


Prophylaxis of preeclampsia in low-income adolescents: Protocols and challenges

 <https://doi.org/10.56238/sevened2024.006-015>

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ABSTRACT

This paper addresses preeclampsia, a serious gestational complication marked by hypertension and proteinuria, with a focus on low-income adolescents. The research, a literature review, aims to identify risk factors, assess access to treatment, and explore preventive measures appropriate to this demographic. The methodology includes a review of previous studies in the Google Scholar, Scielo, and PubMed databases, covering publications from 2001 to 2024. The results underline the need for a personalized approach to treatment, reflecting individual variability in response to interventions. It is concluded that a deep understanding and careful management are vital to mitigate the risks associated with preeclampsia, improving treatment adherence and quality of life of affected adolescents.

Keywords: Preeclampsia, High-risk prenatal care, Pregnancy in adolescence, Hypocalcemia in pregnancy.

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INTRODUCTION

Preeclampsia is a serious complication of pregnancy characterized by the development of arterial hypertension and organ dysfunction in previously normotensive women^[1]. It is defined by the onset of hypertension accompanied by proteinuria, which is the presence of protein in the urine². Its diagnosis is based on the presence of high blood pressure (systolic blood pressure ≥ 140 mmHg or diastolic blood pressure ≥ 90 mmHg) and proteinuria (≥ 300 mg in a 24-hour urine collection or a protein/creatinine ratio ≥ 0.3).^[2]

In adolescents of low socioeconomic status, it is a multifactorial disease associated with biological, socioeconomic and medical-dental factors. In general, adolescent mothers have low socioeconomic status, low educational and cultural status, and are not legally married. The most common complications that affect the baby's health are associated with perinatal death, epilepsy, mental retardation, blindness, deafness, miscarriage, preeclampsia, anemia, infections, complications in childbirth and childcare, and emotional disorders.^[3]

This study is a vital study, since preeclampsia is a serious complication in the women's puerperium that significantly affects low-income adolescents, increasing the risks of maternal and neonatal morbidity and mortality. Considering that the incidence of early pregnancy is higher in vulnerable populations, where access to preventive care is limited, it is essential to develop and evaluate prophylaxis protocols tailored to these young women to improve health outcomes and reduce inequalities.

The general objective of this study is to evaluate the impact of specific interventions in reducing the incidence and severity of preeclampsia in adolescents under 15 years of age with low socioeconomic status. The specific objectives outlined to achieve this goal include: To identify the main risk factors associated with the development of preeclampsia in adolescents under 15 years of age of low socioeconomic status. To assess the accessibility and suitability of healthcare facilities that provide treatment for preeclampsia for this demographic. To investigate the influence of nutrition and other behavioral factors on the risk and management of preeclampsia in adolescents. To study the barriers to compliance with prescribed treatments and propose solutions to improve adherence to treatment among adolescents. To propose and evaluate the implementation of a multidisciplinary care model for the treatment of preeclampsia in adolescents and to evaluate the role of family support networks.

METHODOLOGY

The present work consists of a literature review that sought to address results found in research on the theme in question, either in a comprehensive, orderly or systematic way. Focal points include Epidemiology of Preeclampsia in Adolescents, Symptomatology, Risk Factors, Diagnostic



Methods, Access to Maternal Health Care, Nutrition and Preeclampsia, Psychosocial Aspects of Pregnancy in Adolescents, and Multidisciplinary Models of Care.

The inclusion criteria for this view include specifically investigating the Prophylaxis of Preeclampsia in Low-Income Adolescents: Protocols and Challenges. Any studies that do not directly address these aspects will be excluded.

To carry out the search, several electronic databases will be used, such as Google Scholar, Scielo and PubMed. The keywords chosen will align with the specific objectives of the study and will include terms such as "Preeclampsia", "high-risk prenatal care", "Pregnancy in adolescence", "Hypocalcemia in pregnancy" and other pertinent terms.

The study selection process will follow a qualitative and descriptive methodology. Initially, abstracts that seem to meet the inclusion criteria will be identified. Subsequently, the full articles will undergo a thorough review to assess their adequacy and relevance to the objectives of the study. Throughout the data extraction process, information pertaining to preeclampsia prophylaxis will be collected, including documented symptoms, diagnostic approaches, and the effectiveness of various treatment strategies.

When assessing the quality of studies, their methodological rigor, clinical significance, and timeliness will be carefully considered. It is important to note that this review will only cover articles published from 2009 to 2024, which may result in the exclusion of previous research, but ensures that the information analyzed is current and relevant. In addition, the analysis will be limited by the specific terms and languages used in the searches, potentially leading to the omission of pertinent studies that do not align with the designated keywords.

