Review Article

Hypertension in Pregnancy

Abstract

Background: Hypertension affects 10% of pregnancies in the United States and is a leading cause of both mother and infant mortality. Hypertension during pregnancy involves a number of conditions, especially preeclampsia, a type of hypertension that differs from pregnancy, which is more de novo or chronic hypertension. Risks for the fetus include premature birth, growth retardation and death. A direct treatment for preeclampsia is childbirth. Treatment of acute hypertension is essential to prevent cerebrovascular, heart and kidney problems in the mother. The other 2 types of hypertension, chronic and transient hypertension, are usually very poor subjects. Appropriate treatment of hypertension during pregnancy requires consideration of a few different factors in the cardiovascular physiology of pregnancy. The main goal is to prevent maternal complications from disrupting uterine flow and fetal circulation. Before prescribing an antihypertensive agent, the potential risk to the fetus from the interaction of uterine drugs must be carefully assessed.

Conclusion: The ultimate goal of treating high blood pressure during pregnancy is to have a healthy newborn without harming the mother's health.

Keywords*: Gestational hypertension; chronic hypertension; eclampsia; preeclampsia.*

Introduction

Hypertension is a very common medical problem experienced during pregnancy, making it difficult for 2-3% of pregnancies. High blood pressure during pregnancy is divided into 4 stages, as recommended by the National Working Group on High Blood Pressure in Pregnancy: 1) high blood pressure, 2) preeclampsia-eclampsia, 3) high blood pressure preeclampsia, 4) gestational hypertension (transient pregnancy hypertension or chronic hypertension identified in the last trimester of pregnancy). This term is preferred over the old but widely used term pregnancy-induced hypertension (PIH) because it is more accurate (1).

Causes and Risk Factors

The exact cause of preeclampsia includes several factors. Experts believe that it begins in the placenta to nourish the fetus during pregnancy. Early in pregnancy, new blood vessels grow and change to send blood to the placenta. In women with preeclampsia, these arteries appear to be underdeveloped or malfunctioning. They are smaller than normal blood vessels and respond differently to hormone expression, which limits the amount of blood that can flow to them. Causes of these abnormal growths may include: Insufficient blood flow to the uterus, Injury of the blood vessels, Immune system problem, certain genes, and other hypertension disorders during pregnancy, Preeclampsia is classified as one of the four diseases of high

blood pressure. That can happen during pregnancy. The other three are: Gestational hypertension. Women with high blood pressure during pregnancy have high blood pressure but do not have much protein in their urine or other symptoms of organ damage. Some women with gestational hypertension end up with preeclampsia. High blood pressure. Chronic hypertension high blood pressure that existed before pregnancy or that occurred before 20 weeks of pregnancy. But because high blood pressure often has no symptoms, it may be difficult to determine when it started. Chronic hypertension with superimposed preeclampsia: This condition occurs in women who have been diagnosed with chronic high blood pressure before pregnancy, but then develop high blood pressure and protein in the urine or other health problems during pregnancy (2).

Preeclampsia doesn't start until a pregnancy problem. Risk factors are: A history of preeclampsia. Personal or familial preeclampsia significantly increases the risk of preeclampsia. Arterial hypertension: If you already have chronic high blood pressure, you are at a higher risk of developing preeclampsia, First pregnancy. The risk of preeclampsia is high during your first pregnancy, new father. Any pregnancy with a new partner increases the risk of preeclampsia in addition to a second or third pregnancy with the same partner, Age. The risk of preeclampsia is higher in very young pregnant women and those over 35 years of age. Race, Black women are at higher risk of developing preeclampsia than women of other races, Obesity. The risk of preeclampsia is higher if you are overweight and multiple pregnancies. Preeclampsia is more common in women who have twins, triplets, or other relapses. The interval between pregnancies: Children under two years of age or more than 10 years apart are at greater risk of preeclampsia. History of certain conditions: Certain pre-pregnancy diseases such as chronic high blood pressure, migraines, type 1 or type 2 diabetes, kidney disease, a tendency to form blood clots or lupus increase the risk of preeclampsia. Pregnancy in vitro: Your chances of developing preeclampsia increase if your baby becomes pregnant with in vitro fertilization (3).

