Hypertension and pregnancy

Clinical Guideline Presentation v3.0

45 minutes

Towards CPD Hours

Clinical Excellence Queensland

Queensland Government

References:

Queensland Clinical Guideline: Hypertension and pregnancy is the primary reference for this package.

Recommended citation:

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Disclaimer:

This presentation is an implementation tool and should be used in conjunction with the published guideline. This information does not supersede or replace the guideline. Consult the guideline for further information and references.

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Learning outcomes

The participant will be able to outline, in relation to hypertension and pregnancy:

- Definitions and classification
- Risk factors for and diagnosis of pre-eclampsia
- 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

Abbreviations

Term	Meaning
ACE	Angiotensin converting enzyme
BP	Blood pressure
CS	Caesarean section
CTG	Cardiotocography
dBP	Diastolic blood pressure
DIC	Disseminated intravascular coagulation
FBC	Full blood count
HDP	Hypertensive disorders of pregnancy
LDH	Lactate dehydrogenase
NSAID	Non-steroidal anti-inflammatory drugs
PPH	Primary postpartum haemorrhage
sBP	Systolic blood pressure
USS	Ultrasound scan
VTE	Venous thromboembolism

Definitions of hypertension

Term	Definition
Mild to moderate hypertension	sBP ≥ 140 mmHg (but less than 160 mmHg) *and/or* dBP ≥ 90 mmHg (but less than 110 mmHg)
Severe hypertension	sBP ≥ 160 *and/or* dBP ≥ 110 mmHg

Classification of hypertension

***known before pregnancy or in the first 20 weeks**

Classification	Definition
Chronic hypertension in pregnancy (essential and secondary)	Hypertension confirmed pre-conception or prior to 20 weeks
White coat hypertension	Hypertension characterised by an elevated BP in a clinical setting and a normal BP at other times
Masked hypertension	Hypertension characterised by a normal BP in a clinical setting and an elevated BP at other times

Classification of hypertension

***arising at, or after, 20 weeks gestation**

Classification	Definition
Gestational hypertension	New onset after 20 weeks without features of pre-eclampsia
Pre-eclampsia	Hypertension and involvement of one or more other organ systems and/or the fetus
Transient gestational hypertension	Hypertension that is detected in the clinical setting but settles after repeated readings
Pre-eclampsia superimposed on chronic hypertension	Pre-existing hypertension with systemic features of pre-eclampsia after 20 weeks gestation

Diagnosis of pre-eclampsia

- 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 pre-eclampsia

Organ/System	Feature
Proteinuria	Protein: creatinine ratio ≥ 30 mg/mmol
Renal	Serum or plasma creatinine ≥ 90 micromol/L or oliguria
Haematological	Thrombocytopenia, haemolysis, raised bilirubin, raised LDH, decreased haptoglobin, DIC
Liver	New onset of raised transaminases (over 40 IU/L) with or without severe right upper quadrant pain
Pulmonary	Pulmonary oedema
Uteroplacental	Fetal growth restriction
Neurological	Severe headache, persistent visual disturbances, hyperreflexia convulsions (eclampsia), stroke

Risk assessment

- Assess all women with new hypertension after 20 weeks for signs and symptoms of pre-eclampsia
- The earlier the presentation and the more severe the hypertension, the more likely of progression to pre-eclampsia
- Currently, there is no single predictive tool for pre-eclampsia

Risk factors

Risk factors for pre-eclampsia	
Antiphospholipid syndrome	Previous history of pre-eclampsia
BP >130/80 at booking	Pre-existing diabetes
Multiple pregnancy	Pre-existing kidney disease
>10 years since last pregnancy	Chronic autoimmune disease
Nulliparity	Chronic hypertension
Raised body mass index (>30 mg/kg2)	Family history of pre-eclampsia
Diagnosis of schizophrenia or bipolar	Assisted reproductive technology
Maternal anxiety or depression	Congenital heart defects

Risk reduction

- Assess all women for risk factors
- If moderate to high risk, recommend
  - Aspirin 100-150 mg daily (preferably at night) commencing before 16 weeks and continuing until birth, or cease at 37+0 weeks
- Advise women to seek advice immediately if they have signs and symptoms of pre-eclampsia

