for one week before admission (worsening of a headache and frequent projectile vomiting). She was diagnosed with a decrease of consciousness due to intracranial mass with brainstem dysfunction. The CT scan results were heterogeneous lesion in the left cerebellum hemisphere, suspected mass with multiple intra-parenchymal and subarachnoid bleeding focus, non-communicating hydrocephalus, bilateral trans-tentorial and tonsillar oedema and cerebral oedema. On laboratory results found normocytic normochromic anaemia and electrolyte imbalance. From the ultrasound, the fetus was still in good condition, corresponding to 22 weeks, the fetal weight was 579 grams. This patient was admitted to the ICU with maximal support. On the 8th day of admission, the patient was died due to infection.

We do the multidisciplinary management approach to this patient (in collaboration with the Department of Neurology, Anesthesiology, Obstetrics and Gynecology, Clinical Nutritionist, Perinatology, and Ethic-Medicolegal). The medical team provided cardiorespiratory support to reach the viability of the fetus according to the patient's husband and family.

The neurologist was consistent with "brain stem dysfunction", which requires further

criteria for validation as "brainstem death". The term brainstem death can only be validated in a normal physiologic condition of the body, so it cannot be validated yet in this patient due to the presence of abnormal laboratory parameter like an electrolyte. The prognosis of the mother was poor, with very small chance of continuation of life with full assistance to even do basic daily activities.

Termination of pregnancy would only be performed if the fetus reaches 28 weeks of gestational age. The survival rate on perinatology is 31% of the baby at that gestational age. While awaiting further assessment by a neurologist, the somatic function of the mother would be sustained to provide life for the fetus, unless the family asked otherwise.

From the husband point of view, since the attending doctors have not declared the mother to be dead, then the husband still want to keep the mother in full life support. As for the prospect of the fetus, the husband is concerned about the uncertainty of the health condition of the fetus in the future. He still had to take care and provide for his other two children. The patient's husband is a private employee with a salary of 4 million per month.

DISCUSSION

Medical Aspect

Numbers of etiologies are causing brain death condition. Increasing intracranial pressure (ICP) due to injury is the cause. It increases the rate and degree of the cerebrospinal fluid shunt out of the cranium, such as acute haemorrhage, hypoxic-ischemic encephalopathy and metabolic disturbances (eg, liver failure). Increasing ICP accompanied by brain herniation downward through the foramen magnum, compressing and herniating the brainstem.¹

The medical issues as an obstetrician in a caring patient like this are supporting the mother's somatic function and delivering the baby. Successful prolongation of the maternal somatic function is still no data. The duration of time required to attain fetal viability is the main success factor.¹ It needs all of the systems supports: cardiovascular, respiratory support, endocrine, thermoregulation, nutritional, infection prevention, and prophylactic anticoagulant.^{4,5} Golden time to deliver the baby is 32 to 34 gestational weeks. The neonatal survival rate

before 24 weeks is 20% to 30%, with a probability of getting severe neurological disorders in 40% of neonates.³

There is a poor chance of the baby's survival in this case (less than 30% from the perinatology and literature data). But maternal support and maintenance of pregnancy were based on the diagnosis of brainstem dysfunction in this case, still not a brainstem death. Maintenance of mother's hemostasis and infection prevention was done.

Psychosocial and Legal Aspect

In this case, the husband and family want to keep both the mother and fetus in full support. Until the fetus attains viability. This shows the psychological aspect of the husband and family that want to do support as maximal as they can. But in ethical, legal, and economical issue, there are still controversies.

