Hypertensive disorders of pregnancy

Clinical Guideline Presentation v2.0
Learning outcomes

The participant will be able to outline, in relation to hypertensive disorders of pregnancy (HDP):

• Definitions and classification
• Risk factors for and diagnosis of preeclampsia
• Initial screening and testing recommendations
• Treatment of moderate and severe hypertension
• Indications for the use of Magnesium Sulfate
• Management of eclampsia
• Antenatal surveillance of mother and baby
• Intrapartum and postpartum management
• Discharge and follow-up advice
# Hypertension definitions

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Hypertension</td>
<td>sBP ≥ 140 and/or dBP ≥ 90 mmHg</td>
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<tr>
<td>Moderate Hypertension</td>
<td>sBP ≥ 141─159 and/or dBP ≥ 91─109 mmHg</td>
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<tr>
<td>Severe Hypertension</td>
<td>sBP ≥ 160 and/or dBP ≥ 110 mmHg</td>
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## Hypertension classifications

<table>
<thead>
<tr>
<th>Classification</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Gestational</td>
<td>New onset after 20 weeks without features of preeclampsia</td>
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<tr>
<td>Preeclampsia</td>
<td>Hypertension and involvement of one or more other organ systems and/or the fetus</td>
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<tr>
<td>Chronic hypertension in pregnancy <em>(essential and secondary)</em></td>
<td>Hypertension confirmed pre-conception or prior to 20 weeks</td>
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<tr>
<td>Preeclampsia superimposed on chronic</td>
<td>Preexisting hypertension with systemic features of preeclampsia after 20 weeks gestation</td>
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Diagnosis of preeclampsia

• Raised BP is common but not always first manifestation
• Proteinuria is common but not mandatory for clinical diagnosis
• Pre-existing hypertension is a strong risk factor
## Features of Preeclampsia

<table>
<thead>
<tr>
<th>Organ/System</th>
<th>Feature</th>
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<tbody>
<tr>
<td>Proteinuria</td>
<td>protein: creatinine ratio ≥ 30 mg/mmol</td>
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<tr>
<td>Renal</td>
<td>serum or plasma creatinine ≥ 90 micromol/L or oliguria</td>
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<tr>
<td>Haematological</td>
<td>thrombocytopenia, haemolysis, raised bilirubin, raised LDH, decreased haptoglobin, DIC</td>
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<tr>
<td>Liver</td>
<td>raised transaminases, severe right upper quadrant pain</td>
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<tr>
<td>Pulmonary:</td>
<td>pulmonary oedema</td>
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<tr>
<td>Uteroplacental</td>
<td>fetal growth restriction</td>
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<tr>
<td>Neurological</td>
<td>severe headache, visual disturbances, hyperreflexia convulsions (eclampsia), stroke</td>
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Risk assessment

• Assess all women with new hypertension after 20 weeks for signs and symptoms of preeclampsia
• The earlier the presentation and the more severe the hypertension, the higher is the likelihood of progression to preeclampsia
• Currently, no accurate predictive tool for preeclampsia
<table>
<thead>
<tr>
<th>Risk factors for preeclampsia</th>
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<tbody>
<tr>
<td>• Antiphospholipid syndrome</td>
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<tr>
<td>• BP &gt; 130/80 at booking</td>
</tr>
<tr>
<td>• Multiple pregnancy</td>
</tr>
<tr>
<td>• &gt; 10 years since last pregnancy</td>
</tr>
<tr>
<td>• Nulliparity</td>
</tr>
<tr>
<td>• Raised BMI</td>
</tr>
<tr>
<td>• Previous history of preeclampsia</td>
</tr>
<tr>
<td>• Pre-existing diabetes</td>
</tr>
<tr>
<td>• Renal disease</td>
</tr>
<tr>
<td>• Chronic autoimmune disease</td>
</tr>
<tr>
<td>• Chronic hypertension</td>
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<tr>
<td>• &gt; 40 years of age</td>
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</table>
Risk reduction

• Assess all women for risk factors
• If moderate to high risk, recommend
  ◦ Aspirin 100 mg daily before 16 weeks until 37 weeks or birth
• Advise women to seek advice immediately if they have signs and symptoms of preeclampsia
Initial investigations

• Accurate BP measurement
• Screen for proteinuria each visit (dipstick)
  ◦ Quantify if > 2+ or repeated 1+ proteinuria
• Blood tests
  ◦ FBC, ELFT including LDH and urate
• CTG and USS
Moderate hypertension

- **Consider** drug therapy if:
  - sBP 140-160 and/or dBP 90-100 mmHg
  - Signs of preeclampsia are present

