Obstetrics & Gynaecology - Topic 12 - Medical Disorders in pregnancy

Medical Assessment in Pregnancy

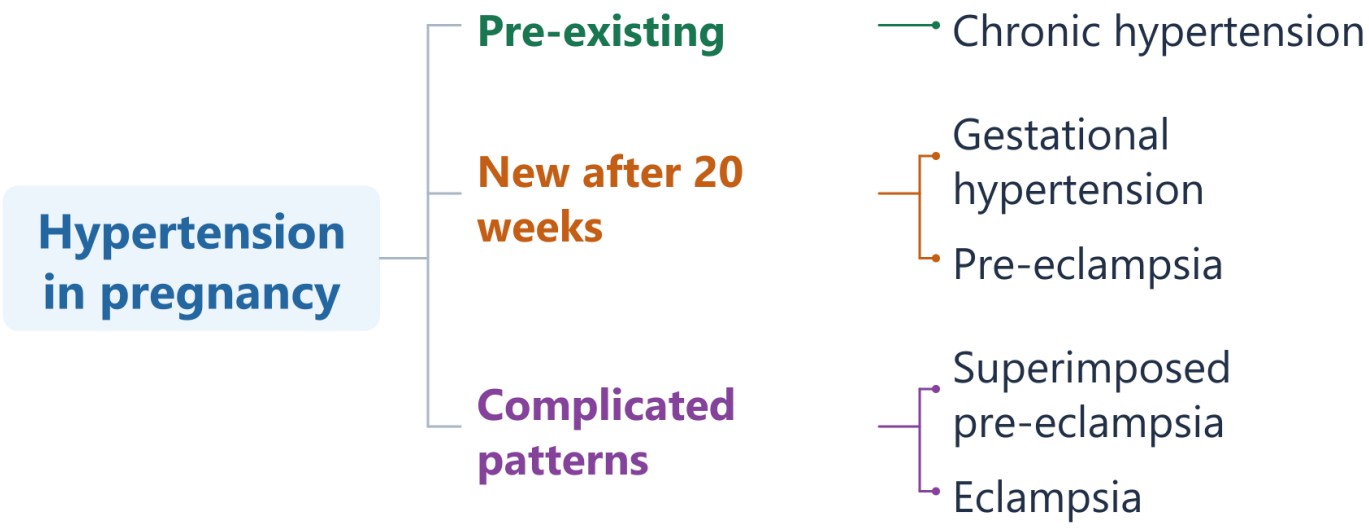
A Shared Clinical Approach

- A medical disorder can affect the mother, the fetus and the safest timing or route of birth.
- Pregnancy also changes drug handling, laboratory reference ranges and the physiological stress placed on the heart and other organs.
- Assess disease severity, gestational age and fetal wellbeing together, and involve the relevant specialist early when risk is substantial.
- Take a medication history that includes non-prescription and herbal products, because apparently harmless preparations can affect pregnancy.
- Do not stop essential treatment without a replacement plan, since uncontrolled maternal disease may be more dangerous than an appropriately selected medicine.
- Explain treatment choices, warning symptoms and follow-up in language the woman understands, and record her informed decisions.

Hypertensive Disorders and Eclampsia

Blood Pressure Definitions and Measurement

- Hypertension in pregnancy means a systolic pressure of at least 140 mmHg or a diastolic pressure of at least 90 mmHg, confirmed with appropriate repeat measurements.
- Use a validated device, a suitable cuff and a supported arm, and document the reading rather than relying on symptoms alone.
- Severe hypertension means systolic pressure of at least 160 mmHg or diastolic pressure of at least 110 mmHg and needs prompt assessment and treatment.



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Clinical Groups of Hypertensive Disease

1. Chronic Hypertension

- Chronic hypertension is present before pregnancy, is detected before 20 weeks or persists beyond the expected postpartum recovery period.
- It may be primary hypertension or result from renal, endocrine or vascular disease.

2. Gestational Hypertension

- Gestational hypertension first appears after 20 weeks without the additional findings needed to diagnose pre-eclampsia.
- It can progress to pre-eclampsia, so a normal initial blood test or urine result does not end surveillance.

3. Pre-eclampsia

- Pre-eclampsia is new hypertension after 20 weeks with proteinuria, maternal organ dysfunction or evidence of uteroplacental dysfunction.
- Proteinuria is not essential when other qualifying features are present.
- Protein loss can be assessed with a urine protein-to-creatinine ratio, with 30 mg/mmol commonly used as a significant threshold.
- Where a timed collection is used, at least 300 mg of protein in 24 hours is a conventional significant value; routine timed collection is often unnecessary when a validated spot test is available.
- Maternal features can include thrombocytopenia, kidney injury, liver involvement, neurological symptoms or pulmonary oedema.

