

Chronic Hypertension in Pregnancy

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THE STORY IN ONE SENTENCE

Blood pressure was already high before pregnancy or climbed before twenty weeks — the blood vessels were damaged before the baby even arrived.

“Blood pressure was high before pregnancy or rose before week twenty. The danger is it can pile preeclampsia on top. Keep pressure under one-sixty over one-ten with safe medicines, and watch closely for organ damage or trouble with the placenta.”

Normal anatomy — the body's job

In a healthy pregnancy, blood vessels relax and open wide in the first half so more blood can flow to the uterus and placenta, feeding the growing baby. Blood pressure drops a little in the first twenty weeks, then slowly climbs back to normal near the end. The heart pumps more blood — about fifty percent more by mid-pregnancy — and the kidneys, liver, and brain all get extra flow too.

BODY'S JOB

The vessels open up (get wider) because pregnancy hormones — especially progesterone (the main pregnancy-holding hormone) and prostacyclin (a messenger made by the vessel lining that tells vessels to relax) — tell the smooth muscle in vessel walls to relax. This makes room for the extra blood volume without raising pressure. The placenta plugs into the uterine wall where spiral arteries (small twisted vessels in the womb lining) reshape themselves — their walls lose their tight muscle layer and become wide, floppy pipes so blood can pour into the placenta at low pressure and deliver oxygen and food to the baby.

1. Pregnancy hormones — progesterone and prostacyclin — are released into the bloodstream.
2. These hormones reach the smooth muscle cells in blood-vessel walls all over the body.
3. The muscle cells relax, so the vessels widen — like opening a narrow straw into a wide pipe.

4. At the same time, spiral arteries in the uterus reshape: their muscular walls are replaced by floppy, stretchy tissue.
5. Blood flows easily through these wide, soft vessels at low pressure.
6. The heart pumps fifty percent more blood volume, but because the pipes are wider, pressure actually drops a bit in early pregnancy.
7. Oxygen and nutrients flow freely from mother's blood across the placenta into the baby's blood.
8. In the second half of pregnancy, blood volume peaks and vessels start to tighten again, so pressure slowly rises back to baseline by the end.

What breaks

The blood vessels were already stiff, thick, or damaged before pregnancy — from years of high pressure, diabetes, kidney disease, or just aging — so they cannot relax and open the way they should. The spiral arteries in the uterus never reshape properly, so they stay narrow and tight instead of becoming wide, floppy pipes. This means pressure stays high and less blood reaches the placenta.

CLINICAL TERM

Pre-existing vascular dysfunction — endothelial damage (injury to the inner lining of vessels), arterial stiffness, impaired vasodilation (vessels cannot open), and incomplete spiral artery remodeling. The main upstream break is chronic arterial disease (sustained high blood pressure (hypertension) at least one-forty over ninety before pregnancy or before twenty weeks). The big downstream risks are superimposed preeclampsia (happens in twenty to twenty-five percent), placental insufficiency (placenta cannot feed the baby well), intrauterine growth restriction (IUGR, baby stays small), and placental abruption (placenta pulls away early).

How the body compensates

The body tries to keep blood flowing to vital organs and the baby by tightening vessels even more, holding onto salt and water to boost blood volume, and raising pressure to force blood through the narrow pipes. This can look stable for weeks, but it is a fragile balance — any extra stress (infection, dehydration, preeclampsia) can tip it into sudden organ damage or placental failure.

1. The kidneys sense low flow and release renin (a hormone that starts a chain reaction), which triggers the renin-angiotensin-aldosterone system — RAAS — a cascade that tightens vessels and holds salt, raising blood volume and pressure even more.

