

PATIENT EDUCATION



The American College of
Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS

Preeclampsia and High Blood Pressure During Pregnancy

Hypertension, or **high blood pressure**, can lead to health problems at any time in life. During pregnancy, severe or uncontrolled hypertension can cause **complications** for you and your **fetus**. A serious high blood pressure disorder called **preeclampsia** also can occur during pregnancy or soon after childbirth.

This pamphlet explains

- *what blood pressure is and how it is measured*
- **chronic hypertension**
- **gestational hypertension**
- **preeclampsia**

Blood Pressure

Each time the heart contracts (squeezes), it pumps blood into blood vessels called **arteries**. The arteries carry the blood to the body's organs. Other blood vessels called **veins** return the blood to the heart. Blood pressure is the pressure of the blood against the vessel walls.

To measure your blood pressure, a cuff with a balloon inside is wrapped around your upper arm. Air is pumped into the balloon and the cuff tightens. Blood pressure is expressed in "millimeters of mercury" (mm Hg) because the original blood pressure meters used a column of mercury to measure pressure.

A blood pressure reading has two numbers separated by a slash. A blood pressure reading of 110/80 mm Hg, for instance, is referred to as "110 over 80." The first number is the pressure against the artery walls when the heart contracts. This is called the **systolic blood pressure**. The second number is the pressure against the artery walls when the heart relaxes between contractions. This is called the **diastolic blood pressure**.

Your **obstetrician-gynecologist (ob-gyn)** or other health care professional will check your blood pressure at each **prenatal care** visit. Blood pressure changes often during the day. Because of the normal ups and downs in blood pressure, if you have one high

reading, another reading may be taken a few hours later to confirm the result.

Chronic Hypertension

Chronic hypertension is high blood pressure that was present before a woman became pregnant or that occurs in the first half of pregnancy (before 20 weeks of pregnancy). The guidelines for blood pressure are the following:

- Normal: Less than 120/80 mm Hg
- Elevated: Systolic between 120–129 and diastolic less than 80 mm Hg
- Stage 1 hypertension: Systolic between 130–139 or diastolic between 80–89 mm Hg
- Stage 2 hypertension: Systolic at least 140 or diastolic at least 90 mm Hg

Risks

Chronic hypertension increases the risks of complications for the mother and the fetus. With mild hypertension, the risk of complications is small. With severe hypertension, the risk is greater.

During pregnancy, a woman's body makes more blood to help the fetus grow. If blood pressure increases, it can place extra stress on her heart and **kidneys**. This can lead to heart disease, **kidney disease**, and **stroke**.

The fetus receives all of its **nutrients** and **oxygen** from the mother's blood as it flows through the **placenta**. High blood pressure can reduce blood flow to the placenta, and the fetus will receive less of the nutrients it needs to grow. This can lead to **fetal growth restriction**, in which the fetus does not grow normally. Other risks of high blood pressure during pregnancy include the following:

- **Preeclampsia**—This condition is more likely to occur in women with chronic high blood pressure than in women with normal blood pressure.
- **Preterm** delivery—If the placenta is not providing enough nutrients and oxygen to the fetus, it may be decided that early delivery is better for the baby than allowing the pregnancy to continue. Early delivery also may be needed to prevent further complications for the pregnant woman.
- **Placental abruption**—This condition, in which the placenta prematurely detaches from the wall of the uterus, is a medical emergency that requires immediate treatment.
- **Cesarean birth**—Women with hypertension are more likely to have a cesarean birth than women with normal blood pressure. A cesarean birth carries risks of infection, injury to internal organs, and bleeding. It also can affect the way that a woman gives birth if she decides to have more children.

Treatment

Treatment depends on whether your hypertension is mild or severe. In the first half of pregnancy, blood

pressure normally decreases. If your hypertension is mild, your blood pressure may stay that way or even return to normal during pregnancy, and your medication may be stopped or your dosage decreased. If you have severe hypertension or have health problems related to your hypertension, you may need to start or continue taking blood pressure medication during pregnancy.

Your blood pressure will be monitored closely throughout pregnancy. You may need to monitor your blood pressure at home. **Ultrasound exams** may be done throughout pregnancy to track fetal growth. If fetal growth problems are suspected, you may have additional tests that monitor the health of the fetus. This testing usually begins in the third **trimester** of pregnancy.