4. Superimposed Pre-eclampsia

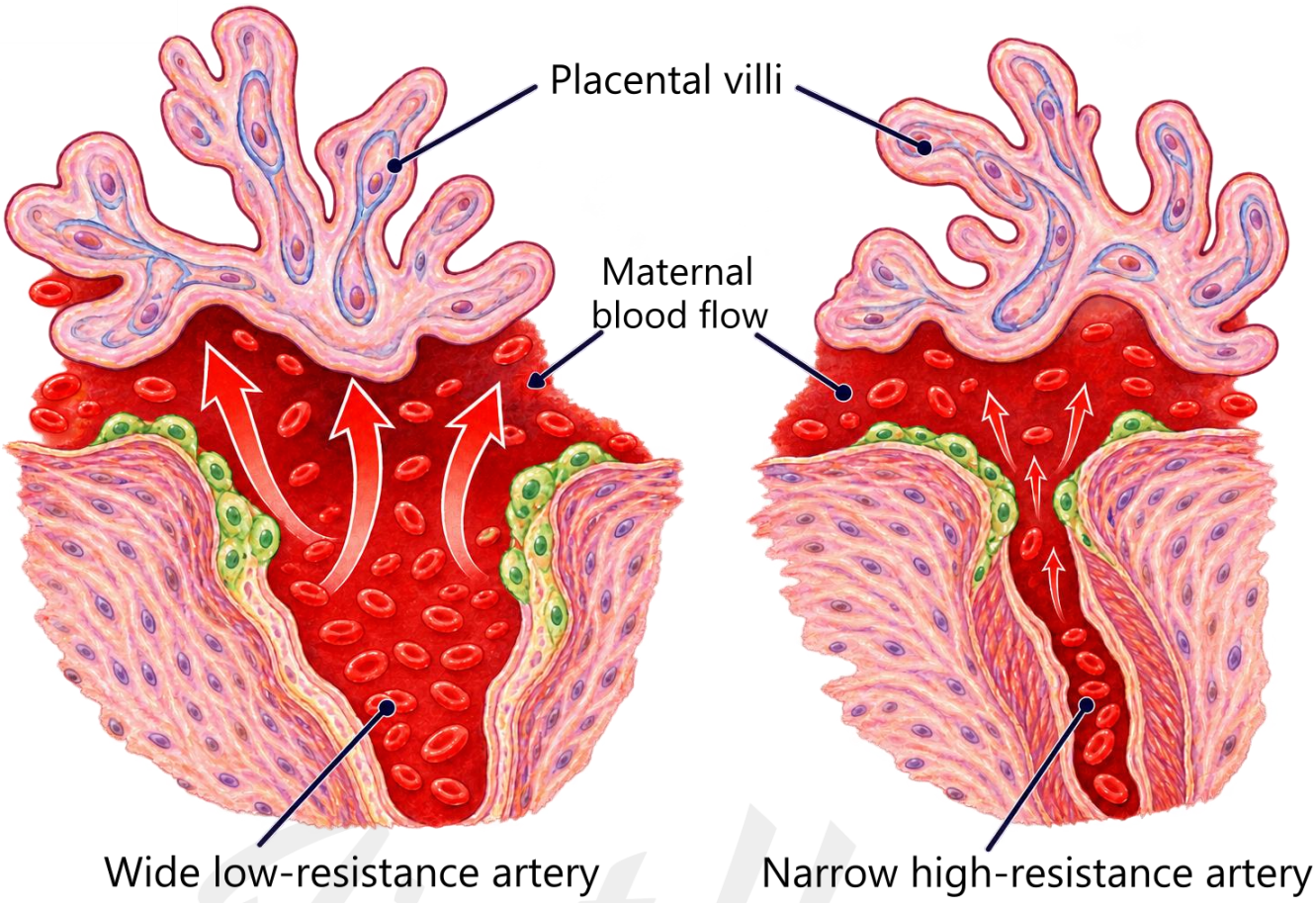
- Superimposed pre-eclampsia develops when a woman with chronic hypertension develops new features of pre-eclampsia.

Eclampsia

- Eclampsia means seizures associated with pre-eclampsia that are not explained by another neurological or metabolic cause.
- Eclampsia can occur before labour, during labour or after birth, sometimes without previously recognised severe hypertension.