2. Angiotensin II (the main squeezer in the RAAS chain) tells smooth muscle in vessel walls to clamp down, narrowing the pipes further to push blood to the brain, heart, and kidneys first.
3. Aldosterone (a hormone from the adrenal glands, small glands sitting on top of the kidneys) tells the kidneys to hold onto sodium and water, so blood volume climbs — this helps flow but also raises the heart's workload.
4. The heart muscle thickens — left ventricular hypertrophy, meaning the left pumping chamber grows thicker walls — over time to pump harder against the high pressure, so blood pressure readings can stay in the one-forties to one-sixties without obvious symptoms for a while.
5. The body shifts blood flow toward the brain, heart, and kidneys first, so other organs (liver, placenta) may quietly starve while vital signs look okay — this is called redistribution.
6. Blood volume expands (plasma, the liquid part of blood, increases by up to fifty percent), which helps flow but also raises the workload on the heart and can cause swelling (edema) as fluid leaks into tissues in the legs, hands, and face.
7. The sympathetic nervous system (the fight-or-flight system, driven by nerves from the brainstem and spinal cord) stays turned on, keeping vessels tight and heart rate up — this holds pressure but burns energy and stresses organs over time.
8. This compensation can hold for weeks or months, so blood pressure may look controlled on medication — but underneath, vessels are still damaged and the placenta is still at risk.
9. The danger zone: if preeclampsia appears on top (superimposed preeclampsia), or if placental vessels finally fail, compensation breaks suddenly — blood pressure spikes above one-sixty over one-ten, kidneys leak protein (proteinuria), liver enzymes climb (AST and ALT rise), and the baby's heart rate may show distress (late decelerations, slowing after each contraction).
10. Once compensation fails, the window to reverse it is gone — delivery is the only cure, so the goal is to catch warning signs (rising creatinine in blood, new protein in urine, worsening blood pressure, IUGR on ultrasound) before the crash.

Domino effect

1. Blood vessels stay stiff and narrow throughout pregnancy. — Chronic high blood pressure (hypertension) has already thickened and damaged the vessel walls before pregnancy — the endothelium (inner lining) is scarred and the smooth muscle layer is overgrown — so they cannot relax when progesterone and prostacyclin (the pregnancy hormones that tell vessels to open) arrive. They stay tight like old, rusty pipes that cannot stretch.

2. Heart pumps harder, pressure stays high or climbs higher. — The heart has to push the extra pregnancy blood volume — fifty percent more liquid — through stiff, narrow pipes that cannot widen, so pressure cannot drop the way it should in early pregnancy. It stays raised (at least one-forty over ninety) and often climbs further as pregnancy goes on and blood volume peaks.
3. Spiral arteries in the uterus do not reshape properly. — Normally these small arteries in the womb lining lose their muscle layer and widen to feed the placenta; in chronic high blood pressure (hypertension) they stay narrow and muscular, so placental blood flow is choked from the start — the transformation that should happen in the first half of pregnancy never finishes or only partly happens.
4. Placenta gets less oxygen and nutrients. — Tight, under-resaped spiral arteries mean lower flow to the placenta, so the baby receives less oxygen and food — this can cause slow growth (intrauterine growth restriction, IUGR, where the baby measures weeks behind) or placental aging and failure (the placenta cannot keep up with the baby's needs).
5. High pressure damages small vessels (the endothelium, the inner lining) in kidneys, liver, brain, and placenta. — Chronic high pressure injures the delicate lining of tiny vessels, making them leak fluid and protein — you see this as protein in the urine (proteinuria) — and causing swelling (edema in legs, hands, lungs) and organ trouble (rising creatinine in kidneys, rising liver enzymes AST and ALT).
6. Risk of preeclampsia piled on top (superimposed preeclampsia) jumps to twenty to twenty-five percent. — The already-damaged endothelium is fragile; when pregnancy stress hits — placental factors (like sFlt-1, a protein the struggling placenta releases), inflammation, and rising blood volume — it tips into full preeclampsia: new or worsening protein in urine, rising liver enzymes, low platelets (thrombocytopenia, meaning clotting cells drop), headache, vision changes (blurry, flashing lights), or upper belly pain (right upper quadrant pain, a sign of liver swelling).
7. Placenta may pull away early (abruption) or baby's growth slows (IUGR). — Poor blood flow and high pressure weaken the placenta's grip on the uterine wall and starve the baby, so the placenta may separate suddenly (abruption, causing bleeding, belly pain, and fetal distress) or the baby stays small — measuring under the tenth percentile on ultrasound — and may show signs of poor flow on Doppler (umbilical artery resistance climbs).
8. Delivery before full term is often needed to prevent organ failure or fetal death. — Because the vessel damage and placental trouble cannot be reversed during pregnancy, the only cure is delivery — so if pressure cannot be controlled below one-sixty over one-ten, organs start failing (kidneys leak protein heavily, liver enzymes spike, platelets drop), or the baby stops growing or shows distress (heart-rate decelerations, low amniotic fluid), the team delivers early — usually by thirty-seven weeks if all is stable, sometimes much sooner if superimposed preeclampsia or abruption appears — to save both mother and baby.