If your condition remains stable, early delivery of the baby (before 39 weeks of pregnancy) usually is not necessary. If complications develop, it may be necessary to deliver the baby early.

After delivery, you will need to continue to monitor your blood pressure. Blood pressure often increases in the weeks after childbirth. You may need to go back to taking your medication, or your medication dosage may need to be adjusted. Many blood pressure medications are safe for women who are breastfeeding.

Gestational Hypertension

When high blood pressure first occurs in the second half (after 20 weeks) of pregnancy, it is called gestational hypertension. Most women with gestational hypertension have only a mild increase in blood pressure. Some women, however, develop severe hypertension and are at risk of serious complications. All women with gestational hypertension are monitored frequently (usually weekly) for signs of preeclampsia and to make sure that their blood pressure does not go too high.

Although gestational hypertension usually goes away after childbirth, it may increase the risk of developing hypertension in the future. If you had gestational hypertension, it is important to keep this risk in mind as you make decisions about your health. Healthy eating, weight loss, and exercise all have been shown to be helpful in preventing high blood pressure.

Preeclampsia

Preeclampsia is a serious blood pressure disorder that can affect all of the organs in a woman's body. It usually occurs after 20 weeks of pregnancy, typically in the third trimester. When it occurs before 34 weeks of pregnancy, it is called early-onset preeclampsia. It also can occur in the **postpartum** period. Rarely, it can occur before 20 weeks of pregnancy.

It is not clear why some women develop preeclampsia. Doctors refer to high risk and moderate risk of preeclampsia. Risk factors for women at high risk include

- preeclampsia in a past pregnancy
- being pregnant with more than one fetus

- chronic hypertension
- kidney disease
- *diabetes mellitus*
- autoimmune conditions, such as *lupus* (systemic lupus erythematosus or SLE)

Risk factors for women at moderate risk include

- being pregnant for the first time
- *body mass index (BMI)* over 30
- family history of preeclampsia (mother or sister)
- being older than 35
- being African American

Risks

Preeclampsia is a leading cause of death worldwide for women and newborns. Preeclampsia can lead to seizures, a condition called *eclampsia*. It also can cause *HELLP syndrome*. HELLP stands for *hemolysis*, elevated *liver enzymes*, and low *platelet* count. In this condition, red blood cells are damaged or destroyed, blood clotting is impaired, and the liver can bleed internally, causing chest or abdominal pain. HELLP syndrome is a medical emergency. Women can die from HELLP syndrome or have lifelong health problems as a result.

When preeclampsia occurs during pregnancy, the baby may need to be delivered right away, even if he or she is not fully grown. Preterm babies have an increased risk of serious complications, such as breathing problems, problems with eating or staying warm, and vision or hearing problems. Some preterm complications last a lifetime and require ongoing medical care. Babies born very early also may die.

Women who have had preeclampsia—especially those whose babies were born preterm—have an increased risk later in life of *cardiovascular disease* and kidney disease, including heart attack, stroke, and high blood pressure. Also, having preeclampsia once increases the risk of having it again in a future pregnancy.

Signs and Symptoms

Preeclampsia can develop quietly without you being aware of it. When symptoms do occur, they can be confused with normal symptoms of pregnancy (see box “Signs and Symptoms of Preeclampsia”). A woman has preeclampsia when she has high blood pressure and other signs that her organ systems are not working normally. One of these signs is *proteinuria* (an abnormal amount of protein in the urine).

A woman with preeclampsia whose condition is worsening will develop other signs and symptoms known as “severe features.” These include a low number of platelets in the blood, abnormal kidney or liver function, pain over the upper abdomen, changes in vision, fluid in the lungs, or a severe headache. If the systolic blood pressure is 160 mm Hg or higher or the diastolic blood pressure is 110 mm Hg or higher, this also is considered a severe feature.

Signs and Symptoms of Preeclampsia

If you have any of the following symptoms, especially if they occur in the second half of pregnancy, you should contact your ob-gyn or other health care professional right away:

- Swelling of face or hands
- A headache that will not go away
- Seeing spots or changes in eyesight
- Pain in the upper abdomen or shoulder
- Nausea and vomiting (in the second half of pregnancy)
- Sudden weight gain
- Difficulty breathing

Diagnosis

A high blood pressure reading may be the first sign of preeclampsia. If your blood pressure reading is high, a repeat blood pressure measurement may be done to confirm the results. You will have a urine test to check for protein. If preeclampsia is diagnosed, you may have tests to check how your liver and kidneys are working and to measure the number of platelets in your blood. You also will be asked whether you have any of the symptoms of preeclampsia.

