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How to Treat High Blood Pressure during Pregnancy?

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Introduction

Hypertension affects nearly 8% of women between the ages of 22 and 44 in the United States and is on the rise. Pre-pregnancy hypertension among 15 54-year-old women increased by a factor of two (from 12.3 to 28.9 per 1000 deliveries) between 1993 and 2002. Pregnancy-associated hypertension may play a role in cardio-metabolic disease in early childhood, according to additional data. Hypertension brought on by pregnancy continues to play a significant role in the morbidity and mortality of both the mother and the fetus. However, pre-pregnant hypertensive women with poorly controlled blood pressure in the first trimester are significantly more likely to experience adverse outcomes such as low birth weight, pre-eclampsia, and damage to target organs in the mother and fetus. Under proper management, the majority of women with controlled chronic hypertension will achieve success. The majority of current recommendations and clinical studies focus on the management and therapies for hypertension during pregnancy and breast-feeding, despite the fact that there is a lack of data regarding the management of hypertension prior to pregnancy.

Description

There are three types of hypertensive diseases that can occur during pregnancy: pre-eclampsia, gestational hypertension, and chronic hypertension. Pre-eclampsia frequently results in caesarean and preterm births. A blood pressure reading of 140/90 mmHg or higher is considered chronic hypertension before pregnancy and 20 weeks of gestation. Elderly, obese, and black women are more likely to suffer from this condition. Pre-eclampsia, congenital heart disease, and growth restriction are all linked to an increased risk of chronic hypertension. Even in the absence of superimposed pre-eclampsia, women with persistent hypertension are more likely to suffer adverse outcomes. Chronic hypertension is responsible for 3 to 5 percent of pregnancies that are complicated, but this percentage is on the rise, along with the trend for women to delay having children until they are in their 30s or 40s and obesity [1]. A systematic study found a link between chronic hypertension and a number of adverse outcomes, including pre-eclampsia in addition to pre-eclampsia, caesarean delivery, preterm birth (37 weeks), low birth weight (2500 g), neonatal intensive care, and perinatal mortality.

When there is mild-to-moderate pre-existing hypertension (systolic blood pressure (SBP) 140-159 mmHg or diastolic blood pressure (DBP) 90-99 mmHg), the risk of pre-eclampsia, placental abruption, and fetal development limitation rises. A prospective study of 222 women with mild-to-moderate hypertension found that the non-treatment group had a higher rate of complications for severe hypertension (66.9% vs. 25%, odds ratio (OR) 0.37(0.22-0.63)), renal impairment (72.8% vs. 23.1%, OR 0.32(0.19-0.52)), ECG changes (71.18% vs. 25%, OR 0.35(0.21-0.59), and placental abruptia. In cases of severe chronic hypertension (>170/110 mmHg), the risk of pre-eclampsia, which poses risks to the mother and the unborn child, can reach 46%. In Chappell's study, which gathered data from 822 mothers with chronic hypertension, the frequency of children delivered small for gestational age or preterm was higher than the background rate (48% vs. 21%). Pre-pregnancy blood pressure control is essential for the best pregnancy outcome [2].

Guidelines for Pre-Pregnancy Hypertension Treatment According to the data from pregnant chronic hypertension guidelines, the majority of recommendations called for taking an antihypertensive before becoming pregnant. Worldwide, there are divergent recommendations for managing chronic hypertension during pregnancy. It is essential to keep in mind that none of the various antihypertensive medications that are utilized on a daily basis have been shown to be teratogenic or unsafe to use. The majority of guidelines recommend that pregnant women taking ACE inhibitors or angiotensin II receptor blockers (ARBs) consult their doctor before getting pregnant [3]. Because they are teratogenic and increase the risk of congenital abnormalities if taken during the first trimester of pregnancy, women who are taking an ACE inhibitor or an ARB should stop taking their antihypertensive medication as soon as they learn that they are expecting (ideally within two working days). Ethyldopa is frequently regarded as the first-line medication for pre-pregnancy antihypertensive treatment with the highest amount of evidence regarding fetal safety because it has been used to treat pregnant hypertension since the 1960s. In a 7.5-year follow-up study, children whose mothers received methyldopa during pregnancy showed no adverse growth or development outcomes. When women need more than one medication and it is unlikely that they would be able to stop taking them during the first trimester, many doctors decide to switch women's antihypertensive medications to methyldopa before they become pregnant. Labetalol, a combination alpha- and beta-blocker, is a better option for severe hypertension than methyldopa because it is well tolerated and can be taken twice daily [1, 3].