Pathophysiology

High blood pressure during pregnancy carries several risks, including: Decreased blood flow to the placenta. If the placenta is not getting enough blood, your baby may get less oxygen and less nutrients. This can lead to slow growth (inhibition of intrauterine growth), low birth weight or premature birth. Premature ejaculation can lead to breathing problems, an increased risk of infection, and other complications in the baby and Inflammation of the placenta. Preeclampsia increases your risk of developing the disease if the placenta separates from the inner wall of your uterus before you are born. A severe rash can cause severe bleeding, which can be dangerous for you and your baby. Limit of intrauterine growth. High blood pressure can slow or even slow your baby down (prevents intrauterine growth). Injury to some of your organs. Uncontrolled high blood pressure can damage your brain, heart, lungs, kidneys, liver, and other important organs. In extreme cases, it can be life-threatening. Early delivery. Sometimes premature birth is necessary to avoid complications that can be dangerous if you have high blood pressure during pregnancy. Heart disease is coming soon. Preeclampsia can increase the risk of future cardiovascular disease (heart and blood vessels). Your risk of

cardiovascular disease is higher if you've had preeclampsia more than once or had a premature birth due to high blood pressure during pregnancy (figure 1) (4).

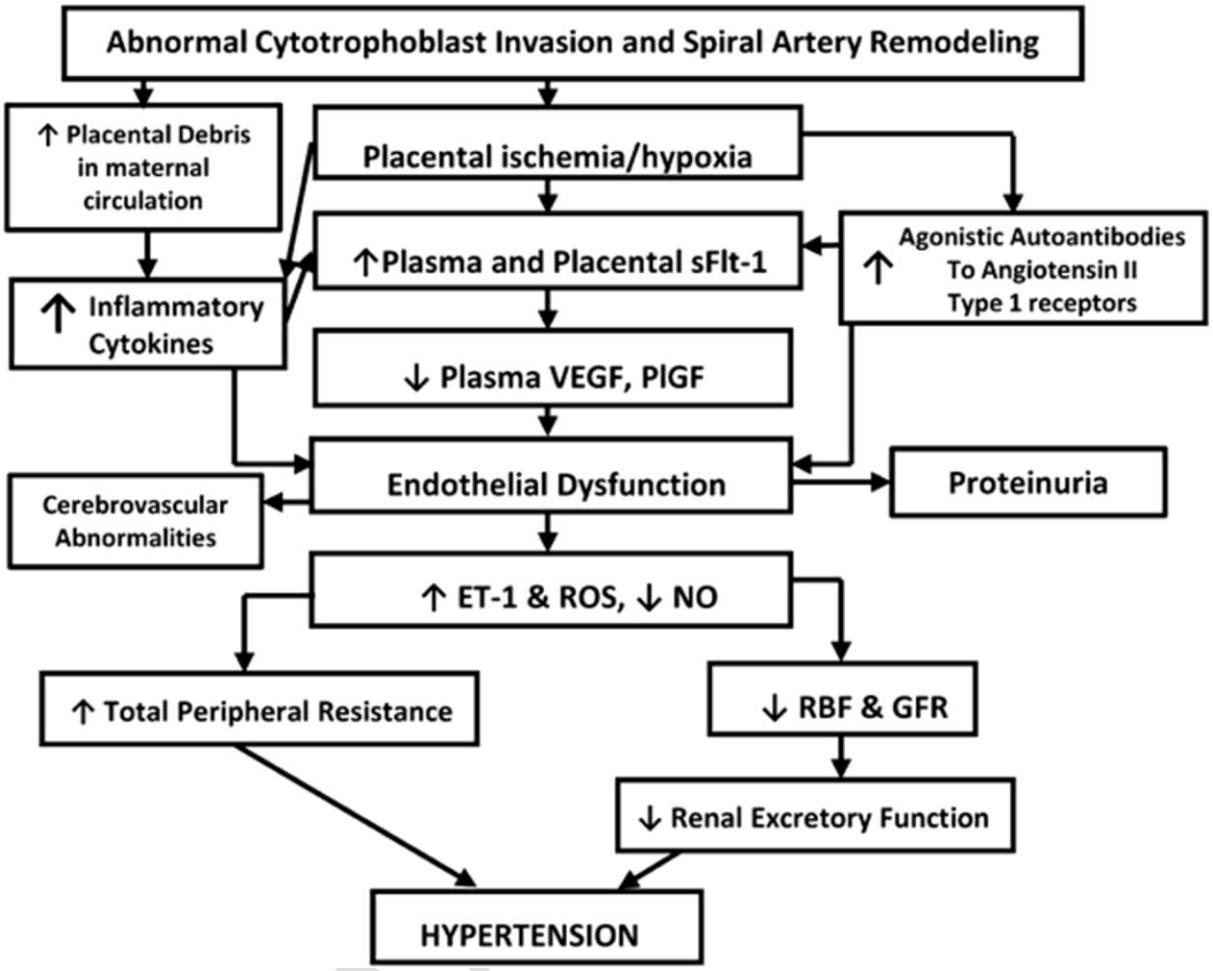

Figure 1 Pathophysiology of Hypertension during Pregnancy (5)

Classification

Sometimes high blood pressure is present before pregnancy. In some cases, high blood pressure increases during pregnancy. Gestational hypertension: Women with high blood pressure during pregnancy have high blood pressure that begins 20 weeks after conception. There is not much protein in the gut or other signs of organ damage. Some women with gestational hypertension end up with preeclampsia. Arterial hypertension: Chronic hypertension high blood pressure that existed before pregnancy or occurred before 20 weeks of pregnancy. But since high blood pressure often has no symptoms, it can be difficult to determine when it started. Chronic hypertension with superimposed preeclampsia: This condition occurs in women with chronic high blood pressure before pregnancy who begin to experience high blood pressure and proteinuria or other problems related to high blood pressure during pregnancy. Preeclampsia: Preeclampsia occurs when high blood pressure begins 20 weeks after pregnancy and is associated with symptoms of damage to other organs, including the kidneys, liver, blood, or brain. Untreated preeclampsia can cause serious or life-threatening complications for the mother and baby, including progressive fainting

(eclampsia). Previously, preeclampsia was only detected when a pregnant woman had high blood pressure and protein in her urine. Experts now know that you can have preeclampsia without protein in your urine (figure 2) (6).