Initial investigations

- Accurate BP measurement
- Screen for proteinuria each visit (dipstick)
  - Quantify if > 2+ or repeated 1+ proteinuria
- Blood tests:
  - Full blood count, liver function tests including lactate dehydrogenase, and urate
- Cardiotocograph and ultrasound scan

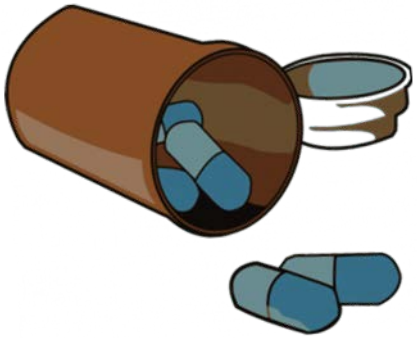
Mild to moderate hypertension

- Consider drug therapy if:
  - sBP is persistently greater than 140 mmHg and/or
  - dBP is persistently greater than 90 mmHg
  - There are associated signs and symptoms of pre-eclampsia

- Suggested target BP:
  - sBP 110-140 mmHg and dBP < 85 mmHg

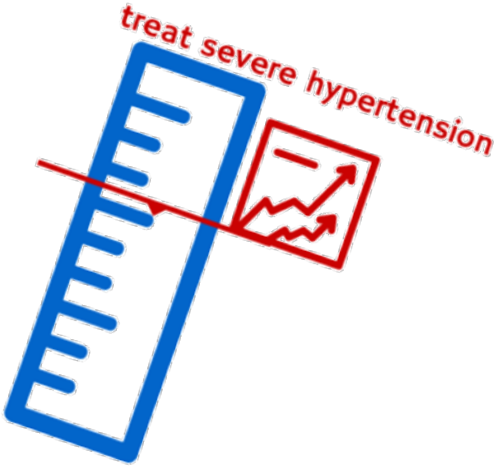
Oral antihypertensive medications

- ACE inhibitors and angiotensin receptor blockers are contraindicated in pregnancy
- Consider the following medications:
  - Methyldopa
  - Labetalol
  - Hydralazine
  - Nifedipine
  - Prazosin
  - Clonidine



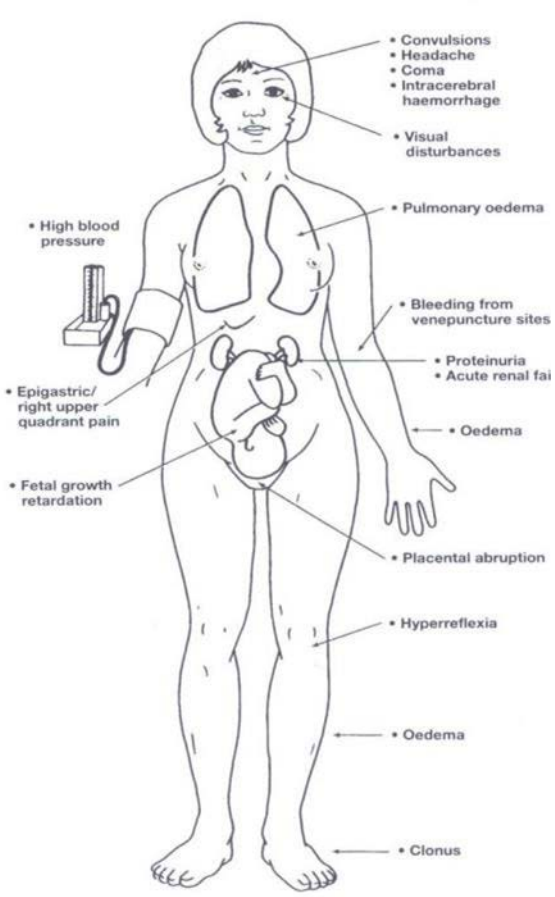
Severe hypertension

- 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



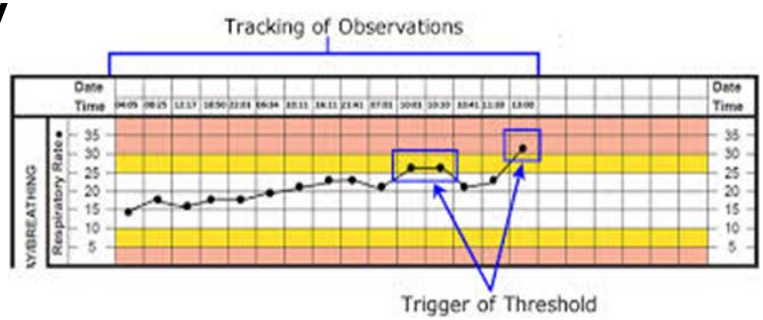
Pre-eclampsia

- Severity, timing, progression and onset are unpredictable: close 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 pre-eclampsia
  - Pre-eclampsia with ≥ one sign of central nervous system irritability
  - Transfer to higher service level required