Symptoms · what the patient feels, and why

- Blood pressure 140/90 or higher before 20 weeks of pregnancy or before getting pregnant: The arterioles (small muscular blood vessels) throughout the body are already narrowed or stiff before pregnancy even starts, forcing the heart to pump harder to push blood through tighter pipes. Pregnancy did not cause this—it was already there.
- Headache that won't go away: Very high pressure inside the blood vessels stretches or squeezes the arteries in the brain and the covering around it (the meninges, the brain's protective wrap), triggering pain signals.
- Blurred vision or seeing spots, flashing lights, or dark patches: High blood pressure damages the tiny blood vessels in the retina (the light-sensing layer at the back of the eye), cutting down oxygen delivery to those cells and making vision fuzzy, spotty, or patchy.
- Sudden swelling in the hands, face, or feet: When blood pressure climbs very high, fluid is pushed out of blood vessels into the surrounding tissues—like water seeping through a cracked hose—making those areas puff up quickly.
- Chest pain or tightness: The left ventricle (the heart's main pumping chamber) has to work much harder against high pressure. If it does not get enough oxygen-rich blood for that extra work, the muscle sends pain signals—like a cramp in the heart.
- Shortness of breath or trouble breathing: High blood pressure can stiffen the left ventricle or cause fluid to back up into the lungs (pulmonary swelling (edema), fluid in the air sacs), leaving less room for air and making each breath feel hard.
- Protein in the urine (proteinuria) found on routine testing: High blood pressure damages the glomeruli (the tiny filters inside each kidney), letting protein that should stay in the blood leak out into the urine instead.
- No symptoms at all (silent high blood pressure): Many people with chronic high blood pressure feel perfectly fine because the body adjusts to the higher pressure over months or years and stops sending warning signals, even though silent damage is happening to the heart, kidneys, and blood vessels.

Focused exam

- Blood pressure $\geq 140/90$ mmHg documented before pregnancy or before 20 weeks of gestation: This number tells you the high blood pressure was already there before the baby even started growing. The blood vessels were stiff and damaged from long-term pressure, not from the pregnancy itself.
- Blood pressure $\geq 160/110$ mmHg at any visit during pregnancy: This is a severe level that can cause a stroke (bleeding or blockage in the brain), heart failure (the heart pumps too hard and wears out), or placental abruption (the placenta peels off the wall of the womb early). You must act fast.

- New protein in the urine (≥ 300 mg in 24 hours or protein-to-creatinine ratio ≥ 0.3) or sudden swelling in face and hands after 20 weeks: This means superimposed preeclampsia—a second layer of trouble on top of the chronic high blood pressure (hypertension). The kidneys are leaking protein because the blood vessels are damaged even more. This raises the risk of seizures, kidney failure, and placenta problems.
- Severe headache that does not go away with medicine, blurred vision or seeing spots, or sharp pain in the upper right belly: These are signs that the brain, eyes, or liver are being hurt by very high blood pressure right now. The brain can swell (which can lead to a seizure called eclampsia), and the liver can stretch or bleed.
- Baby measuring small for gestational age on ultrasound (estimated fetal weight below the 10th percentile): Chronic high blood pressure makes the blood vessels in the placenta tight and stiff, so less oxygen and food reach the baby. The baby grows slower than normal and is at higher risk of distress or stillbirth.
- Very brisk reflexes (hyperreflexia) or ankle rhythmic muscle jerking (clonus) (when you bend the foot up, it bounces several times on its own): This shows the nervous system is over-excited, usually because superimposed preeclampsia is causing brain swelling or irritation. It is a warning sign that a seizure (eclampsia) could happen soon.

