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APPLICATION OF THE OREM SELF CARE THEORY IN THE ASSESSMENT OF MOTHERS WITH SEVERE PREECLAMPSIA WITH ELECTROLYTE DISORDERS: CASE STUDY

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ABSTRACT
One of the causes of maternal death is uncontrolled complications of severe hypertension. In preeclampsia, the risk to the fetus is very high, such as delayed intrauterine growth, prematurity and intrauterine death. Signs and symptoms of severe preeclampsia should be used as an "alarm" by pregnant women with severe preeclampsia to prevent eclampsia. The aim of monitoring symptoms in severe preeclampsia is to avoid unwanted maternal or fetal complications. Case Mrs. M. age 33 G3P1A1 gravida 31 weeks 0 days, Patient is known to have had high blood pressure since 7.5 months of pregnancy, history of eclampsia, BP 153/105 mmHg, Potassium (2.2), Calcium ion 4.52. Based on this study case, the patient experienced hypokalemia and hypocalcemia, the concept of Orem self-care theory can be applied in identifying or assessing cases of severe preeclampsia in monitoring signs and symptoms of severe preeclampsia by recognizing the signs and symptoms. Orem's self-care theory makes individuals responsible for their own care which is part of awareness of the importance of maintaining the health of themselves and the fetus in their womb. Based on symptoms, patients can use assessment with a self-care approach to prevent eclampsia and HELLP syndrome.

Keywords: orem; pre-eclampsia; self care

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INTRODUCTION

Maternal death according to the WHO definition is death during pregnancy or within the 42 day period after the end of pregnancy, due to causes related to or aggravated by the pregnancy or its management (Hudaya, 2018). The main causes of maternal death are hypertension in pregnancy and bleeding after delivery (Hudaya, 2018). One of the causes of maternal death is severe complications of uncontrolled hypertension (Sperling et al., 2015). Severe preeclampsia is a problem that still contributes to maternal mortality rates. Preeclampsia generally appears in the third trimester of pregnancy, but can also appear in the 20th week. In preeclampsia, the risk to the fetus is very high, such as delayed intrauterine growth, prematurity and intrauterine death (Cífková, 2023). Preeclampsia with severe symptoms, namely thrombocytopenia (amount less than 100,000/microliter), impaired liver function, new development of renal insufficiency (increased serum creatinine), pulmonary edema, or visual or brain disorders (Paulino-Morente et al., 2018). In addition, signs of severe preeclampsia include new headaches that do not respond to treatment and cannot be explained by other diagnoses (Committee on Practice Bulletins-Gynecology and American Urogynecologic Society, 2020).

Signs and symptoms of severe preeclampsia must be used as an "alarm" by pregnant women with severe preeclampsia to prevent eclampsia and management of severe preeclampsia must be carried out immediately to prevent morbidity and mortality for the mother and fetus in her womb. The aim of monitoring symptoms in severe preeclampsia is to avoid unwanted maternal or fetal complications. Monitoring symptoms of severe preeclampsia can also detect early worsening of the condition of both the mother and fetus. This problem can be overcome by applying the Self-care model theory to pregnant women with severe preeclampsia to prevent unexpected maternal and fetal complications, so that pregnant women with severe preeclampsia can recognize the signs and symptoms of severe preeclampsia. Pregnant women with severe preeclampsia who are able to recognize the signs and symptoms of severe preeclampsia, for example headaches, blurred vision, can come to the hospital as soon as possible for proper management so that they can avoid eclampsia or other conditions that worsen the health of the mother and fetus.

Pregnant women with preeclampsia are at higher risk of experiencing damage to the kidneys, liver, brain and other organs and blood systems. Preeclampsia can also have risks affecting the placenta such as placental abruption, premature birth, and miscarriage or stillbirth. There are various risks posed by preeclampsia, especially severe preeclampsia, so it is important to manage pregnancies with preeclampsia well. Good management will be optimal if a good assessment is carried out, assessing the signs and symptoms of preeclampsia. The aim of the study is to find out the problems that occur in preeclampsia, especially severe preeclampsia, so that it can be treated appropriately and unexpected risks do not occur in severe preeclampsia. Self care is one of the theories put forward by Orem which can be used to monitor the mother and fetus in her womb with an individual approach. Self care is the most effective and appropriate approach to improve the welfare of the mother and fetus, as well as the success of pregnancy (José & Kharde, 2010).