Beta-blockers are typically harmless, despite the fact that intrauterine growth retardation and preterm birth have been documented. Calcium channel blockers (CCBs) like nifedipine are frequently used to prevent preterm labor. Webster L.'s randomized controlled trial demonstrated that nifedipine reduced the incidence of severe hypertension and stabilized the blood pressure of pregnant women with chronic hypertension without increasing the risk of adverse perinatal outcomes. Sublingual nifedipine administration is recommended to reduce the risk of unexpected maternal hypotension and fetal discomfort caused by placental hypoperfusion. Despite the lack of sufficient safety data, amlodipine has been used during pregnancy. Discouragement of diuretics' use is becoming increasingly popular. The European Society of Hypertension/European Cardiology Society (ESH/ECS) 2013 guidelines state that diuretics should be considered a possible or relative contraindication during pregnancy, whereas the British Hypertension Society (BHS) viewed the use of diuretics as a contentious issue with potential negative effects on maternal and fetal outcomes. Additionally, there may be an increased risk of congenital malformations and neonatal issues if chlorothiazide is consumed [2,3].

Weight Management During Pregnancy Several studies have demonstrated the importance of body weight or weight loss to blood pressure regulation during pregnancy. In one prospective study, 2252 pregnant women participated in an investigation into the connection between blood pressure during pregnancy and BMI before pregnancy. They discovered that while blood pressure levels change during pregnancy, BMI levels before pregnancy do not. Although the women in this study did not have their blood pressure reduced, it is important to note that overweight and obese women of reproductive age

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should be encouraged to live healthy lifestyles, including losing weight before getting pregnant. Contrary to the preceding finding were the findings of another Australian study that did not include pregnant women with a history of high blood pressure. Early adult weight loss was linked to a lower risk of pregnancy hypertension, while an increase in weight prior to pregnancy, but not baseline weight, was linked to a higher risk of hypertensive disorders during pregnancy [4]. Pre-pregnancy BMI and gestational weight change were found to strongly correlate with the risk of pregnancy-related hypertension in a Chinese study.

Management of Diet Despite the fact that it has been hypothesized that a woman's diet during pregnancy may play a role in the development of hypertension during pregnancy, there is still a lack of consensus regarding the connection between food and the prevention of hypertensive disorders. There are no studies that include hypertensive women before they got pregnant to track the positive and negative pregnancy events and outcomes. In a population-based study involving participants in the Australian Longitudinal Study on Women's Health, it was discovered that pre-pregnancy consumption of a Mediterranean-style diet pattern characterized by vegetables, legumes, nuts, tofu, rice, pasta, rye bread, red wine, and fish was associated with a lower risk of developing hypertensive disorders (RR: 0.58; 95% CI: 0.42-0.81). In addition, potassium and sodium intake from food are thought to play a significant role in how blood pressure changes in both the general population and people with hypertension [2-4]. Sodium intake was reduced from an average high usual level (201 mmol/day) to an average level of 66 mmol/day, below the recommended upper level of 100 mmol/day (5.8 g/day) in a recent Cochrane Database systemic review. This resulted in a decrease in SBP/DBP of 0.5/2.9 mmHg in white participants with hypertension and 1.0/0 mmHg in normotensive white participants. According to a different meta-analysis, taking potassium supplements decreased SBP by 4.48 mmHg (95 percent CI: 3.07-5.90) and by 2.96 mmHg (95 percent CI: 1.10-4.82) The authors suggested consuming 90 millimoles of potassium per day, or 3510 millimeters of mercury, as recommended by the World Health Organization, in order to control blood pressure. Contradictory results have been found in studies examining the connection between salt intake and the risk of pre-eclampsia in pregnant women. Doctors still disagree about the connection between potassium consumption and pregnancy-related blood pressure [5] despite the fact that there is limited evidence to support this claim. There are no studies that look at how much potassium or salt a hypertensive woman should eat before having a baby. To date, there hasn't been enough research done on the connection between sodium and potassium to make solid recommendations or draw firm conclusions. A significant nationwide randomized study reveals that pre- and post-pregnancy food preferences have largely remained stable.

Conclusion

Methyldopa should be used to treat hypertensive women who want to conceive instead of ACE inhibitors or ARBs. Women who are taking chlorothiazide should follow this advice as well. Women with persistent hypertension should be encouraged to continue eating low-sodium foods. Additionally, large, multicenter, randomized studies should be conducted to assess the efficacy of calcium and antioxidant supplements taken prior to pregnancy.

Acknowledgement

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Conflict of Interest

None.

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