Diagnostics · every test answers a question

- Blood pressure measurement at every prenatal visit, using correct cuff size and technique → Is the blood pressure staying controlled, or is it climbing into the severe range ($\geq 160/110$)?
- 24-hour urine collection for total protein or spot urine protein-to-creatinine ratio (UPC) → Are the kidneys starting to leak protein, signaling superimposed preeclampsia?
- Serum creatinine → Are the kidneys working well enough to filter waste, or are they starting to fail under the pressure?
- Platelet count → Are the platelets (the blood's clotting cells) being destroyed because the blood vessels are injured?
- Liver enzymes (AST and ALT) → Is the liver being squeezed or damaged by very high pressure or poor blood flow?
- Serial ultrasounds for fetal growth (every 3–4 weeks starting at 28 weeks) → Is the baby growing normally, or is poor placental blood flow slowing the baby's growth?
- Nonstress test (NST) or biophysical profile (BPP) starting at 32 weeks → Is the baby getting enough oxygen and handling the stress of living inside a mother with high blood pressure?
- Fundoscopic exam (looking at the back of the eye with an ophthalmoscope) → Are the tiny blood vessels in the eye damaged by long-term high pressure, showing chronic target-organ damage?

Treatment logic

- Labetalol IV (start 20 mg, then 40–80 mg every 10 minutes, max total 220 mg) or hydralazine IV (5–10 mg every 20 minutes, max 30 mg) for blood pressure $\geq 160/110$ mmHg → Blocks the body's adrenaline signals in the heart and blood vessels (labetalol) or relaxes the smooth muscle in blood vessel walls (hydralazine) to quickly drop the pressure and prevent a stroke, seizure, or heart failure in the next few hours.
- Oral labetalol (starting 100–200 mg twice daily, max 2400 mg/day), nifedipine extended-release (starting 30–60 mg daily, max 120 mg/day), or methyldopa (starting 250 mg twice daily, max 3000 mg/day) targeting blood pressure 120–160/80–105 mmHg → Keeps the blood pressure in a safe range throughout pregnancy—low enough to protect the mother's organs but not so low that the placenta does not get enough blood to feed the baby.
- Low-dose aspirin 81 mg once daily starting at 12–16 weeks of pregnancy and continuing until delivery → Makes the blood slightly less sticky by blocking thromboxane A₂ (a chemical that makes platelets clump) and calms inflammation in the placenta's blood vessels, which lowers the chance that superimposed preeclampsia will develop on top of the chronic high blood pressure (hypertension) (reduces risk by about 10–15%).
- Frequent prenatal visits (every 2–4 weeks before 28 weeks, every 1–2 weeks from 28–36 weeks, then weekly after 36 weeks) with blood pressure checks, urine protein screening, and labs (creatinine, platelets, AST, ALT) at baseline and whenever symptoms appear → Catches the earliest signs of superimposed preeclampsia, worsening kidney function, or liver and blood-clotting problems so you can act before a seizure, stroke, or placental failure happens.
- Planned delivery at 37–39 weeks if blood pressure is controlled and no signs of preeclampsia or organ damage appear; earlier delivery (as early as 34 weeks) if severe features or fetal distress develop → Ends the pregnancy stress on the mother's cardiovascular system and removes the placenta, which is the source of the preeclampsia signals—this protects both mother and baby from worsening complications.
- Magnesium sulfate IV (4–6 g loading dose over 20 minutes, then 1–2 g/hour infusion) if superimposed preeclampsia with severe features develops, given during labor and for 24 hours postpartum → Prevents seizures (eclampsia) by blocking calcium channels in nerve and muscle cells, which calms the over-excited nervous system and protects the brain during the highest-risk period.
- Avoid ACE inhibitors (e.g., lisinopril, enalapril), ARBs (e.g., losartan), atenolol, and thiazide diuretics during pregnancy (stop if already taking) → Prevents serious harm to the baby: ACE inhibitors and ARBs cause kidney failure, skull defects, and death in the fetus; atenolol slows fetal growth; thiazides can reduce placental blood flow and lower the mother's blood volume.