The self-care program for pregnant women is recommended for all pregnant women (Rezaeean et al., 2020). Self care is care carried out by a person to improve the quality of life, health and well-being (Rezaeean et al., 2020). Self care is the ability of individuals, families and communities to improve health, prevent disease, maintain health and overcome illness and disability with or without the support of health workers (WHO, 2021). Orem's theory regarding self-care is that there are three types of self-care needs including universal self-care requirements, developmental self-care needs, and health deviations from self-care requirements (Sinkey & Al., 2021). Deviations in health from self-care requirements occur due to disease, genetic and physical defects as well as structural and functional abnormalities in humans (Rezaeean et al., 2020). Health deviations from self-care deficits in pregnancy, one of which is preeclampsia (Rezaeean et al., 2020). In preeclampsia, you can use the Orem self-care model theory to improve the health and well-being of the mother and fetus in her womb.

Orem's Self Care Model is used to explain a person's performance and enable the person to take responsibility for their health, reducing health care costs and improving the quality of care (Sinkey & Al., 2021). Orem's Self-care theory emphasizes individual self-care capabilities, which is consistent with the concept of holistic nursing which aims to strengthen personal health and physical coping skills of the body and is gradually becoming the main means of managing chronic diseases (Bi M, Meng L, 2022). This self-care theory can be applied to an approach to assessing the signs and symptoms of severe preeclampsia with the aim of early detection of indicators of worsening conditions for both the mother and fetus.

Nursing focuses on identifying self-care needs, designing methods and actions to meet the needs, and the overall need for self-care actions (Andriany, 2007). Identifying self-care needs can be done by assessing the patient's self-care needs.The role of nurses in applying Orem's self-care theory is to help increase patient independence in the clinical field, so that they can improve the patient's quality of life when in a community environment (Ropyanto, 2019). The role of the nurse can help patients with severe preeclampsia independently carry out their own assessments or monitor the signs and symptoms of severe preeclampsia so that they can prevent complications or disability in the patient themselves and the fetus in their womb.

METHOD

This study used a case study method with a descriptive qualitative approach to understand the experiences of patients with severe preeclampsia and the application of Orem's self-care theory. The sample was one pregnant woman with severe preeclampsia, selected through purposive sampling. The instrument used was a nursing care assessment tool. Data were collected through in-depth interviews, observation, and medical record documentation using nursing care. Orem's self-care theory was used as a framework to identify self-care needs, provide education, and empower the patient to actively monitor her health condition to prevent complications of eclampsia and HELLP syndrome.

RESULTS

Mrs. M. 33 years old was admitted to hospital on March 1 2024, HPHT 7-31-2023, G3P1A1 gravida 31 weeks 0 days, history of Sectio Caesarea 1x medical diagnosis of severe preeclampsia. Summary of history of G3P1A1, feeling 7 months pregnant and referred from K. Hospital with information about G3P1A1 gravida 29-30, diagnosis of PEB, history of eclampsia. The patient currently has no complaints. The patient still feels the child's movements. The patient was known to have had high blood pressure since she was 7.5 months pregnant during control at the Doctor's Practice Clinic. The patient previously recognized a history of high blood pressure in her first pregnancy at 32 weeks' gestation. The patient had a history of seizures in her first pregnancy, and a Caesarean section was performed on the patient. The patient admitted that her blood pressure returned to normal after giving birth. In this pregnancy, the patient was treated by a gynecologist and received 1x80 mg aspirin, 3x250 mg dopamet and 3x1 microgest. The patient has never received any treatment or lung maturation during the current pregnancy. Physical examination results Composmentis Awareness, BP 153/105 mmHg, Pulse 97x/minute, Respiration Rate 20x/minute, Temperature 370C. Abdomen: Convex, Soft His (-), BJA 148-152 x/minute. Laboratory examination on 1-3-2024: Hb (12.9), Ht (37.1), Leukocytes (8,270), Platelets (230,000), SGOT (27), SGPT (28), Total protein (6.2) , Albumin (3.69), Globulin (2.5), Sodium (137), Potassium (2.2), Cl (103), Calcium ion 4.52, Magnesium 1.7, PT (13.6), aPTT (34, 00), INR (0.95). Ultrasound examination resultsSingle fetus is alive intrauterine, head position, according to gestational age 29-30 weeks. FHR (+), TBBA 1540 grams, placenta inserted in the posterior corpus. SDP 2.56 cm is sufficient. Fetomaternal ultrasound results of a single live intrauterine fetus, head position according to gestational age 30-31 weeks (TCD 31 weeks 3 days); TBBJ:1610 grams (27.2 percentile); fetal heart pulsation (+), face: NB (+), nostril (+), cleft (-), thorax: cardio 4CV within normal limits, CTAR 26%, Axis 52.40 degrees, abdomen: stomach and urinary bladder, filled normally; both kidneys were visualized normally, the placenta was inserted in the anterior corpus, clear zone (+), amniotic fluid SDP: 3.52 cm, myometrial thickness 3.5 mm, 3.7 mm and 3.9 mm.

