

Hypertension in Pregnancy

1. Overview / Description

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

This guidance should be read in conjunction with

- SCV maternity e-handbook on hypertension in pregnancy
<https://www.bettersafecare.vic.gov.au/clinical-guidance/maternity/hypertension-in-pregnancy>
- PIPER general principles of transfer
https://www.rch.org.au/piper/guidelines/PIPER_Perinatal_Emergency_Maternal_Referrals/
- Victorian capability frameworks for maternity and newborn care
<https://www2.health.vic.gov.au/hospitals-and-health-services/patient-care/perinatal-reproductive/maternity-newborn-services/maternity-newborn-care>

2. Related Documents

- [SCV maternity e-handbook on hypertension in pregnancy](#)
- [PIPER general principles of transfer](#)
- [Victorian capability frameworks for maternity and newborn care](#)

3. Definition of Terms

- Pre-Eclampsia** A condition that develops in pregnant women, it is marked by high blood pressure and presence of proteins in urine.
- Eclampsia** A life-threatening condition during pregnancy or shortly after giving birth characterised by the development of 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 his/her health care facility is unable to 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

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- 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. As of July 2021, Ambulance Victoria is not able to use magnesium sulphate infusions in transfer. A loading dose of 4g iv of magnesium sulphate may be appropriate prior to transfer.
- 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.

5.3 Antihypertensive medication for severe hypertension

Blood pressure (BP) \geq 160/100mmHg should be treated.

Severe hypertension \geq 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	

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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 1g of MgSO₄/ 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 (MgSO₄)

5.5.1 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:

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- Diazepam (2 mg/min IV to maximum of 10mg) or
- Midazolam (0.1 – 0.2 mg/kg IV or IM).

6. References

Lowe SA, Bowyer L, Lust K, McMahon LP, Morton M, North RA, Paech M, Said JM. SOMANZ guidelines for the management of hypertensive disorders of pregnancy 2014. Aust N Z J Obstet Gynaecol. 2015 Oct;55(5):e1-29. doi: 10.1111/ajo.12399. Epub 2015 Sep 28. PMID: 26412014.

7. Disclaimer

The Paediatric, Infant Perinatal Emergency Retrieval (PIPER) Neonatal and Paediatric guidelines were developed by PIPER clinicians for the sole use within the PIPER service at The Royal Children's Hospital Melbourne.

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.

8. End of Document