Medications

Labetalol · Combined alpha and beta blocker

Labetalol blocks two kinds of switches on your blood vessels and heart. It slows the heart down a bit (beta-blocking) and tells blood vessels to relax and open wider (alpha-blocking). When vessels open, blood flows more easily and pressure drops. It's safe during pregnancy because very little crosses the placenta, so the baby's heart and blood flow stay protected.

1. You swallow the pill or get the drug through an IV in your vein.
2. The drug travels in your blood to your heart and blocks beta receptors—tiny switches that normally speed up the heart. Blocking them slows the heart down and makes it beat less forcefully.
3. At the same time, it blocks alpha receptors on the walls of blood vessels. These switches normally tell vessels to squeeze tight. Blocking them lets the vessels relax and open wider.
4. Wider vessels mean blood flows with less resistance, like water moving through a wider pipe. Blood pressure falls.
5. The drug does its job in your body without cutting off blood flow to the placenta, which is why doctors choose it for pregnant women.

SAFETY WATCH

Can make you dizzy or lightheaded when you stand up quickly because your pressure drops. Stand up slowly and hold onto something steady. · May make you feel unusually tired because your heart is working less hard than before. · Not safe if you have asthma or certain heart rhythm problems. Tell your doctor your full medical history. · Can rarely irritate your liver. Your doctor may check your liver blood tests during pregnancy. · If your pressure drops too low and you feel faint, very weak, or confused, call your doctor right away.

Nifedipine extended-release · Calcium channel blocker

Nifedipine blocks tiny gates on blood vessel walls that normally let calcium flow in. Calcium makes muscle cells squeeze tight. When you block calcium from entering, the muscle in the vessel walls can't squeeze as hard, so the vessels relax and widen. This lowers pressure. The extended-release form releases the drug slowly all day, so your pressure stays steady.

1. You swallow the extended-release tablet. It dissolves slowly in your stomach and intestines over hours.
2. The drug enters your bloodstream and travels to the smooth muscle cells that wrap around your arteries.
3. It blocks calcium channels—tiny doorways in the cell wall that let calcium ions rush inside.

4. Without calcium flowing in, the muscle cells can't contract and squeeze the vessel shut.
5. The vessels relax and widen. Blood flows more easily, and pressure drops.

SAFETY WATCH

Can cause swelling in your feet and ankles because vessels widen and fluid leaks out. This is harmless but uncomfortable. Elevate your legs and mention it at your next visit. · May cause headaches or flushing (your face feels warm and red) because blood vessels in your head widen too. · Can cause constipation because it slows muscle movement in your intestines. Drink plenty of water and eat fiber. · Do NOT crush or chew the extended-release tablet. Swallow it whole so the drug releases slowly as intended. · If you feel your heart racing or pounding, or if you become dizzy and faint, call your doctor.

Methyldopa · Central alpha-2 agonist

Methyldopa works in your brain, not directly on your blood vessels. Your body converts it into a fake chemical messenger that turns on special calm-down switches (alpha-2 receptors) in the brainstem, the part of your brain that sets your baseline blood pressure. When those switches are turned on, your brain sends fewer squeeze-tight signals to your blood vessels and heart, so pressure falls. It's one of the oldest and safest blood pressure drugs in pregnancy.

1. You swallow the tablet. It's absorbed from your intestines into your bloodstream.
2. The drug crosses from your blood into your brain.
3. Inside brain cells, methyldopa is converted into alpha-methylnorepinephrine, a fake neurotransmitter (chemical messenger) that looks like the real one.
4. This fake messenger turns on alpha-2 receptors in the brainstem.
5. Those receptors send a signal that tells the sympathetic nervous system (your stress and speed-up system) to calm down and stop sending so many squeeze and speed messages to the heart and blood vessels.
6. With fewer stress signals, the heart slows a bit, vessels relax, and pressure drops.

