Surgical Care at the District Hospital
Hypertension in Pregnancy

Key Points
10.1 Hypertension

• Hypertensive disorders in pregnancy include:
  – Pregnancy induced hypertension
  – Chronic hypertension
  – Pre-eclampsia
  – Eclampsia.

• Untreated hypertension in pregnancy can cause maternal and perinatal deaths

• Delivery is the only cure for pre-eclampsia and eclampsia
10.1 Hypertension

• Hypertension is diagnosed when:
  – the systolic blood pressure is 140 mmHg and/or
  – the diastolic blood pressure is 90 mmHg on two consecutive readings taken 4 hours or more apart.

• A time interval of less than 4 hours is acceptable if urgent delivery must take place, or if the diastolic blood pressure is equal to or greater than 110 mmHg.
10.1 Hypertension

• Hypertension is classified as **pregnancy-induced hypertension** if it occurs for the first time:
  – After 20 weeks of gestation
  – During labour and/or within 48 hours after delivery

• If it occurs before 20 weeks of gestation, it is classified as **chronic hypertension**.

• If the blood pressure prior to 20 weeks of gestation is unknown, differentiation may be impossible; in this case, manage as pregnancy induced hypertension.
10.1 Hypertension

Testing for proteinuria

• Presence of proteinuria changes the diagnosis from pregnancy induced hypertension to *eclampsia*.  

• Only clean catch mid-stream specimens should be used for testing.

• Catheterization for the sole purpose of testing is not justified due to the risk of urinary tract infection.
10.1 Hypertension

• Other conditions that cause proteinuria or false positive results include:

  – Urinary infection
  – Severe anaemia
  – Heart failure
  – Difficult labour
  – Blood in the urine due to catheter trauma
  – Schistosomiasis
  – Contamination from vaginal blood
  – Vaginal secretions or amniotic fluid contaminating urine specimens.
10.1 Hypertension

Clinical Features

• Pregnancy-induced hypertension is more common among women who are pregnant for the first time.

• Women with multiple pregnancies, diabetes and underlying vascular problems are at higher risk of developing pregnancy-induced hypertension.

• The spectrum of the disease includes:
  – Hypertension without proteinuria
  – Mild pre-eclampsia
  – Severe pre-eclampsia
  – Eclampsia.
10.1 Hypertension

Clinical Features

• Mild pre-eclampsia is often symptomless.

• Rising blood pressure may be the only clinical sign. A woman with hypertension may feel perfectly well until seizure suddenly occurs.

• Proteinuria is a late manifestation of the disease.

• When pregnancy induced hypertension is associated with proteinuria, the condition is called pre-eclampsia.
10.1 Hypertension

Clinical Features

• Increasing proteinuria is a sign of worsening pre-eclampsia.

• Mild pre-eclampsia could progress to severe pre-eclampsia; the rate of progression could be rapid.

• The risk of complications, including eclampsia, increases greatly in severe pre-eclampsia.
10.1 Hypertension

Eclampsia

• Eclampsia is characterized by convulsions, together with signs of pre-eclampsia.

• Convulsions can occur regardless of severity of hypertension, are difficult to predict and typically occur in the absence of hyperreflexia, headache or visual changes.

• Convulsions are tonic-clonic and resemble grand-mal seizures of epilepsy. Seizures may recur in rapid sequence, as in status epilepticus, and end in death.
10.1 Hypertension

Eclampsia

• Convulsion may be followed by coma that lasts minutes or hours, depending on the frequency of seizures. 25% of eclamptic fits occur after delivery of the baby.

• Eclampsia must be differentiated from other conditions that may be associated with convulsions and coma.
10.1 Hypertension

Eclampsia

• Eclampsia must be differentiated from other conditions that may be associated with convulsions and coma:
  – Epilepsy
  – Cerebral malaria
  – Head injury
  – Cerebrovascular accident
  – Intoxication (alcohol, drugs, poisons), drug withdrawal, metabolic disorders, Water intoxication
  – Meningitis, encephalitis
  – Hypertensive encephalopathy
  – Hysteria.
## 10.1 Hypertension

### Severe pre-eclampsia and eclampsia

Severe pre-eclampsia is present if one or more of the conditions in column three of the table below are present.