- **Target BP:** no clear evidence - suggested
  - sBP < 140 mmHg and dBP < 90 mmHg
Oral antihypertensive drugs

• ACE inhibitors and angiotensin receptor blockers are contraindicated in pregnancy

• First line drugs:
  ◦ Methyldopa, Labetalol, Oxprenolol

• Second line drugs:
  ◦ Hydralazine, Nifedipine, Prazosin, Clonidine
Severe hypertension

• Commence drug therapy if severe hypertension (sBP ≥ 160 or dBP ≥ 100 mmHg)

• Target BP— aim for gradual lowering
  ◦ sBP 130—150 mmHg / dBP 80—90 mmHg

• sBP ≥ 170 with or without dBP ≥ 110 mmHg is a medical emergency
Preeclampsia

- Severity, timing, progression and onset unpredictable – lose surveillance required
- Birth is the definitive management
- Increased severity indicated by difficulty controlling BP, HELLP syndrome, impending eclampsia, worsening fetal growth and wellbeing
- Independent risk factor for VTE
**Magnesium Sulfate**

- Drug of choice for prevention and treatment of eclampsia

- Indications to commence:
  - Eclampsia
  - Severe preeclampsia
  - Preeclampsia with ≥ one sign of CNS irritability
  - Transfer to higher service level required
HELLP Syndrome

(Haemolysis Elevatred Liver enzymes Low Platelet)

- Variant of severe preeclampsia
- Includes:
  - Thrombocytopenia (common)
  - Haemolysis (rare)
  - Elevated liver enzymes (common)
- Magnesium Sulfate may be indicated
- Consider platelet transfusion
- Plan birth if > 34 weeks gestation
Imminent eclampsia

- Imminent eclampsia: ≥ 2 or more of the following symptoms
  - Frontal headache
  - Visual disturbance
  - Altered level of consciousness
  - Hyperreflexia
  - Epigastric tenderness
Eclampsia

- Resuscitation DRSABCD
- Goals of treatment
  - Terminate the seizure
  - Prevent reoccurrence
  - Control hypertension
  - Prevent maternal and fetal hypoxia
- Magnesium Sulfate is the anticonvulsant drug of choice
- Plan birth (if antepartum) asap
Ongoing surveillance

• Plan care and document in health record
• Serial surveillance of maternal and fetal wellbeing
• Frequency, intensity and modality depends on individual clinical circumstances
• Incorporate holistic review of the fetus that includes USS, CTG and maternal wellbeing
Birth

• Multidisciplinary team approach
• Except where there is acute fetal compromise, stabilise the woman before birth
  ◦ Control or prophylaxis against eclampsia
  ◦ Control severe hypertension
  ◦ Correct coagulopathy
  ◦ Attention to fluid status
Timing and mode of birth

• Recommend vaginal birth unless CS indicated for other obstetric indications

• Moderate hypertension:
  ◦ If otherwise well ➔ expectant management beyond 37 weeks

• Preeclampsia:
  ◦ Dependent of severity and gestation

• HELLP: Plan birth as soon as feasible
Intrapartum monitoring

• Close clinical surveillance required
• Minimum $\frac{1}{2}$ hourly BP
• Continuous CTG
• IV access
• Multidisciplinary involvement
Intrapartum care

• 2\textsuperscript{nd} stage:
  ◦ If BP is within target range: usual care
  ◦ If BP not responsive to initial drug therapy, advise assisted/operative birth

• 3\textsuperscript{rd} Stage
  ◦ Active management as increased risk of PPH
  ◦ Do not give Ergometrine or Sytometrine
Postpartum

• Hypertension and pre/eclampsia may develop for the first time postpartum
• Continue close monitoring (4 hourly or more frequently)
• Ask frequently about the presence of headaches, epigastric pain
• Actively consider VTE prophylaxis
Postpartum drug therapy

- Continue antenatal antihypertensives
- Cease or reduce when hypertensive changes are resolving
  - Avoid abrupt withdrawal
- If BP persistently elevated start antihypertensives
- NSAID not recommended
- Methyldopa associated with depression
Discharge

• First and second line drugs are compatible with BF
• If taking ACE inhibitors, discuss contraception
• Recommend follow-up screening after 6 weeks to ensure resolution/ascertain need for ongoing care
Discharge advice

• Advise to avoid smoking, maintain healthy weight and of the benefits of exercise
• Encourage overweight women to attain healthy BMI
• Discuss assessment for traditional cardiovascular risk markers (e.g. annual BP, serum lipids, blood glucose)
• Risk reduction for future pregnancy (e.g. Aspirin, change from ACE inhibitors)