The consideration of prolonged somatic support for mother with brain death or brain dysfunction to attain fetal viability is ethical only if there is some hope of success.¹ In respecting the mother's autonomy to die with dignity, some professional do not agree with this issue.^{1, 2, 6} Attributing the fetal right to use the mother's body as a cadaverous incubator is a reason from professionals that agree to somatic support.² As FIGO Committee for the Ethical Aspects of Human Reproduction and Women's Health opinion, a medical professional should prioritize the mother's right first as a patient, then the fetus: "Women have the right to die in dignity. The goal of fetal rescue does not exonerate healthcare givers from the duty to respect this right of the primary patient – the woman"⁷

For the legal issue worldwide, given that the mother is legally dead, in strictly legal terms, her rights are no longer of relevance. The legal rights conferred on the fetus are closely linked to the maternal right to therapeutic abortion if still alive generally depends on gestational age.¹ Maintaining the somatic function of the mother would be considered futile therapy and would not be permitted in Ireland's rule.⁸ Therefore when there is just a little likelihood ratio of neonatal outcome, it will be no legal imperative to continue maternal somatic support.¹

The recommendations to deal with the medical, ethical, and legal dilemmas. The recommendations are: if pregnancy is <24 weeks of gestation, no life support should be offered

to the mother and the fetus. In pregnancy 24 to 28 weeks of gestation, intervention is possible but should be undertaken only after intense education and consultation with the surrogate and family members. And if the pregnancy has reached 28 weeks, it should be sustained until fetal maturity is attained or worsening of maternal condition necessitates delivery.^{9,10}

Facing the Patient's Biophysical Aspect in Indonesia

Maybe almost all people in Indonesia has the same value as this patient's family. It is influenced by the educational background, social and economic status, also religion.² Almost all religion believes life must prevail over all things. Islam and also Catholic ethics presume a human fetus at every stage to be a person possessing a right to life.^{3, 11, 12} But the specific issue of fetal life in mother with brainstem death isn't reviewed.

For diagnosing brainstem death, it should be limited to the criteria according to Indonesian rule: it should be done by three doctors including an anesthesiologist and neurologist, the doctors do the examination at the separate time, and the diagnosis is made in the ICU. Brainstem death examination should be done in several conditions: unresponsive comatose (GCS 3), no gesture abnormalities (decortication or decerebration), no uncoordinated movement or epileptic, any irreversible structural brain damage that causes comatose or apnea, and no other causes of comatose or apnea (ie drugs, intoxication, metabolic disease, and hypothermia). Cranial nerves test and apnea test are the standards of brainstem death diagnosis.¹³ The Neurologist diagnosed this patient with irreversible brainstem dysfunction, but no "a death" due to electrolyte imbalance in this case.

After the diagnosis was made by the Neurologist, the pregnancy issue is coming to the obstetrician. In Indonesia, there was no specific ethical issue of this case, maybe due to the rare case like this that be reported and reviewed. However, as we can see, in the General, Medical Ethic of Indonesia that the doctors should preserve every life, from the fetal phase and also patient autonomy.¹⁴ It considers either the mother or the fetus has the same rights to life. The rule of termination of pregnancy could be done if only there is a worsening of the mother if continuing the pregnancy or worsening of viable fetus condition.¹⁵ In this case, the decrease

of consciousness was caused by the intracranial mass process. It was different from the circulation process that can be worsened by the pregnancy, so the pregnancy was continued.

Economic problems also an important consideration. Indonesia health insurance's budget for the critically ill patient with long term ventilation in the tertiary hospital approximately 150 million rupiahs (\$ 11.000) for one episode of hospitalization.¹³ It needs consideration of the hospital management for the patient in this case due to the unlimited day of care. In a paper (1996), to maintain a pregnant woman with vegetative state 14 to 31 weeks, reported \$200,000 as of the total cost of somatic critical care support, neonatal intensive care, and possible lifelong support of a neonate delivered with special needs. In caring the neonate up to 5 months of age, added by \$100,000.³

Due to the specific condition of each case, the decision must be made by specialists, in conjunction with the pregnant woman's family members.² It much better if the multidisciplinary approach is applied in this situation.

CONCLUSION

Maternal brainstem dysfunction and brainstem death during pregnancy are rare. The biophysical aspect in caring for the patient in this condition had been described in our case. In Indonesia, ethical and legal consideration to keep both mother and fetus are appropriate with the general social, cultural, and religious values. However, we recommend managing every single case individually with an intensive multidisciplinary approach due to the possibility of the different personal value of the patient.

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