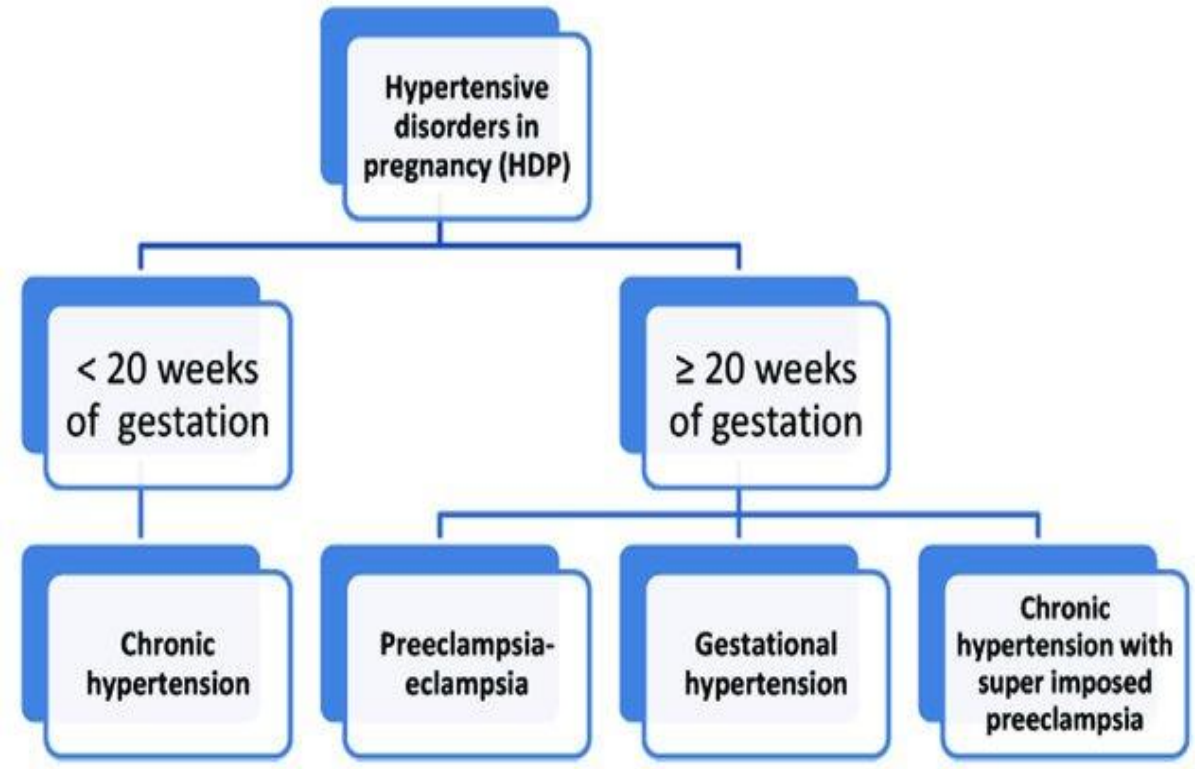

Figure 2 Classification of Hypertension in Pregnancy (7)

Signs and Symptoms

In addition to high blood pressure, other signs and symptoms of preeclampsia include: excess protein in the urine (proteinuria) or additional symptoms of kidney problems, headaches, temporary vision loss, blurred vision or sensitivity to light, vision disturbances, including abdominal pain. , Usually under the right ribs, nausea or vomiting, decreased urination, decreased platelet count (thrombocytopenia), abnormal liver function, fluid shortness in your lungs, sudden weight gain, and inflammation (especially thrombocytopenia), usually accompanied by preeclampsia. However, they occur during normal pregnancy, so obesity and inflammation are not considered reliable symptoms of preeclampsia (8).

Complications

The more severe your preeclampsia and the more likely you are to get pregnant, the greater the risk to you and your baby. Preeclampsia may require labor and delivery. Surgery (Category C) may be required for clinical or obstetric conditions that require immediate delivery. Otherwise, your doctor may recommend a planned vaginal delivery. Your midwife will talk with you about what type of delivery is best for your condition. Complications of preeclampsia can include (9):

Fetal growth limit: Preeclampsia affects the blood vessels in the placenta. If the placenta does not get enough blood, your baby may get enough blood and oxygen and a few nutrients. This can lead to slow growth known as fetal obstruction, low birth weight or premature birth. Premature birth: If you have preeclampsia with serious side effects, you may need to give birth early, in order to save your health and that of your baby. Premature ejaculation can lead to respiratory and other problems in your baby. Your healthcare provider will help you understand when it is time for your birth and Inflammation of the placenta. Preeclampsia increases your risk of placental abruption, a condition in which the placenta separates from the inner wall of your uterus before birth. A severe rash can cause severe bleeding, which can be dangerous for you and your baby. HELLP syndrome: HELLP representing hemolysis (destruction of red blood cells), high liver enzymes and low platelet count syndrome is a serious form of preeclampsia, and can be very dangerous for you and your baby. Symptoms of HELLP syndrome include nausea and vomiting, headaches, and upper right abdominal pain. HELLP syndrome is very dangerous because it represents damage to the systems of several organs. In some cases, it may occur suddenly, even before high blood pressure is detected or may develop without any symptoms (10).

Eclampsia: If preeclampsia is not controlled, eclampsia is actually preeclampsia and fainting can develop. It is very difficult to predict which patients will have preeclampsia severe enough to cause eclampsia. Generally, there are no signs or warning signs of eclampsia. Because eclampsia can have serious consequences for both mother and baby, childbirth becomes necessary, no matter how far away the pregnancy is. Other organ injuries: Preeclampsia can cause damage to the kidneys, liver, lungs, heart, or eyes, and may also cause a stroke or other mental injury. The severity of other injuries depends on the severity of the preeclampsia. Heart disease: Having preeclampsia may increase the risk of future cardiovascular disease (heart and blood vessels). The risk is even greater if you have had preeclampsia more than once or had a premature birth. To reduce the risk, after childbirth try to maintain a healthy weight, eat a variety of fruits and vegetables, exercise regularly, and do not smoke (11).