RESULTS AND DISCUSSION

In addition to high blood pressure and proteinuria, symptoms of preeclampsia include generalized edema, oliguria, cyanosis, visual disturbances, headache, epigastric pain, among others. [4] Preeclampsia is a pregnancy-related condition that affects both the mother and the fetus. Prevalence in adolescents varies globally and regionally, with socioeconomic factors playing a significant role. According to a study published in the Journal of Pregnancy, adolescent women in low- and middle-income countries (LMICs) are more likely to develop preeclampsia compared to those in high-income countries (HICs) [5]. The study found that its prevalence in adolescent women in LMICs was 7.5 percent, while in HICs it was only 2.6 percent. The study also found that young people in rural areas of LMICs were at higher risk of developing it than those in urban areas [5]. This difference can be attributed to the lack of access to adequate health services in rural areas, which can lead to delays in the diagnosis and treatment of this condition. In addition, the study found that

pusbecants with low socioeconomic status were more likely to develop preeclampsia than those with high socioeconomic status^[5].

Risk factors related to the occurrence of preeclampsia include chronic arterial hypertension, advanced maternal age, obesity, family history of preeclampsia, nulliparity, multiple pregnancy, preexisting diabetes mellitus, and previous history of preeclampsia.^[6] Additionally, it is important to note that according to Genivaldo Moura da Silva, women with periodontitis have nine times the risk of developing preeclampsia compared to those with healthy periodontal tissues.^[7]

In addition, it is essential to emphasize that preeclampsia can cause maternal complications, such as placental abruption, coagulopathies, renal failure, pericardial effusion, and pulmonary edema.^[8] Moreover, it increases the risk of acquiring future cardiovascular diseases in the mother. In addition, in the neonate, it can cause complications, such as low birth weight, preterm, fetal growth restriction, and respiratory problems.^[9] In summary, preeclampsia can have both short- and long-term negative effects for both mother and neonate. It is important that pregnant women are accompanied by qualified health professionals to identify and manage the disease as early as possible, minimizing the risks to both mother and baby.

Therefore, it was evidenced that home blood pressure monitoring in pregnant women at high risk of preeclampsia can enable early diagnosis and optimize prenatal care.^[10] Therefore, primary care clinicians can effectively diagnose and manage hypertensive diseases of pregnancy, including preeclampsia, in prenatal and postnatal women.^[11] Thus, Basic Health Units (BHUs) play an essential role in the early detection and prevention of these conditions, ensuring maternal and fetal health during pregnancy.

Primary prevention strategies include 100 mg of acetylsalicylic acid (ASA), and calcium carbonate supplementation, which should be started at specific gestational ages.^[12] In the context of adolescent pregnancy, there is no specific information on the prevention of preeclampsia. However, teenage pregnancy is associated with higher rates of prematurity and low birth weight, which are also complications of preeclampsia.^[13] Therefore, it is important for health professionals to consider the increased risk of this condition in these patients and to implement appropriate prevention strategies, such as ASA and calcium, especially for those with other risk factors, as it has been shown that the consumption of these drugs in low doses for 9 weeks during pregnancy significantly reduced serum levels of high-sensitivity C-reactive protein and oxidative stress.^[14]

The multidisciplinary approach includes the development of nursing care protocols and the use of specific scales for symptom assessment, such as the Prenatal Follow-up Symptom Scale among pregnant women with preeclampsia (PPSC), which helps predict the worsening of the condition and the appearance of complications.^[15] The use of a graphical tool to monitor the care



provided to pregnant women with preeclampsia and eclampsia has also improved the quality of care and documentation.

The importance of understanding the pathophysiology of preeclampsia is also discussed, which contributes to the work of health professionals, especially nurses.^[16] In addition, the article highlights the need for high-quality care, including timely prenatal care, regular blood pressure monitoring, and detection of proteinuria, as well as the need for appropriate diagnostic testing and treatment of hypertension.^[16] In cases of severe preeclampsia or eclampsia, the use of magnesium sulfate is recommended for prevention and treatment of seizures, and antihypertensive drugs are recommended for treatment.^[17]

In summary, the multidisciplinary approach to preeclampsia involves a comprehensive, evidence-based approach to care, including early identification, appropriate nursing care, use of specific scales to assess symptoms, and use of appropriate medications for crisis prevention and treatment. However, these results are mixed and more research is needed to confirm this association and better understand the underlying mechanisms.

CONCLUSION

This study highlights the complexity of preeclampsia, which in addition to the classic symptoms of high blood pressure and proteinuria, includes a number of signs that can complicate the clinical picture and management of the condition. In the context of adolescent pregnancy, regional differences in prevalence and the impact of socioeconomic factors are particularly significant, reflecting inequalities in access to health care that may delay diagnosis and effective treatment. While prevention strategies such as the use of acetylsalicylic acid and calcium supplementation are promising, a more personalized approach that takes into account the individual characteristics of pregnant women, such as their socioeconomic conditions and accessibility to health services, is crucial. In addition, the need for future research to develop more effective methods of prevention and treatment is evident, aiming at a more effective and safer management of preeclampsia.



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