SAFETY WATCH

Can make you feel very sleepy or drowsy, especially in the first few days. This usually gets better as your body adjusts. · May cause a stuffy nose or dry mouth. · Rarely can cause mild depression or low mood. Tell your doctor if you feel sad or lose interest in things you normally enjoy. · Very rarely can irritate your liver or lower your blood counts. Your doctor may check blood tests during pregnancy. · Do NOT stop taking it suddenly without talking to your doctor. Your pressure can rebound and spike if you quit cold.

Hydralazine · Direct-acting vasodilator

Hydralazine forces the smooth muscle in artery walls to relax directly—it doesn't work through brain signals or by blocking switches. It opens up the vessels so blood flows with less resistance. It's often used as a rescue drug when blood pressure spikes dangerously high during pregnancy because it works fast, especially when given through an IV.

1. The drug is given through an IV (or swallowed as a pill for ongoing control).
2. It enters the smooth muscle cells that wrap around small arteries.
3. Inside the cells, hydralazine triggers the release of nitric oxide (a chemical that tells muscle to relax) and interferes with calcium use, which muscle cells need to contract.
4. The muscle relaxes, the artery widens, and blood flows more easily.
5. Pressure drops within minutes if given IV, or within an hour if swallowed.

SAFETY WATCH

Can cause a fast, pounding heartbeat (called reflex a fast heart rate (tachycardia)) because your body senses the drop in pressure and tries to make up for it by speeding up the heart. · May cause headaches or flushing (your face feels hot). · Can cause fluid retention and swelling over time if used for weeks. · Rarely, long-term use can cause a lupus-like syndrome (joint pain, rash, fever). This is uncommon at the doses used in pregnancy. · If your pressure drops too fast and you feel faint, dizzy, or confused, tell your nurse or doctor immediately.

Low-dose aspirin (81 mg daily) · Antiplatelet agent (used here for preeclampsia prevention, not blood pressure control)

Aspirin blocks an enzyme called cyclooxygenase-1 (COX-1) in platelets—the tiny cell fragments in your blood that form clots. By blocking COX-1, aspirin stops platelets from making thromboxane A2, a chemical that tells them to clump together. This makes platelets less sticky. In pregnancy, this helps prevent abnormal clotting in the tiny blood vessels of the placenta, which lowers the risk of preeclampsia (a dangerous condition where blood pressure spikes and organs can be damaged). Aspirin does NOT lower your everyday blood pressure directly, but it protects you from a serious complication.

1. You swallow the low-dose aspirin tablet (81 mg) every day, starting at 12 weeks of pregnancy.
2. The drug is absorbed in your stomach and enters your bloodstream.
3. It permanently blocks COX-1 in platelets. Each platelet lives about 7 to 10 days, so blocking COX-1 lasts for the platelet's whole life.
4. Without COX-1, platelets can't make thromboxane A2, so they become less sticky and less likely to clump together.

5. In the placenta, this reduces abnormal tiny clots and lowers inflammation in the blood vessel walls, which cuts the risk of preeclampsia developing on top of your chronic high blood pressure.

SAFETY WATCH

Low-dose aspirin (81 mg) is very safe in pregnancy when started at 12 weeks and stopped at 36 weeks. · Can rarely cause stomach irritation or heartburn. Take it with food if this happens. · Does NOT increase bleeding risk at this low dose during pregnancy or delivery. · Do NOT take high-dose aspirin or other NSAIDs like ibuprofen regularly in pregnancy—those can harm the baby. Low-dose aspirin is different and safe. · Tell your doctor if you have a history of stomach ulcers or bleeding disorders before starting aspirin.