Investigations

To be diagnosed with preeclampsia, you must have high blood pressure after the 20th week of pregnancy and one or more of the following problems: protein in the urine (proteinuria), low platelet count, liver dysfunction, and kidney problems without protein Symptoms. Urine, fluid from the lungs (pulmonary edema), new headaches or visual disturbances; previously, preeclampsia was found only when high blood pressure and protein were present in the urine. However, experts now know that you can have preeclampsia, but never have protein in your urine. Blood pressure readings above 140/90 mm Hg are not uncommon during pregnancy. However, a single blood pressure reading does not necessarily mean that you have preeclampsia. Your doctor will monitor your numbers closely if you read an abnormal level or higher than your normal blood pressure. Having a second rare blood pressure reading within four hours of the first can confirm your doctor's suspicion of preeclampsia. Your doctor may ask you to learn more about blood pressure and blood and urine tests. Possible tests If your doctor suspects preeclampsia, you may need certain tests, including (12):

Blood tests

Your doctor will order liver function tests, kidney function tests and measure your platelets to aid in blood clotting (13).

Urine analysis

Your doctor will ask you to collect urine 24 hours a day to measure the amount of protein in your urine. A single urine sample, which measures the amount of protein and creatinine, a chemical present in the urine, can also be used for diagnosis (14).

Fetal ultrasound

Your doctor may also recommend that you keep a close eye on your child's development, usually through ultrasound. Images of your baby taken during the ultrasound scan allow your doctor to estimate the weight of the fetus and the amount of fluid in the uterus (15).

Nonstress test or biophysical profile

The non-stress test is a simple procedure that checks how your baby's heart rate reacts when you move. Biophysical profiling uses ultrasound to measure your baby's breathing, muscle tone, movement, and amniotic fluid volume in the womb (16).

Treatment

An effective treatment for preeclampsia is childbirth. As long as your blood pressure drops you are at increased risk of fainting, placenta rupture, stroke and heavy bleeding. Of course, if it is too early in your pregnancy, birth will not be the best for your baby. If you have been diagnosed with preeclampsia, your doctor will advise you on how much prenatal visits are usually needed during pregnancy. You will also need regular blood tests, ultrasound and less accurate tests than expected if you have a problem-free pregnancy (17).

Medications: Possible treatments for preeclampsia may include: Medicines to lower blood pressure. These drugs, called antihypertensives, are used to lower blood pressure when it is dangerously high. Blood pressure of 140/90 millimeters of mercury (mmHg) is usually treated. Although there are many types of antihypertensive drugs, many are not safe to use during pregnancy. Talk to your doctor about whether you need to use antihypertensive drugs in your condition to control your blood pressure. Corticosteroids: If you have severe preeclampsia or HELLP syndrome, corticosteroids may temporarily improve liver and platelet function to prolong your pregnancy. Corticosteroids can also help your baby's lungs grow back within 48 hours, an important step in preparing a premature baby for life outside the womb. Anticonvulsants: If you have severe preeclampsia, your doctor may prescribe an antidepressant, such as magnesium sulfate, to prevent your first attacks (18).

Bed rest: Bed rest is generally recommended for women with preeclampsia. But research has not shown any benefit from this practice, it can increase your risk of blood clots and affect your financial and social life. For many women, bed rest is no longer recommended. Hospitalization: Severe preeclampsia may require hospitalization. In the hospital, your doctor

may perform routine stress tests or biophysical profiles to monitor your baby's well-being and measure the volume of amniotic fluid. Lack of amniotic fluid is a sign of poor blood supply to the baby. Birth: If you are diagnosed with preeclampsia late in your pregnancy, your doctor may recommend immediate delivery. Whether your cervix begins to dilate (stretch), thin (active), and smooth (mature) may also be a factor in determining whether an incision is made at any time. In extreme cases, it is impossible to determine the age of your baby or cervix. If it is not possible to wait, your doctor may immediately resuscitate or order a cesarean section. During labor, you may be given magnesium sulfate through an IV to help prevent seizures. If you need postpartum pain, ask your doctor what to take. NSAIDs such as ibuprofen (Advil, Motrin IB, and others) and naproxen sodium (Aleve) can increase blood pressure. After giving birth, it may take some time before high blood pressure and other symptoms of preeclampsia resolve (19).

