



HYPERTENSIVE SYNDROMES IN PREGNANCY: RISK FACTORS, CLINICAL DIFFERENCES, AND TREATMENT APPROACHES

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ABSTRACT

Gestational hypertensive syndromes are the leading cause of maternal morbidity and mortality in Brazil, highlighting the need for early identification and appropriate management to improve clinical outcomes. The study aims to improve the diagnosis and treatment of these conditions, which are essential for maternal-fetal health.

Keywords: Hypertensive syndromes, Maternal health.

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INTRODUCTION

Gestational hypertensive syndromes (GHS) represent the leading cause of morbidity and mortality in Brazil, followed by postpartum hemorrhages and infections and abortion. Hypertensive syndromes represent a set of disorders characterized by an inadequate increase in blood pressure in pregnant women, causing damage to maternal and fetal health and leading to a series of changes in pregnancy and serious complications. Early identification of risk factors and alteration is essential to prevent the progression of the syndromes and improve clinical outcomes (DE OLIVEIRA et al., 2024).

In a time frame carried out by (DATASUS), 170,094 cases of maternal death due to hypertensive diseases were evidenced in Brazil during a period from 2018 to 2022. Thus representing a high impact on population health worldwide. It is estimated that hypertensive syndromes account for a total of 10-15% of direct maternal deaths worldwide. This is an important theme since the reduction of maternal death is one of the sustainable development goals proposed by the United Nations (MENDONÇA et al., 2024).

According to the Ministry of Health (MS), hypertensive syndromes in pregnancy consist of 4 situations, namely, chronic arterial hypertension, preeclampsia, gestational hypertension and preeclampsia superimposed on chronic hypertension. They can lead to other complications such as HELLP syndrome and eclampsia. The importance of a technique for measuring blood pressure following an appropriate technique and the intervals determined to close the diagnosis of these pregnant women should be emphasized (MEGIOLARO et al., 2024).

Hypertensive diseases in pregnancy are common complications during prenatal care, and if this affect is identified in the patient, she should be part of the high-risk prenatal group. Which are intended for pregnant women who have some pathology that can directly interfere with maternal-fetal quality of life, and can be transferred to high-risk prenatal care at any stage of pregnancy and due to several factors, which represent a considerable risk of unfavorable outcomes and directly influence the increase in maternal and fetal morbidity and mortality (DE OLIVEIRA et al., 2024).

The general objective of the study is to determine the diagnostic process, knowing how to recognize the semiological aspects of pregnant women, being able to apply theoretical knowledge on the subject, as well as determining the appropriate therapeutic process in the face of each of the clinical types of the syndrome according to the needs of each patient.



OBJECTIVE

Pregnancy is a unique experience in a woman's life, which causes numerous physical, hormonal, emotional and behavioral changes in the pregnant woman. Therefore, it is a period where she must be well guided and assisted to ensure adequate gestational development. Among the main benefits of prenatal care include early identification and treatment of possible maternal and fetal complications, such as gestational diabetes, gestational hypertensive syndromes, infections and fetal growth disorders. Aiming to reduce complications and offering the safest possible pregnancy and delivery (NASCIMENTO et al., 2024).

Since early identification and appropriate management are crucial to minimize risks to maternal and fetal health, the objectives of this study are to define the diagnostic process of gestational hypertensive syndromes, determine the main risk factors associated with the syndromes, identify the main clinical conditions and define the best therapy in the management of these patients. Aiming to offer a comprehensive view that helps in the early recognition, accurate diagnosis, and efficient management of these syndromes, aiming to improve maternal and fetal outcomes (DA SILVA et al., 2024).

METHODOLOGY

Considering that theoretical studies are an indispensable basis for field and laboratory research, we opted for conceptual deepening and search for official data on the object of study, allowing the knowledge of reality as well as the possibility of critical reflection on the subject within the scope of the Brazilian reality.

Based on the understanding of Creswell (2007) for whom the Literature Review is configured as a preliminary stage of scientific studies, then the research is a Literature Review in which articles published in the National Library of Medicine (Pubmed), Virtual Health Library (VHL), Web of Science, Lilacs and Capes Journals were used as the basis of the study by descriptors obtained by the Health Sciences Descriptors (DeCS) of the VHL.

This is a literature review of articles published in the National Library of Medicine (Pubmed), Virtual Health Library (VHL), Web of Science, Lilacs and Capes Journals by descriptors obtained by the Health Sciences Descriptors (DeCS) of the VHL. The following descriptors were searched: Hypertension, Pregnancy-Induced AND Accession AND Mortality AND Prognosis in "All fields".