Red flags

- Blood pressure 160/110 or higher at any visit (severe high blood pressure (hypertension) that can quickly harm the brain, heart, kidneys, or placenta)
- New or sudden severe headache that does not go away with rest or pain medicine
- Vision changes such as blurry sight, flashing lights, blind spots, or loss of part of the visual field
- Chest pain, trouble breathing, or coughing up pink frothy coughed-up mucus (sputum) (signs the heart or lungs are failing)
- New protein in the urine appearing after 20 weeks of pregnancy (may mean preeclampsia is layering on top of chronic high blood pressure (hypertension)—called superimposed preeclampsia)

Nursing priorities

1. Measure blood pressure every 15 minutes if it is 160/110 mmHg or higher, and start IV labetalol (a beta-blocker medicine that slows the heart and relaxes blood vessels) or IV hydralazine (a vasodilator that opens blood vessels) immediately. — Blood pressure at or above 160/110 mmHg can cause a stroke (brain bleed), seizure (eclampsia), heart failure, or placental abruption (the placenta tearing away from the uterus) within minutes to hours, so emergency medicine must bring it down quickly to protect the mother's brain, heart, and baby.
2. Place the patient on continuous fetal heart monitoring to watch the baby's heart rate pattern for at least 20 minutes. — High maternal blood pressure damages the placenta and reduces oxygen flow to the baby, causing the baby's heart rate to drop or show late decelerations (slowing after each contraction), which signals the baby is not getting enough oxygen and may need emergency delivery.

3. Start an IV line with at least an 18-gauge catheter and draw blood for a complete metabolic panel (tests for kidney and liver function), complete blood count (checks red cells, white cells, and platelets), and liver enzymes (AST and ALT). — High blood pressure damages the kidneys (causing creatinine to rise), liver (causing enzymes to climb), and bone marrow (causing platelets to drop in HELLP syndrome), and having IV access ready allows immediate delivery of emergency blood-pressure medicine or magnesium sulfate to prevent seizures.
4. Assess for signs of severe features every hour: ask about headache, vision changes, and right upper belly pain; check deep tendon reflexes (knee jerks) for overactive reflexes (hyperreflexia) (overly brisk reflexes); and measure urine output to ensure at least 30 mL per hour. — Headache, vision changes, and overactive reflexes (hyperreflexia) warn that the brain is swelling and a seizure may happen soon; right upper belly pain signals liver swelling and possible rupture; and urine output below 30 mL per hour means the kidneys are failing from severely high blood pressure.
5. Keep the patient in a quiet, dimly lit room with the bed in a slight left-side tilt position and side rails up. — Lying on the left side shifts the heavy uterus off the inferior vena cava (the large vein returning blood to the heart), improving blood flow back to the mother's heart and forward to the placenta and baby; a quiet, dim room prevents sensory overload that can trigger seizures; and raised side rails protect the patient if a seizure occurs.
6. Collect a clean-catch or catheterized urine sample and send it to the lab for a protein-to-creatinine ratio or 24-hour urine protein if not already done this visit. — Finding new or worsening protein in the urine (proteinuria above 300 mg in 24 hours or a ratio above 0.3) means chronic high blood pressure (hypertension) has now caused superimposed preeclampsia, which sharply raises the risk of seizures, organ failure, and fetal death and may require immediate delivery.
7. Teach the patient to report immediately any new headache, vision changes, right upper belly pain, sudden swelling, decreased fetal movement, or vaginal bleeding. — These symptoms signal progression to severe preeclampsia, eclampsia (seizures), HELLP syndrome (hemolysis, elevated liver enzymes, low platelets), placental abruption, or fetal distress, all of which can kill the mother or baby within hours if not recognized and treated urgently.
8. Verify the patient knows the names, doses, and schedule of her home blood-pressure medicines and has a plan to check her blood pressure at least twice a day at home with an automatic cuff. — Consistent daily medicine keeps blood pressure controlled between clinic visits, preventing sudden spikes that damage the mother's organs and placenta; home monitoring catches dangerous rises early so the patient can call her provider before a crisis happens.

Sources

- ACOG Practice Bulletin No. 203: Chronic Hypertension in Pregnancy (2019, reaffirmed 2021)
- American Heart Association / American College of Cardiology Hypertension Guideline (2017)
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