CIENTIFIC ARTICLE: PRE-ECLAMPSIA: DIAGNOSIS AND MANAGEMENT APPROACHES

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Abstract: Pre-eclampsia is a pregnancy-specific multisystem disorder characterized by the onset of hypertension and proteinuria or organ dysfunction after 20 weeks of gestation. It remains one of the leading causes of maternal and perinatal morbidity and mortality worldwide. The condition is associated with placental dysfunction, systemic endothelial damage, and inflammatory responses. Early identification and appropriate management are crucial to reduce adverse maternal and fetal outcomes. This article aims to provide an overview of pre-eclampsia, focusing on its pathophysiology, diagnostic criteria, clinical manifestations, and current management strategies based on international guidelines.

Keywords: Pre-eclampsia, pregnancy-induced hypertension, placental dysfunction, maternal morbidity, fetal outcomes, diagnosis, management.

Introduction: Pre-eclampsia is a serious hypertensive disorder of pregnancy affecting approximately 2–8% of pregnancies globally. It typically develops after 20 weeks of gestation and can progress rapidly, leading to severe maternal and fetal complications if not recognized and managed appropriately. Despite advances in obstetric care, pre-eclampsia remains a major public health concern, particularly in low- and middle-income countries.

The disorder is characterized by new-onset hypertension accompanied by proteinuria or signs of end-organ damage, including renal, hepatic, neurological, or hematological involvement. The exact etiology of pre-eclampsia is not fully understood; however, abnormal placentation, impaired trophoblastic invasion, and widespread endothelial dysfunction are considered central mechanisms.

Materials and Methods

This review is based on a comprehensive analysis of peer-reviewed literature retrieved from PubMed, Scopus, WHO databases, and ACOG guidelines. Keywords used included “pre-eclampsia,” “hypertensive disorders of pregnancy,” “placental dysfunction,” and “maternal complications.” Studies published in English over the last 20 years were included.

Results and Discussion

Diagnosis of Pre-eclampsia

According to the American College of Obstetricians and Gynecologists (ACOG), pre-eclampsia is diagnosed by blood pressure ≥140/90 mmHg on two occasions after 20 weeks of gestation, accompanied by proteinuria (≥300 mg/24 hours) or, in the absence of proteinuria, evidence of organ dysfunction.

Pathophysiology

Abnormal placental development leads to reduced uteroplacental perfusion and the release of antiangiogenic factors into maternal circulation. This results in systemic endothelial injury, vasoconstriction, and increased vascular permeability, which explain the clinical features of pre-eclampsia.

Management Strategies

Management depends on disease severity and gestational age. Antihypertensive therapy, magnesium sulfate for seizure prophylaxis, close maternal-fetal monitoring, and timely delivery remain the cornerstone of treatment. Definitive treatment is delivery of the placenta.

Conclusion

Pre-eclampsia is a complex and potentially life-threatening obstetric condition requiring early diagnosis and multidisciplinary management. Improved antenatal surveillance and adherence to evidence-based guidelines are essential for reducing maternal and neonatal morbidity and mortality.

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