<table>
<thead>
<tr>
<th></th>
<th>Mild pre-eclampsia</th>
<th>Severe pre-eclampsia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diastolic blood pressure</td>
<td>&lt;110</td>
<td>110</td>
</tr>
<tr>
<td>Proteinuria</td>
<td>Up to 2+</td>
<td>3+ or more</td>
</tr>
<tr>
<td>Headache</td>
<td>No</td>
<td>One or more of these conditions may be present</td>
</tr>
<tr>
<td>Visual disturbances</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Hyperreflexia</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Urine output &lt;400 ml in 24 hours</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Epigastric or right upper quadrant pain</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Pulmonary oedema</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>
10.2 Assessment & Management

Severe Pre-Eclampsia and Eclampsia

- All case of severe pre-eclampsia should be managed actively

- Symptoms and signs of 'impending eclampsia' (blurred vision, hyper-reflexia) are unreliable and expectant management is not recommended

- Immediate management of pregnant women or recently delivered woman:
  - complaining of severe head ache or blurred vision
  - having Convulsion
  - found unconscious

- **SHOUT FOR HELP**
10.2 Assessment & Management
Severe Pre-Eclampsia and Eclampsia

- Protect the mother by lowering blood pressure and preventing or controlling convulsions.

- Magnesium sulfate is the preferred drug for preventing and treating convulsions.

- Use diazepam only if magnesium sulphate is not available.

- Never leave the woman alone.

- A convulsion is followed by aspiration of vomit may cause death of the woman and fetus.
10.3 Delivery

• Delivery should take place as soon as the woman’s condition has been stabilized.

• Delaying delivery to increase fetal maturity will risk the lives of both the woman and the fetus. Delivery should occur regardless of the gestational age.

• Get skilled anaesthetic help early; this will also aid the management of hypertensive crises and fits.
10.4 Postpartum Care

- Continue anticonvulsive therapy for 24 hours after delivery or last convulsion, whichever occurs last

- Continue antihypertensive therapy as long as the diastolic pressure is 110 mmHg or more

- Continue to monitor urine output
10.4 Postpartum Care

- Watch carefully for the development of pulmonary oedema, which often occurs after delivery.

- Life threatening complications can still occur after delivery;

- Monitor carefully until the patient is clearly recovering.
10.4 Postpartum Care

Referral for tertiary level care

• Consider referral of women who have:

  – Oliguria (less than 400 ml urine output in 24 hours) that persists for 48 hours after delivery

  – Coagulation failure (e.g. coagulopathy or haemolysis, elevated liver enzymes and low platelets [HELLP] syndrome)

  – Persistent coma lasting more than 24 hours after convulsion.
10.5 Chronic Hypertension

• Encourage additional periods of rest.

• High levels of blood pressure maintain renal and placental perfusion in chronic hypertension; reducing blood pressure will result in diminished perfusion.

• Blood pressure should not be lowered below its pre-pregnancy level. There is no evidence that aggressive treatment to lower the blood pressure to normal levels improves either fetal or maternal outcome.
10.5 Chronic Hypertension

• If the woman was on antihypertensive medication before pregnancy and the disease is well controlled, continue the same medication if acceptable in pregnancy.

• If diastolic blood pressure is 110 mmHg or more, or systolic blood pressure is 160 mmHg or more, treat with antihypertensive drugs: e.g. methyldopa.
10.5 Chronic Hypertension

- If proteinuria or other signs and symptoms are present, consider superimposed pre-eclampsia and manage as pre-eclampsia.

- Monitor fetal growth and condition.

- If there are no complications, deliver at term.

- If there are fetal heart rate abnormalities (less than 100 or more than 180 beats per minute), suspect fetal distress.

- If fetal growth restriction is severe and pregnancy dating is accurate, assess the cervix and consider delivery.
10.5 Chronic Hypertension

• If the cervix is favourable (soft, thin, partially dilated) rupture the membranes with an amniotic hook or a Kocher clamp and induce labour using oxytocin or prostaglandins

• If the cervix is unfavourable (firm, thick, closed), ripen the cervix using prostaglandins or Foley catheter

• Observe for complications including abruptio placentae and superimposed pre-eclampsia.
10.6 Complications

- Complications of hypertensive disorders in pregnancy may cause adverse perinatal and maternal outcomes.

- Complications are often difficult to treat so make every effort to prevent them by early diagnosis and proper management.

- Be aware that management can also lead to complications.
10.6 Complications

Management

• If fetal growth restriction is severe, expedite delivery

• If there is increasing drowsiness or coma, suspect cerebral haemorrhage

• Reduce blood pressure slowly to reduce the risk of cerebral ischaemia

• Provide supportive therapy

• If you suspect heart, kidney or liver failure, provide supportive therapy and observe
10.6 Complications
Management

• Suspect coagulopathy if:
  
  – A clotting test shows failure of a clot to form after 7 minutes or a soft clot that breaks down easily
  
  – Continued bleeding from venepuncture sites
10.6 Complications

Management

• A woman who has IV lines and catheters is prone to infection; use proper infection prevention techniques and closely monitor for signs of infection.

• If the woman is receiving IV fluids, she is at risk of circulatory overload.

• Maintain a strict fluid balance chart and monitor the amount of fluids administered and urine output.