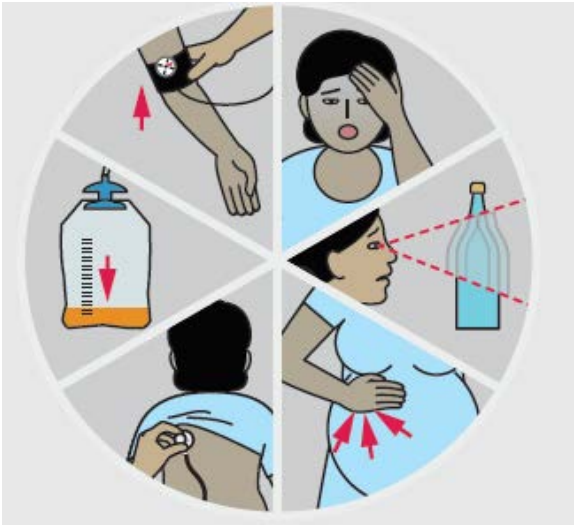
HELLP syndrome

Haemolysis **E**levated **L**iver enzymes **L**ow **P**latelets

- Variant of severe pre-eclampsia
- Includes:
  - Thrombocytopenia (common)
  - Haemolysis (rare)
  - Elevated liver enzymes (common)
- Magnesium sulfate may be indicated
- Consider platelet transfusion
- Plan birth if > 34+0 weeks gestation

Imminent eclampsia

- ≥ 2 of following symptoms
  - Frontal headache
  - Visual disturbance
  - Altered level of consciousness
  - Hyperreflexia
  - Epigastric tenderness
  - Oliguria

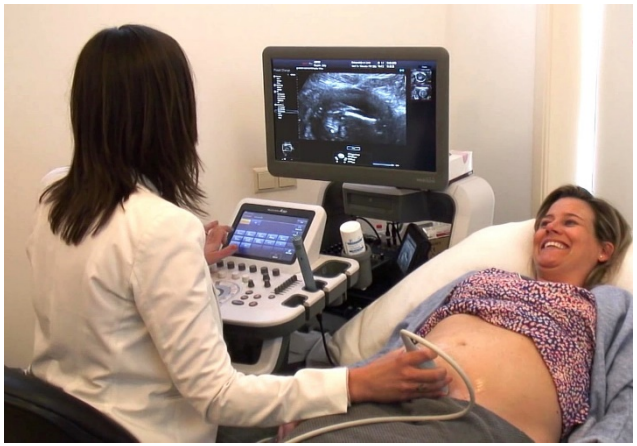


Eclampsia

- Resuscitation DRSABCD
- Goals of treatment
  - Terminate the seizure
  - Prevent recurrence
  - 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



Birth

- Multidisciplinary team approach
- Stabilise the woman prior to 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
- Pre-eclampsia:
  - Dependent on severity and gestation
- HELLP:
  - Plan birth as soon as feasible

Intrapartum monitoring

- Close clinical surveillance required
- Minimum half hourly BP
- Continuous CTG
- IV access
- Multidisciplinary involvement

Intrapartum care

- 2nd stage:
  - If BP is within target range: usual care
  - If BP not responsive to initial drug therapy: advise assisted/operative birth
- 3rd Stage
  - Active management as increased risk of PPH
    - *Consider syntocinon*
    - *Consider carbetocin*
  - DO NOT give ergometrine or syntometrine

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 antihypertensive therapy when hypertensive symptoms are resolving
- If BP persistently elevated, start antihypertensives
- NSAIDs not recommended in women with severe renal impairment
- Methyldopa associated with depression

Discharge

- First and second line drugs are compatible with breastfeeding
- If taking ACE inhibitors, discuss contraception
- Recommend follow-up screening 7 to10 days after discharge 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 body mass index
- 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)