Management

Based on results of these tests, you and your ob-gyn or other health care professional will talk about how your condition will be managed. The goal is to limit complications for you and to deliver the healthiest baby possible.

Management of Mild Gestational Hypertension or Preeclampsia Without Severe Features.

Management of mild gestational hypertension or preeclampsia without severe features may take place either in a hospital or on an outpatient basis (you can stay at home with close monitoring by your ob-gyn or other health care professional). If your condition is managed at home, strict bed rest usually is not recommended, but you may be advised to limit heavy physical or other stressful activities. You may be asked to keep track of fetal movement by doing a daily *kick count* and to measure your blood pressure at home. You will need to see your ob-gyn or other health care professional at least weekly and sometimes twice weekly. At these visits, the following tests may be done:

- Blood pressure measurement
- Blood tests to check your liver and kidney function and platelet counts
- *Nonstress test* to check the fetus’s general well-being
- Ultrasound exam to track fetal growth and to measure the amount of *amniotic fluid*

Once you reach 37 weeks of pregnancy, it may be recommended that you have your baby. Labor may be induced (started with medications). If test results show that the baby is not doing well, you may need to have the baby earlier. Preeclampsia does not mean that you cannot have a vaginal delivery, but if problems arise during labor or if there are problems with the baby, you may need to have a *cesarean delivery*.

Management of Preeclampsia With Severe Features. If you have preeclampsia with severe features, you most likely will be treated in the hospital. If you are at least 34 weeks pregnant, it often is recommended that you have your baby as soon as your condition is stable. If you are less than 34 weeks pregnant and your condition is stable, it may be possible to wait to deliver your baby.

Delaying delivery for just a few days can be helpful in some cases. It allows time for certain medications to be given and other arrangements to be made that may reduce your baby's risk of some of the complications of being born preterm.

You may be transferred to a hospital with a special high-risk maternity unit and a high-level *neonatal intensive care unit (NICU)*. These units are specially equipped and have doctors and nurses with advanced training and experience in caring for complicated pregnancies and preterm babies. *Corticosteroids* may be given to help the fetus's lungs mature, and you most likely will be given medications to help reduce your blood pressure and to help prevent seizures. If your or the baby's condition worsens, prompt delivery will be needed.

Prevention

Currently, there is no screening test that can predict whether a woman will develop preeclampsia during pregnancy. For now, prevention involves identifying whether you have risk factors for preeclampsia and taking steps to address these factors.

If you have hypertension and are planning a pregnancy, see your ob-gyn or other health care professional for a *prepregnancy* check-up. The purpose of this check-up is to find out whether your hypertension is under control and whether it has affected your health. You may have tests to check how your heart and kidneys are working. Your medications will be reviewed to see if you need to switch to others that are safer during pregnancy. You also should learn about and pay attention to the signs and symptoms of preeclampsia.

If you have had preeclampsia in a prior pregnancy, a pregnancy care visit allows you and your ob-gyn or other health care professional to identify factors that may increase the risk of it happening again and to discuss a plan to achieve the best possible health before pregnancy. If you are overweight, weight loss usually is advised before pregnancy. If you have a medical condition, such as diabetes, it usually is recommended that your condition be well controlled before you become pregnant.

Taking low doses of aspirin has shown some promise in reducing the risk of preeclampsia in certain women at high risk. If you are at high risk of preeclampsia, talk with your ob-gyn or other health care professional about aspirin. It is best to follow the advice of your ob-gyn or other health care professional before taking any medication during pregnancy.

Finally...

High blood pressure during pregnancy can increase the risk of complications during pregnancy. If you have hypertension during pregnancy, you will be monitored closely for worsening high blood pressure and for preeclampsia. The good news is that many women with hypertension can have normal pregnancies and healthy babies.

Glossary

Amniotic Fluid: Fluid in the sac that holds the fetus.

Arteries: Blood vessels that carry oxygen-rich blood from the heart to the rest of the body.

Body Mass Index (BMI): A number calculated from height and weight. BMI is used to determine whether a person is underweight, normal weight, overweight, or obese.

Cardiovascular Disease: Disease of the heart and blood vessels.