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Why Pre-eclampsia Develops



Incomplete spiral-artery remodelling can contribute to placental stress and pre-eclampsia

Placental and Maternal Mechanisms

- In many cases, inadequate remodelling of maternal spiral arteries limits the normal increase in placental perfusion.
- Placental stress releases factors that disturb maternal endothelial function and alter the balance of angiogenic signals.
- Vasoconstriction raises blood pressure, while endothelial injury causes capillary leakage and organ dysfunction.
- Reduced placental exchange can cause fetal growth restriction and hypoxia.

Predisposing Factors

- Risk is higher with previous pre-eclampsia, chronic hypertension, kidney disease, diabetes, antiphospholipid syndrome and multiple pregnancy.
- Obesity, a first pregnancy and other maternal characteristics also contribute to risk.

Detection and Investigations

History and Examination

- Ask about severe headache, visual disturbance, upper abdominal pain, vomiting, breathlessness and reduced fetal movement.

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- Examine blood pressure, oxygen saturation, chest findings, reflexes and signs of circulatory or neurological deterioration.
- Oedema alone is not diagnostic because dependent swelling is common in normal pregnancy.

Maternal and Fetal Tests

- Request a full blood count with platelets, creatinine, electrolytes, liver enzymes and urine protein quantification.
- Add haemolysis and coagulation tests when HELLP syndrome, abruption or disseminated intravascular coagulation is suspected.
- HELLP stands for haemolysis, elevated liver enzymes and low platelets; it can present with upper abdominal pain and rapidly worsening illness.
- Assess fetal growth, amniotic fluid and umbilical artery Doppler, and use cardiotocography when indicated.
- Placental growth factor-based testing may help assess suspected preterm pre-eclampsia within an approved pathway, but it does not replace clinical assessment.

Prevention and Ongoing Treatment

Prevention and Maintenance Treatment

Aspirin and Calcium Prevention

- Offer low-dose aspirin to women who meet the relevant high-risk criteria, usually starting at 12 weeks; one current guideline uses 75–150 mg daily.
- Provide calcium supplementation according to the national antenatal programme and dietary assessment, particularly where calcium intake is low.

Maintenance Antihypertensive Selection and Targets

- Review antihypertensive medicines early, because ACE inhibitors and angiotensin-receptor blockers are unsuitable during pregnancy.
- Labetalol, nifedipine and methyldopa are commonly used maintenance options, selected according to the woman's clinical circumstances.
- Avoid labetalol when significant asthma, bradycardia or heart block makes beta-blockade unsuitable.
- A commonly used treatment target is approximately 135/85 mmHg, while avoiding symptomatic hypotension and impaired perfusion.

Admission and Timing of Birth

- Admit women with severe hypertension or significant maternal or fetal concerns, and monitor for deterioration rather than only treating the number.
- For pre-eclampsia at 37 weeks or later, one established guideline recommends starting birth within 24–48 hours.

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- Before that stage, timing depends on maternal organ dysfunction, uncontrolled pressure, placental complications and fetal findings, with expectant care only when monitoring and rescue treatment are available.

Eclampsia: Emergency Management and Follow-Up

Emergency Treatment Sequence

1. Protect and Stabilise

- Call for senior obstetric, anaesthetic and resuscitation help, place the woman safely on her side and protect her from injury.
- Maintain the airway, provide oxygen when hypoxaemic and support ventilation if breathing is inadequate.
- Do not put an object into her mouth or forcefully restrain her limbs during the seizure.
- Check glucose, obtain intravenous access, send urgent blood tests and assess the fetus after immediate maternal stabilisation.

2. Give Magnesium Sulfate Safely

- Magnesium sulfate is the first-line anticonvulsant for eclampsia and is also used for seizure prevention in selected severe pre-eclampsia.

A. Intravenous Regimen

- One intravenous regimen gives 4 g over 5–15 minutes, followed by an infusion of 1 g per hour.
- Continue treatment for 24 hours after birth or the last seizure, whichever is later, according to the local obstetric protocol.
- A recurrent seizure may require a further 2–4 g intravenously over 5–15 minutes with senior review and airway readiness.

B. Pritchard Regimen

- The standard Pritchard loading regimen combines 4 g intravenously given slowly with 10 g intramuscularly, divided as 5 g in each buttock.
- Maintenance uses 5 g intramuscularly every four hours in alternate buttocks, continuing for 24 hours after birth or the last seizure, whichever is later.
- Before a maintenance dose, confirm a present patellar reflex, a respiratory rate of at least 16 per minute and urine output of at least 100 mL during the preceding four hours.
- Withhold the dose and obtain senior review if toxicity or inadequate renal clearance is suspected; this is an alternative regimen, not an extra course to add to a full intravenous infusion.

Monitoring and Management of Magnesium Toxicity

- Monitor respiratory rate, patellar reflexes, urine output and consciousness, and adjust treatment when renal clearance is impaired.

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