

Chronic Hypertension in Pregnancy

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.

THE ONE-LINE TRUTH

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

The chain — how it unfolds

1. Blood vessels stay stiff and narrow throughout pregnancy. — why: 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. — why: 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. — why: 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. — why: Tight, under-reshaped 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. — why: 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. — why: 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). — why: 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. — why: 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.

Spot it — what you see, 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.

Red flags — act now

- 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)

Treat it — in this order

1. 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.
2. 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.

3. 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%).
4. 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.
5. 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.

Your top priorities at the bedside

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. — why: 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. — why: 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). — why: 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.