Pregnancy - Hypertension
(High Blood Pressure, Preeclampsia)

High blood pressure (*hypertension*) that develops after 20 weeks of pregnancy is called preeclampsia. Preeclampsia is a blood pressure that is 140 or higher systolic, or 90 or higher diastolic that develops after 20 weeks of pregnancy along with protein (0.3 grams or higher in 24 hours) in the urine. Preeclampsia can be life-threatening to the mother and baby. Babies are smaller and more likely to be born prematurely when the mother's blood pressure is elevated. In **extreme** cases, the mother may die or the baby may die while still in the uterus. In preeclampsia, the rise in blood pressure is caused by the pregnancy and returns to normal after the baby is delivered.

Preeclampsia is known by other names including:

- Toxemia of pregnancy.
- Eclampsia (high blood pressure with convulsions).
- Pregnancy induced hypertension.
- Gestational hypertension is used to replace the term "pregnancy induced hypertension."
- HEELP Syndrome. **HEELP syndrome is present when:**
  - The systolic blood pressure is 160 or higher or the diastolic blood pressure is 110 or higher on two occasions within 6 hours during bed rest.
  - The 24 hour protein in the urine is 5 grams or 3+ or higher on two random samples.
  - The 24 hour urine out put is less than 500 ml.
  - There are cerebral (severe headache) or visual problems (blurred or double vision).
  - There is cyanosis (blue lips and finger nails) because of the lungs filling up with fluid (pulmonary edema).
  - There is upper abdominal pain.
  - There are abnormal liver function tests.
  - There is a low platelet count.
  - The baby is not growing normally.
  - There is abruption (premature separation) of the placenta.

High blood pressure that was present before the pregnancy (*chronic hypertension*) and preeclampsia are different conditions. Chronic hypertension continues following delivery. With chronic hypertension, there is no protein in the urine. You can get *superimposed preeclampsia* with chronic hypertension, and this puts the pregnancy at more risk.

CAUSES

The exact cause of preeclampsia is unknown. It may be a immune reaction in the body and it also may be related to trophoblastic cells that invade the placenta (the more the invasion the higher the blood pressure). Preeclampsia is a much more dangerous condition than chronic hypertension. With preeclampsia there are more changes in the mother's body than just having chronic high blood pressure. There is a shift in chemical makeup. This shift can lead to blood clotting, seizures, problems in the mother and more as stated in HEELP Syndrome and also problems with the fetus, low birth weight, premature birth, seizures and death in the pregnant patient or the fetus.

RISK FACTORS THAT MAY LEAD TO PREECLAMPSIA:

- First pregnancy.
- Having preeclampsia in a previous pregnancy.
- Having chronic hypertension.
- Having twins or more with pregnancy.
- Being over age 35 when getting pregnant.
- Being African American.
- If you have kidney disease.
- If you have diabetes.
- If you have lupus or other blood diseases.
- If you are obese.

SYMPTOMS

The most common symptoms found in patients with preeclampsia are:

- High blood pressure.
- Swelling of the hands, face and brain (*edema*).
- Losing protein in the urine.
- Overactive reflexes (*hyperreflexia*).
- Increase uric acid in the blood.
- Sudden weight gain (5 to 10 pounds in one week).
- Dizziness.
- Increased deep tendon reflexes (the knee-jerk).
- Visual problems.
- Abdominal pain.
- Headache.
- Nausea and vomiting.
- Numbness in the face, hands and feet.
- Slurred speech.

The symptoms listed above are serious and must be evaluated before they cause several other problems. These include:

- Seizures.
- Trouble breathing.
- Death of the mother or fetus.
- Low urine output (*oliguria*).
- Low platelet count.
- Not enough fluid in the amniotic sac (*Oligohydramnios*).
- Bleeding because blood is not clotting normally (low platelet count).
- Abnormal liver function.
- Hemolysis, breakdown of red blood cells.
- Retinal detachment.
- Brain hemorrhage.

