Hypertension in Pregnancy

1. Overview / Description

To provide guidance around management of preeclampsia and eclampsia from a referral and transport perspective.

2. Related Documents

This guidance should be read in conjunction with:

- SCV maternity e-handbook on hypertension in pregnancy
- Victorian capability frameworks for maternity and newborn care
- PIPER Perinatal - Emergency Maternal Referrals

3. Definition of Terms

Pre-Eclampsia	A condition in pregnant women, with high blood pressure and multisystem involvement which usually includes proteinuria.
Eclampsia	A life-threatening condition during pregnancy or post partum characterised by seizures.

4. Responsibility

PIPER Medical and Nursing staff

5. Procedure

5.1 Management

Generally, women with severe preeclampsia require delivery. At extreme preterm gestations there is fetal benefit in prolonging pregnancy, but these benefits are at risk of maternal adverse outcomes. Expectant management of preterm preeclampsia should be undertaken in a setting where adequate surveillance of the woman and fetus can occur.

Pre-eclampsia usually deteriorates, but the rate of progression is variable. Frequent reassessment by medical staff is required.

5.2 Transfer

Transfer to a higher level of care is required for a pregnancy in which the health care provider believes the health care facility is unable to safely manage the pregnancy, due to gestational age or severity of maternal disease. Please contact PIPER for further advice or assistance.

The decision to transfer a woman with preeclampsia needs to consider:

- Gestational age, and likelihood of needing preterm delivery
- Maternal wellbeing, including the ability of the referring hospital to manage current and future complications
- The likelihood of seizures during transfer. It is difficult to predict which women will have a seizure, and maternal signs and symptoms are of limited sensitivity and specificity.
- Fetal wellbeing: Preeclampsia is associated with fetal risks including FDIU, growth restriction, and abruption, and assessment of fetal wellbeing is needed before transfer. Consider antenatal steroids if preterm delivery is anticipated.
- Due to the range of skill sets of ARV/AV staff, decisions around capacity to continue magnesium or iv antihypertensive infusions during transfer will need discussion between PIPER and AV/ARV, and

ongoing consultation during the transfer is encouraged. A loading dose of of 4g iv of magnesium sulphate may be appropriate prior to transfer in preference to an ongoing infusion.

5.3 Antihypertensive medication for severe hypertension

Blood pressure (BP) ≥ 160/100mmHg should be treated.
Severe hypertension ≥170/110 should be treated urgently
Aim to keep blood pressure above 140/80mmHg

Ongoing oral treatment or treatment of less severe hypertension				
Medication	**Dose**	**Action**	**Contraindications**	**Side effects**
Labetalol	100–400 mg tds oral	B blocker with mild alpha vasodilator effect	Asthma; chronic airways irritation	Bradycardia, bronchospasm, headache, nausea
Methyldopa	250–750 mg tds oral	Central	Depression	Onset of action over 24 hrs. Dry mouth, sedation, depression, blurred vision Withdrawal effects: rebound hypertension
Nifedipine	20–60 mg oral sustained release once a day	Calcium channel blocker	Aortic stenosis	Headache, flushing, tachycardia, peripheral edema, constipation
Prazosin	0.5–5 mg tds oral	Alpha blocker		First dose: orthostatic hypotension
Hydralazine	25–50 mg tds oral	Vasodilator		Flushing, headache, nausea, lupus-like syndrome
Enalapril (postpartum)	5–10 mg daily oral	ACEI	PREGNANCY: can be used safely in breastfeeding	
Acute treatment of severe hypertension				
Medication	**Dose**	**Route**	**Onset of action**	**Side Effects**
Nifedipine	10 mg tablet; max 40 mg	Oral	30–45 minutes. Repeat after 45 min if response inadequate	Headache
Labetalol	20–80 mg; max 80mg/dose	IV bolus over 2 min; repeat every 10 min as needed	Max effect usually occurs within 5 min of each dose	Bradycardia, bronchospasm and headache
Hydralazine	5–10 mg (first dose 5 mg if fetal compromise)	IV bolus over 5 minutes	5 to 20 min; may be repeated after 20 min	Flushing, Headache, Nausea, Hypotension, Tachycardia

5.4 Prevention of Seizures

Magnesium sulphate should be used to prevent and treat eclamptic seizures.

5.4.1 ***Loading Dose***

Loading dose of 4 g IV over 20 minutes.

5.4.2 Maintenance infusion

The loading dose is followed by a maintenance infusion of 1 g of $MgSO_4$ / hour. The infusion should usually be continued for 24 hours after the last seizure or after birth of the infant.

5.4.3 Management of magnesium toxicity

If magnesium toxicity (respiratory depression, absent deep tendon reflexes, or altered state of consciousness) is suspected:

- Cease the infusion
- Summon emergency medical/obstetric assistance
- If respiratory arrest occurs, initiate respiratory support.
- Give IV calcium gluconate 1g in 10mL of a 10% solution over 3 minutes.

5.5 Management of seizures – initial

- Summon emergency assistance
- Ensure a patent airway
- Administer 10 L/min oxygen by mask
- Obtain intravenous access
- Administer magnesium sulfate ($MgSO_4$) - see "Prevention of seizures"

6. Recurrent seizures:

- If recurrent seizures occur, a further 2 - 4g of MgSO4 is given over 5 minutes. The dose depends on the woman's weight:
  - 2g if <70kg and 4g if >70kg.
- A prolonged, generalised seizure may be due to other intracerebral pathology, in which case benzodiazepines are appropriate:
  - Diazepam (2 mg/min iv to maximum of 10mg) or
  - Midazolam (0.1 – 0.2 mg/kg IV or IM).

7. References

Shanmugalingam, R., et al. (2024), A summary of the 2023 Society of Obstetric Medicine of Australia and New Zealand (SOMANZ) hypertension in pregnancy guideline. Med J Aust, 220: 582-591. https://doi.org/10.5694/mja2.52312

8. Disclaimer

Users of these guidelines are strongly recommended to confirm that the information contained within them is correct. The authors accept no responsibility for any inaccuracies or information perceived as misleading.

The authors of these guidelines have made considerable effort to ensure the information upon which they are based is accurate and up to date. Users of these guidelines are strongly recommended to confirm that the information contained within them especially drug doses is correct by way of independent resources. The authors accept no responsibility for any inaccuracies or information perceived as misleading.

9. End of Document