For the selection of articles, the following steps were followed: (I) search for articles in the databases; (II) reading of titles and abstracts, with analysis according to the eligibility

criteria and; (III) full-text analysis of the papers, including in the systematic review only those required by the inclusion criteria and did not meet any of the exclusion criteria.

The following inclusion criteria were selected: (1) studies involving the pathophysiology of gestational hypertensive syndromes; 2) studies that had the object of study the relationship between gestational hypertensive syndromes and maternal-fetal prognosis; (3) articles that studied the etiologies, diagnosis, and treatment of gestational hypertensive syndromes; (4) articles published in the last 6 years. There were no restrictions on sample size or foreign language.

As exclusion criteria, articles were excluded that: (1) were published before 2018; (2) studied situations that do not include gestational hypertensive syndromes; (3) duplicates; (4) had no direct relationship with gestational hypertensive syndromes, their diagnostic methods, or their therapy.

DEVELOPMENT

It is estimated that gestational hypertensive syndromes are present in 7 to 10% of all pregnancies, with variations according to the population studied or methodology used. It is classified as the most common complication and the main cause of perinatal maternal morbidity and mortality (MALEK et al., 2022).

GHD is defined as those that cause systolic $\geq 140\text{mmHg}$ and diastolic $\geq 90\text{mmHg}$ blood pressure levels that remain persistent after more than two measurements in a minimum interval of 4 hours. Severe is considered when systolic $\geq 160\text{mmHg}$ and/or diastolic $\geq 110\text{mmHg}$ blood pressure levels, which persist in an interval of 15 minutes, with the correct measurement technique. These situations determine the need for differentiated care, to avoid various complications. (DE OLIVEIRA, 2024).

Hypertensive syndromes in pregnancy consist of 4 situations, namely, chronic arterial hypertension, preeclampsia, gestational hypertension and preeclampsia superimposed on chronic hypertension. They can lead to other complications such as HELLP syndrome and eclampsia (DE MOURA et al., 2023).

Chronic arterial hypertension consists of pregnant women who already had a diagnosis of hypertension before pregnancy. Or pregnant women who had pressure peaks $\geq 140\text{mmHg}$ and diastolic peaks $\geq 90\text{mmHg}$ that remain persistent with more than two measurements at a minimum interval of 4 hours before 20 weeks. Or pregnant women who, after the resolution of the pregnancy, remain with increased pressure > 12 weeks after delivery. The cause can be primary, essential hypertension in 90% of cases, or secondary,



being caused by kidney disease, pheochromocytoma, coarctation of the aorta, lupus, diabetes, and thyrotoxicosis (BROWN et al., 2018).

Preeclampsia is characterized by the pregnant woman who began to raise blood pressure after 20 weeks of gestation accompanied by proteinuria (≥ 300 mg/dL or 1 g/L or more/24h or proteinuria/creatinuria ≥ 0.3 /isolated sample or Tape 1+) or signs of eclampsia such as headache, obtundation, drowsiness, behavioral alteration or scotomas, phosphenes, photophobia, diplopia, blurredness/vision loss, or right/epigastric hypochondrium pain, or nausea/vomiting. Or hepatic impairment (GOT) > 70 U/L and/or persistent right upper quadrant pain or Serum creatinine > 1.1 mg/dL or Platelet count $< 100,000$ mm³ (MEGIOLARO et al., 2024).

Preeclampsia is classified as early and late, with late preeclampsia ≥ 34 weeks.

The main associated risk factors are: primiparity, previous history of preeclampsia in a previous pregnancy, nephropathies, chronic arterial hypertension, diabetes mellitus, collagenosis, obesity, thrombophilia, extremes of age, gestational trophoblastic disease, twinning and alloimmunization Rh. For patients who are part of the risk group, AAS 60-150 mg/day should be used, starting at the 12th week of gestation and calcium 1 to 2 g/day – 20th week until delivery. Pregnant women with preeclampsia increase the risk of death in signs of imminent eclampsia, eclampsia, hypertensive crisis and HELLP syndrome (GONÇALVES et al., 2024).

Preeclampsia with signs of severity is characterized by SBP ≥ 160 , DBP ≥ 110 Confirmed after 10 minutes, creatinine > 1.1 mg/dL, signs of hypertensive encephalopathy (headache and visual disturbances), epigastric or right hypochondrium pain, thrombocytopenia $< 100,000$ mm³, clinical or laboratory evidence of coagulopathy, eclampsia, increased transaminases/LDH/bilirubins, presence of schizocytes in peripheral blood, stroke, chest pain, signs of heart failure, acute pulmonary edema, and difficulty in controlling blood pressure with three drugs. Preeclampsia can be complicated by eclampsia, with a clinical generalized tonic-clonic seizure or coma, as well as HELLP syndrome, with hemolysis, increased liver enzymes, thrombocytopenia (SALLES et al., 2024).