DISCUSSION

ACOG guidelines consider severe preeclampsia when serum creatinine ≥1.1 mg/dL, platelet count <100,000/L, liver enzymes >80 IU/L, severe hypertension, or diagnostic symptoms

(i.e., severe headache, blurred vision, significant shortness of breath) or epigastric pain), and HELLP as part of severe preeclampsia characterized by low platelets and elevated liver enzymes (Bergman et al., 2019). Based on the case study above, potassium and calcium values are below normal in pregnant women in general. A potassium value below normal is called hypokalemia. Hypokalemia is a condition where the blood potassium concentration is below 3.5 mEq/L which is caused by a reduction in the total amount of potassium in the body or a disturbance in the transfer of potassium ions into cells (Nathania, 2019). Changes in potassium levels in the blood during the normal range of pregnancy are likely to influence the occurrence of hypertension in pregnancy (Ajong et al., 2023). Hypokalemia because serum potassium contributes to the normal vascular physiology of smooth muscle during pregnancy, a potassium deficit can lead to increased blood pressure, complications of hypertension or both (Paulino-Morente et al., 2018). Hypokalemia can be life-threatening due to the risk of cardiac arrhythmias and neurologically severe muscle weakness and paralysis (Paulino-Morente et al., 2018). Based on research in Pakistan with the aim of the research to evaluate the relationship between various electrolyte abnormalities and preeclampsia, one of the results was that serum potassium electrolytes were significantly low in the preeclampsia group (Khattak et al., 2021). In addition, based on research conducted in Bangladesh with the aim of research to determine the levels of zinc, iron, sodium, calcium, potassium in serum and their possible relationship with preeclampsia, the results showed that calcium and potassium were much lower in the group of preeclampsia patients (Uddin et al., 2023). From the results of the study of physiological factors, it shows that assessments still need to be carried out on patients to prevent mortality in the mother and fetus, namely:

1. Assess hemodynamics: blood pressure and heart rate. Hemodynamic assessment in mothers with severe preeclampsia is very important because severe preeclampsia can cause various complications that affect the circulatory system and heart function. Close blood pressure monitoring helps in managing hypertension and preventing complications such as eclampsia.
2. Assessing Fluid and Electrolyte Imbalances: Electrolyte imbalances, including hyperkalemia, hyponatremia, hypochloremia, and hypocalcemia, are serious conditions that require immediate treatment. Further evaluation is necessary to determine the cause and severity of the electrolyte imbalance, as well as planning appropriate therapy, such as administering intravenous fluids or adjusting diet. The fluid balance formula is Intake (incoming fluid) – Output (Output + IWL) to calculate fluid balance there must be 24 hour monitoring so that the calculation is carried out correctly. For the potassium deficit formula = (Klower limit of normal – Result) x KgBB x 0.4. In the case of potassium 2.2, normal potassium 3.5 – 5.3 mEq/L, to calculate potassium there must be an assessment of the patient's body weight. Preeclampsia is often associated with fluid retention and edema. Fluid volume assessment is important to avoid fluid overload which can worsen conditions such as pulmonary edema and HELLP syndrome.
3. Assess the need for oxygenation by assessing saturation, RR, CRT, intercostal retraction and laboratory examination of blood gas analysis and chest examination.
4. Assess nutritional status: BMI, LLA, and check albumin and total protein. The patient's albumin and globulin in the case were in normal condition, namely 3.69 (normal albumin 3.5 – 5.5 g/dL).
5. Carrying out a fetal welfare assessment: fetal well-being can be seen from the results of FHR, ultrasound and fetomaternal ultrasound. The results of the fetomaternal ultrasound performed in this case are in good condition of the fetus.
6. Laboratory examinations such as urea, creatinine, SGOT, SGPT are important for monitoring, diagnosis and effective management of severe preeclampsia in pregnant women. Elevated urea and creatinine levels indicate the severity of preeclampsia and help

in determining the need for appropriate medical intervention. The above laboratory examinations are important in the management of severe preeclampsia which are useful for identifying and monitoring organ dysfunction, evaluating disease severity and appropriate treatment management.

