



Pregnancy and Hypertension

In most women, pregnancy is generally well-tolerated, but complications may arise if a woman has a pre-existing cardiac or aortic disease. The risk of cardiovascular disease in pregnancy is increasing in the western world, affecting 1% to 4% of pregnancies in the United States. The reason for this is two-fold:

1. Many women are having babies later in life and have additional risk factors including hypertension, diabetes, or obesity.
2. Women who had congenital heart disease are living into their childbearing years because they had operative care. They account for up to 80% of all pregnancies in patients with known heart conditions.

In developed nations such as the United States, maternal heart disease is the leading cause of death during pregnancy.

Cardiac changes during pregnancy

Many changes occur to blood flow in a pregnant woman as pregnancy is a high output cardiovascular state. These changes include decreased systemic vascular resistance and lower blood pressure in most cases, expanded blood volume, and increased heart rate and cardiac output. These changes create an optimal environment that promotes fetal growth and protects the mother from delivery risks.

The major changes in blood volume and red cell mass in the mother begin around the fourth week of pregnancy and peak at 28-34 weeks. As the red blood cell mass expands, pregnant women frequently become anemic. In addition, clotting factors will increase during pregnancy.

Pre-pregnancy counseling

Counseling is recommended for all women with pre-existing cardiac or aortic disease who want to become pregnant. A multidisciplinary plan with various doctors may be needed and any unhealthy habits should be ceased.



The Modified World Health Organization (WHO) Classification is best for calculating risk level for pregnant women. The WHO system identifies several levels of risk:

Group I. Low Risk: These patients have a minor cardiac history with a very low chance of mortality.

Group II. Low-Moderate Risk: Patients in this group have experienced a form of cardiac disease and have a small increase in the chance of a maternal cardiac event (5-10%). One cardiac visit per trimester is recommended, and patients can deliver at a local hospital.

Group II-III. Moderate Risk: These patients have more severe cardiac disease, with an intermediate increased risk of a maternal cardiac event (10-19%). Bimonthly follow-up visits with a cardiologist are recommended, and hospitalization at a specialized center is required for delivery.

Group III. High Risk: These patients have more advanced cardiac issues and are at significant risk of a maternal cardiac event (19-27%). Bimonthly follow-up visits with a cardiologist are recommended, and delivery should take place at an expert center for pregnancy and cardiac disease.

Group IV. Extremely High Risk: This category is for patients with the most dangerous cardiac issues and an extremely high risk of a maternal cardiac event (40-100%). Pregnancy is not advised, and termination should be discussed. If the patient decides to continue the pregnancy, delivery must occur at an expert center for pregnancy and cardiac disease.

Hypertension in pregnancy

Hypertension (high blood pressure) is the most common medical complication in pregnancy and affects 5-10% of women worldwide. It is a major cause of maternal, fetal, and neonatal morbidity and mortality. The mother's risks include placental abruption, stroke, and multiorgan failure; the fetal risks are growth retardation, prematurity, and intrauterine death.



Hypertension includes pre-existing high blood pressure, gestational hypertension, pre-eclampsia, and a combination of pre-existing and gestational hypertension with proteinuria (protein in your urine).

What is pre-eclampsia?

Pre-eclampsia is gestational hypertension with significant protein in the urine or hypertension and end-organ dysfunction. It is a common cause of fetal growth restriction and premature birth. The only cure is delivery.