Gestational hypertension is characterized by pregnant women who had pressure peaks ≥ 140 mmHg and diastolic ≥ 90 mmHg peaks that remain persistent with more than two measurements at a minimum interval of 4 hours before, after > 20 weeks of gestation. That is, hypertension that appears after 20 weeks, without signs or symptoms or laboratory changes that characterize preeclampsia, which do not persist after 12 weeks of delivery. It



is estimated that 25% of gestational hypertension evolves to preeclampsia (DA SILVA et al., 2024).

Chronic hypertension superimposed by preeclampsia is represented by pregnant women who have a previous diagnosis of chronic arterial hypertension, or were diagnosed <20 weeks of gestation and who, at the 20th week, had worsening of hypertension, with the need to increase the dose or quantity of medications, or the appearance of proteinuria or dysfunction of target organs (MEGIOLARO et al., 2024).

Regarding the medications used in gestational hypertensive syndromes, initially the medications used in the prevention of preeclampsia in pregnant women with risk factors should be highlighted, such as ASA 60-150 mg/day, from the 12th week of gestation and calcium 1 to 2 g/day – 20th week until delivery. (GONÇALVES et al., 2024).

The classes of antihypertensive drugs released during pregnancy are: central adrenergic inhibitor, calcium channel blocker and thiazide diuretic in those pregnant women who were already using them before pregnancy and should be suspended in the presence of oligohydramnios or preeclampsia (SILVA et al., 2023).

The therapeutic approach in pregnant women with chronic arterial hypertension should be carried out with antihypertensive drugs, such as central adrenergic inhibitors, calcium channel blockers and thiazide diuretics in those pregnant women who were already using them before pregnancy. Proteinuria/creatinuria ratio, monthly USG after 24 weeks for fetal growth assessment, Doppler US, and the delivery limit at 40 weeks with adequate blood pressure control should be requested (DA FONSECA et al., 2024).

The indicated conduct in pregnant women with preeclampsia is relative rest, early antihypertensive therapy, request for a complete blood count, creatinine, GOT, LDH, bilirubins, and an isolated or 24-hour sample to detect proteinuria. As well as obstetric ultrasound, cardiotocography, Doppler, daily blood pressure monitoring and signs and symptoms of target organ involvement. In the presence of HELLP Syndrome or Eclampsia, the approach is to terminate the pregnancy (DE SOUZA et al., 2023).

In pregnant women with preeclampsia and gestational age between 24 and 34 weeks with maternal-fetal clinical stability, the approach is conservative, with adequate monitoring and pressure control, alert to signs and symptoms of imminent eclampsia, laboratory monitoring and fetal vitality, corticosteroid therapy with betamethasone 12 mg IM every 24 h for 48 h or dexamethasone 6 mg IM every 12 h for 48 h and magnesium sulfate for fetal neuroprotection if fetus < 32 weeks. The conduct should be resolute if it worsens important clinical, laboratory, or ultrasound (KORKES et al., 2023).



Another important conduct for the management of preeclampsia is sulfation, which is indicated for pregnant women with eclampsia, with symptoms of imminent eclampsia, HELLP syndrome, and preeclampsia with clinical and/or laboratory deterioration. It can be performed by 2 schemes, Zuspan's scheme: attack and IV keep, Pritchard's scheme: IV/IM attack and IM keep. It should be maintained until 24 hours after delivery or after the last seizure in patients with eclampsia (DE CARVALHO et al., 2023).

FINAL CONSIDERATIONS

In summary, hypertensive syndromes during pregnancy are topics of great relevance in maternal health. These are potentially life-threatening conditions that require medical monitoring, early diagnosis, and appropriate treatment. It is one of the greatest challenges in contemporary medicine, due to its high incidence, complexity, and negative impact on the outcome of severe pregnant women (COSTA et al., 2023).

The management of these conditions should be individualized, according to the type of gestational hypertensive syndrome, and the clinical, laboratory, and ultrasound profile of each pregnant woman, considering the severity of hypertension and the health of the fetus. Adequate knowledge on this topic and continuous research on new treatments and preventive strategies can significantly contribute to reducing the mortality associated with these conditions (DORNER et al., 2023).

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