Prevention

Researchers continue to investigate ways to prevent preeclampsia, but no specific strategy has been developed so far. Reduce salt, change activity, reduce calories, and eat garlic and fish oil to avoid reducing your risk. Increasing vitamin C and E intake has not been shown to be beneficial. Other studies have reported an association between vitamin D deficiency and an increased risk of preeclampsia. However, some studies have shown an association between vitamin D supplement intake and a reduced risk of preeclampsia, while others have failed contact. However, in some cases, the risk of preeclampsia can be reduced (20).

Low-dose aspirin: If you experience some risk factors, including a history of preeclampsia, multiple pregnancies, chronic hypertension, kidney disease, diabetes or autoimmune disease, your doctor may recommend starting low-dose daily aspirin (81 mg). Twelve years. Pregnancy weeks, Calcium supplement: In some communities, women with calcium deficiency before pregnancy and those who do not get enough calcium from their diet during pregnancy may benefit from calcium supplements to prevent preeclampsia. However, it is unlikely that women in the United States or other developed countries will experience calcium deficiency, which suggests that calcium supplements may benefit them. It is important that you do not take any medications, vitamins or supplements without first talking to your doctor. Before getting pregnant, especially if you have preeclampsia, it is best to stay healthy as possible. Lose weight if necessary and make sure other conditions, such as diabetes, are handled properly. If you are pregnant, take care of yourself and your baby with daily prenatal care. If preeclampsia is identified early, you and your doctor can work together to prevent complications and make better decisions for you and your child (20).

There is currently no sure way to prevent high blood pressure. Some factors that cause high blood pressure can be controlled and some cannot. Follow your doctor's instructions for diet and exercise. Other ways to prevent high blood pressure during pregnancy include the following: use salt as needed, drink at least 8 glasses of water a day, increase the amount of protein you eat, and limit the amount of fried foods, reduce also. Eat. Get enough rest. Get regular exercise, elevate your legs several times a day, avoid drinking alcohol, avoid caffeinated beverages, your doctor may suggest prescribed medications and supplements (20).

Discussion

Hypertension during pregnancy is defined as blood pressure of 140/90 mm Hg or higher. Korotkoff V class (disappearance) is used instead of Korotkoff phase IV to determine DBP. In the case of an outpatient, blood pressure should be measured while sitting in a calm state after a period of rest. In hospitalized patients, lying on the side eliminates the effect of compression of the inferior vena cava through an enlarged uterus, which interferes with venous return and causes a decrease in blood pressure. Regardless of the posture, special care must be taken to keep the patient's arms at heart level. Placing your arms around your heart can significantly lower your blood pressure. During pregnancy, low blood pressure is achieved by using the right arm while the patient rests on the left side. This study of blood pressure can only identify changes in hydrostatic pressure caused by placing the right arm above the heart. Therefore, an increase in blood pressure with a change from dorsal to dorsal side may only represent a postural event and not a positive effect on rollover tests, which were considered preeclampsia. The National High Blood Pressure Education Program (NHBPEP) Working Group recently published a second report reviewing the classification of high blood pressure in pregnancy. The term transient hypertension has been changed to pregnant hypertension, which is used only during pregnancy in a group of women who start hypertension for the first time after 20 weeks of pregnancy without proteinuria. Some divisions persist (20).

Conclusion

The main goal of treating high blood pressure during pregnancy is to give birth to a healthy baby without endangering the mother's health. Early diagnosis and close monitoring of the mother and fetus are essential. High blood pressure without proteinuria is usually healthy and can be comfortably controlled. Antihypertensive drugs should be used with caution and the risks to the fetus from intrauterine exposure should be carefully assessed. Severe preeclampsia (both pure and superimposed) is an emergency birth, with potentially fatal consequences for the fetus and mother. Ideally, these women should be hospitalized and treated with bed rest, antihypertensive drugs, and magnesium sulfate for seizure prophylaxis. Direct treatment of preeclampsia at birth: For mild forms that are far from over, postponing the birth is desirable and, if possible, can improve the child's prognosis by decreasing it prematurely.

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