Cesarean Birth: Birth of a fetus from the uterus through an incision (cut) made in the woman's abdomen.

Cesarean Delivery: Delivery of a fetus from the uterus through an incision (cut) made in the woman's abdomen.

Chronic Hypertension: Blood pressure that is higher than normal for a person's age, sex, and physical condition.

Complications: Diseases or conditions that happen as a result of another disease or condition. An example is pneumonia that occurs as a result of the flu. A complication also can occur as a result of a condition, such as pregnancy. An example of a pregnancy complication is preterm labor.

Corticosteroids: Drugs given for arthritis or other medical conditions. These drugs also are given to help fetal lungs mature before birth.

Diabetes Mellitus: A condition in which the levels of sugar in the blood are too high.

Diastolic Blood Pressure: The force of the blood in the arteries when the heart is relaxed. It is the lower reading when blood pressure is taken.

Eclampsia: Seizures occurring in pregnancy or after pregnancy that are linked to high blood pressure.

Fetal Growth Restriction: A condition in which a fetus has an estimated weight that is less than 90% of other fetuses of the same pregnancy age.

Fetus: The stage of human development beyond 8 completed weeks after fertilization.

Gestational Hypertension: High blood pressure that is diagnosed after 20 weeks of pregnancy.

HELLP Syndrome: A severe type of preeclampsia. HELLP stands for hemolysis, elevated liver enzymes, and low platelet count.

Hemolysis: Destruction of red blood cells.

High Blood Pressure: Blood pressure above the normal level. Also called hypertension.

Hypertension: High blood pressure.

In Vitro Fertilization (IVF): A procedure in which an egg is removed from a woman's ovary, fertilized in a laboratory with the man's sperm, and then transferred to the woman's uterus to achieve a pregnancy.

Kick Count: A record kept during late pregnancy of the number of times a fetus moves over a certain period.

Kidneys: Organs that filter the blood to remove waste that becomes urine.

Kidney Disease: A general term for any disease that affects how the kidneys function.

Liver Enzymes: Chemicals made by liver cells. High levels of liver enzymes may suggest liver damage.

Lupus: An autoimmune disorder that affects the connective tissues in the body. The disorder can cause arthritis, kidney disease, heart disease, blood disorders, and complications during pregnancy. Also called systemic lupus erythematosus or SLE.

Nonstress Test: A test in which changes in the fetal heart rate are recorded using an electronic fetal monitor.

Nutrients: Nourishing substances found in food, such as vitamins and minerals.

Obstetrician–Gynecologist (Ob-Gyn): A doctor with special training and education in women's health.

Oxygen: An element that we breathe in to sustain life.

Placenta: An organ that provides nutrients to and takes waste away from the fetus.

Placental Abruption: A condition in which the placenta has begun to separate from the uterus before the fetus is born.

Platelet: A small cell found in the blood that helps to stop bleeding.

Postpartum: Related to the weeks following the birth of a child.

Preeclampsia: A disorder that can occur during pregnancy or after childbirth in which there is high blood pressure and other signs of organ injury. These signs include an abnormal amount of protein in the urine, a low number of platelets, abnormal kidney or liver function, pain over the upper abdomen, fluid in the lungs, or a severe headache or changes in vision.

Prenatal Care: A program of care for a pregnant woman before the birth of her baby.

Preterm: Less than 37 weeks of pregnancy.

Proteinuria: The presence of an abnormal amount of protein in the urine.

Stroke: A sudden interruption of blood flow to all or part of the brain, caused by blockage or bursting of a blood vessel in the brain. A stroke often results in loss of consciousness and temporary or permanent paralysis.

Systolic Blood Pressure: The force of the blood in the arteries when the heart is contracting. It is the higher reading when blood pressure is taken.

Thrombophilia: A condition in which the blood does not clot correctly.

Trimester: A 3-month time in pregnancy. It can be first, second, or third.

Ultrasound Exams: Tests in which sound waves are used to examine inner parts of the body.

Veins: Blood vessels that carry blood from various parts of the body back to the heart.

This information was designed as an educational aid to patients and sets forth current information and opinions related to women's health. It is not intended as a statement of the standard of care, nor does it comprise all proper treatments or methods of care. It is not a substitute for a treating clinician's independent professional judgment. Please check for updates at www.acog.org to ensure accuracy.

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