DIAGNOSIS

- A rise in the systolic number (the first number) of 30 or more and/or a rise of the diastolic number (the second number) of 15 or more can mean a problem is developing. A blood pressure that usually runs about 100/60 and then goes up to 130/90 is a concern. If this happens, the mother needs more checking, blood and other tests need to be performed and the baby needs to be monitored. You also need to be watched closely and even admitted into the hospital if necessary.
- A 24-hour urine test will likely be done. This test measures how much protein is in the urine. The amount of protein in the urine increases due to the changes in the kidneys. Measuring the protein helps determine how bad the problem may be.
- An increase in the uric acid in the blood may indicate preeclampsia.
- Blood tests may show blood clotting abnormalities and liver function to be impaired. This can be a sign of a much more serious problems known as the HELLP syndrome.
- Over active reflexes are also another way of knowing preeclampsia is developing.
- Patients with pre-existing hypertension who also get preeclampsia must be careful as this is an extremely dangerous condition.

TREATMENT

The goal of treatment is to get the baby as close to maturity as possible before having to deliver.

- Bed rest.
- Frequent blood pressure tests.
- 24 hour urine samples.
- Frequent mother and fetal monitoring.
- Blood tests, ultrasounds, fetal monitoring, non-stress tests and biophysical profiles are used to watch for signs that your baby may be in danger. If the baby's life is threatened, delivery may be by induction of labor or cesarean section. A pregnant woman with severe preeclampsia should be managed by an obstetrician who

is a specialist in maternal-fetal medicine.

- If you are not hospitalized, frequent prenatal visits to check you and your baby are necessary.
- Blood pressure medications may be given. This alone does not stop preeclampsia.
- Liver studies are done to make sure liver function is satisfactory.
- Coagulation studies may be done. This is to make sure that platelet function is satisfactory.
- Magnesium sulfate may be used to decrease the risk of seizures. It also helps control blood pressure. It is a safe medicine but needs careful monitoring. Levels that are too high will cause depressed breathing.
  - It also may be useful in stopping premature labor.
- If you have severe preeclampsia, delivery is necessary. Regardless of the stage of the pregnancy, the baby has a better chance of surviving outside the mother.
  - An amniocentesis can help determine the baby's lung maturity.
  - If the baby's lungs are not mature, steroids can be given to the mother 24 to 48 hours before the delivery. Steroids will help mature the baby's lungs.

PREVENTION

- There is no sure way known that will prevent preeclampsia.
- Taking 1000 mg of vitamin C and 400 mg of vitamin E a day may be helpful in preventing preeclampsia. More studies are needed to show that this treatment will help.

HOME CARE INSTRUCTIONS

- Rest in bed.
- Eat a diet that is low in salt.
- Frequent blood pressures should be taken and recorded. Bring these to your caregiver's office with you during prenatal checks.
- 24-hour urine collections may be necessary to follow the disease.
- Take medications and testing for you and your baby as recommended by your caregiver.
- Be sure to go to all your follow-up appointments as recommended.
- Avoid stressful situations.
- You may have to quit working.

SEEK MEDICAL CARE:

Women who have preeclampsia are unable to get to the caregiver for frequent evaluation (2 to 3 times a week) or appear to be getting worse or develop severe preeclampsia (HEELP syndrome), should be admitted into a hospital for care.

SEEK IMMEDIATE MEDICAL CARE IF:

- You have abdominal pain.
- You have a seizure or irritability or jumpiness.
- You have visual disturbances.
- You have severe swelling of the ankles and face.
- You have repeated vomiting.
- You have vaginal bleeding.
- You have a headache that is continuous or severe.
- You have contractions.
- You have shortness of breath.
- You develop a stiff neck or numbness of the face, hands or feet.
- You develop slurred speech.
- You have dizziness.
- You gain 5 pounds or more in one week.
- You begin to bruise easily.
- You pass out.

- You do not feel the baby moving.

Document Released: 06/03/2008 Document Re-Released: 03/16/2010
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