It is important to coordinate between various PPA (professional care providers), namely nurses, obstetricians, internal medicine specialists, nutritionists, nutritionists, pharmacists, to plan comprehensive management that suits the patient's condition. Orem based nursing practices have been developed in the care of patients of all ages with all types of self care needs health deviations and developmental needs (Parker, 2006). In cases of severe preeclampsia, Orem's theory can be applied in monitoring the signs and symptoms of severe preeclampsia by recognizing the signs and symptoms of severe preeclampsia. Apart from that, patients or clients can identify or assess the need for self-care in severe preeclampsia by recognizing the signs and symptoms of severe preeclampsia that can be felt by the patient themselves, such as headaches and visual disturbances. The subjective signs and symptoms felt by the patient are part of a self-care assessment that can be carried out so that the patient can immediately undergo further examination at a hospital or clinic. Self care is the performance or practice of individual activities to take the initiative and shape their behavior in maintaining life, health and well-being (Muhlisin & Irdawati, 2010). A self-care approach in severe preeclampsia to monitor signs and symptoms can prevent worse risks, such as eclampsia and uncontrolled blood pressure.

Apart from that, based on the case above, the patient with severe preeclampsia experienced hypocalcemia. Hypocalcemia, characterized by low levels of calcium in the blood, can have a significant impact on the patient's health and well-being (Goyal et al., 2023). The amount of serum calcium usually falls during pregnancy because during pregnancy the mother's body needs more calcium for fetal development, especially for the formation of bones and teeth. In preeclampsia, this need can increase further. Low calcium and magnesium levels are associated with pregnancy disorders with hypertension (Almaghamsi et al., 2018). Low calcium intake during pregnancy can stimulate parathyroid hormone (PTH) secretion, increase intracellular calcium and smooth muscle contractility and/or release renin from the kidneys causing vasoconstriction and sodium and fluid retention, these physiological changes can lead to preeclampsia (Kumar & Kaur, 2017). Some of the causes that cause preeclamptic mothers to experience hypocalcemia are that it often involves problems with the placenta, which can interfere with the absorption of calcium from the mother's intestines and its transportation to the fetus. Proteinuria can also cause loss of calcium, because calcium is often bound to proteins in the blood and vasospasm (narrowing of the blood vessels), which can reduce blood flow to various organs, including the kidneys. Impaired kidney function can affect the calcium balance in the body. Low calcium intake and hypocalcemia in pregnancy can have adverse effects on the mother such as preeclampsia, small for gestational age (Ajong et al., 2023). Pregnant women with severe preeclampsia can use a self-care approach to overcome the problem of hypocalcemia by taking calcium supplements regularly to improve the well-being of pregnant women with severe preeclampsia.

Table 1.
Nursing system theory according to Orem

Perform therapeutic self-care on patients
Compensates for the patient's inability to engage in self-care
Support and protect patients
Wholly Compensatory System
Performs some self-care measures for patients
Compensate for patient self-management limitations
Meet patient needs
Take some self-care measures
Organize the self-care process
Receive help from the nurse
Partly Compensatory System
Fulfilling self-care
Organize the implementation and development of the self-care process
Supportive Educative System

Based on the table above, patients can carry out self-care actions by carrying out self-care actions, organizing the self-care process, receiving help from nurses, fulfilling self-care, and organizing the implementation and development of the self-care process (Tomey & Martha, 1998). Based on research in Egypt regarding the impact of self-care guidelines on women's awareness and identification of early signs and symptoms of preeclampsia, with the conclusion of the study that educational guidelines are effective in increasing the knowledge of pregnant women regarding early detection of early signs and symptoms of preeclampsia, thereby reducing morbidity and mortality rates (Ahmed Mohamed et al., 2022). In addition, research in Egypt aimed to evaluate the effect of utilizing a self-care management program on pregnant women with hypertension, with the results showing that utilization of the program could improve knowledge and practice of self-care management of hypertension due to pregnancy (Elbana et al., 2022). Based on the above studies, self-care in pregnant women is very beneficial in managing hypertension during pregnancy, including preeclampsia. Orem's self-care theory that can be applied to this case with electrolyte disorders, namely the supportive educative system is a nursing action that aims to provide support and education so that the patient is able to carry out care independently (Tomey & Martha, 1998). Orem's self-care theory makes individuals responsible for their own care which is part of awareness of the importance of maintaining the health of themselves and the fetus in their womb. Based on symptoms, patients can use assessment with a self-care approach to prevent eclampsia and HELLP syndrome.

CONCLUSION

The concept of Orem's self-care theory can be applied to cases of severe preeclampsia to monitor signs and symptoms of severe preeclampsia by identifying them through assessment based on the need for self-care to prevent complications or other unexpected things. Based on this study case, the patient experienced hypokalemia and hypocalcemia, the concept of Orem self-care theory can be applied in identifying or assessing signs and symptoms of potassium and calcium deficiency in pregnant women with severe preeclampsia. In addition, even though in this case the patient does not feel headaches, the signs and symptoms of headaches and visual disturbances can be subjective signs that must be known. The concept of Orem's self-care theory aims toearly detection of indicators of worsening conditions for both mother and fetusto ensure appropriate treatment and reduce the risk of morbidity and mortality.

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