South Australian Perinatal Practice Guidelines

Ergot Derivatives:

Prophylaxis for third stage management and postpartum haemorrhage

Introduction

- This guideline discusses the use of ergot derivatives for prophylaxis of the third stage of labour and in the management of postpartum haemorrhage
- Oxytocin (Syntocinon®) is the uterotonic of choice for prophylaxis for active management for third stage because of its rapid onset of action and minimal side effects (for further information, refer to the PPG 'Syntocinon® : prophylaxis for the third stage of labour and pph management')
- Intramuscular Syntometrine® (oxytocin and ergometrine) is an alternative for prophylaxis for active management for third stage
- If the uterus fails to contract after delivery of the placenta, there are two main pharmacological options for **first line** management of postpartum haemorrhage due to uterine atony
    - Administer another dose of **oxytocin** (Syntocinon®), either intramuscular or intravenous
    - OR administer an **Ergot derivative, e.g.** Syntometrine® intramuscular, ergometrine or methylergometrine (see below)
- This may also be followed by preparation and administration of a 40 unit oxytocin (Syntocinon®) infusion if postpartum haemorrhage continues (for further information, refer to the PPG 'Syntocinon® : prophylaxis for the third stage of labour and pph management')

Syntometrine® (ergometrine maleate; oxytocin)

- Syntometrine® contains 0.5 mg ergometrine maleate and 5 units oxytocin per mL
- It combines the rapid uterine action of oxytocin with the sustained uterotonic effect of ergometrine
- Compared with oxytocin (Syntocinon®), use of Syntometrine® is associated with a small but statistically significant reduction in the frequency of PPH (McDonald et al. 2003)
- **This preparation is contraindicated in women with hypertension or preeclampsia**

Indications

- Prophylaxis in management of the third stage of labour

OR

- As a single **intramuscular** dose for first line management of postpartum haemorrhage due to uterine atony

Dosage and administration

- **Administer by intramuscular injection only**
- The usual prophylactic dose is 1 mL intramuscular after delivery of the anterior shoulder (McDonald et al. 2003)
- The onset of action is within 2–3 minutes, which lasts for approximately 3 hours

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Side effects

- Usually well tolerated although some women may have nausea and vomiting
- Hypertension, abdominal pain and headache are infrequent
- Ischaemic heart disease, hypertension and peripheral vascular disease may be exacerbated by vasoconstriction

Contraindications

- Hypertension including preeclampsia

Ergometrine

Mechanism of action

- Stimulates continuous contraction of uterine and vascular smooth muscle
- The intramuscular administration of ergometrine results in a sustained tonic uterine contraction via stimulation of myometrial α-adrenergic receptors (see table below)
- Intravenous administration enhances the side effects of hypertension, nausea and vomiting (see table below)

Indications

- Ergometrine is **not** recommended for prophylaxis in the third stage because of significant adverse effects compared with oxytocin alone
- For first line management of postpartum haemorrhage due to uterine atony, ergometrine is usually given as a single intramuscular dose (250 micrograms)
- Absorption characteristics may change in the presence of hypovolaemia and peripheral shut down. IV access and IV Ergometrine (see below for dosage) may be a better strategy if there has been considerable blood loss

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Dosage and administration

Ergometrine 500 micrograms in 1 mL		
	Dosage and administration	**Onset of action**
Intramuscular	> 250 micrograms IM	> within 7 minutes and lasts for approximately 3 hours
Intravenous	> Draw up 250 micrograms in 0.5 mL and add 4.5 mL sodium chloride 0.9 % (5 mL in total) > Administer in 25-50 microgram boluses (50 micrograms per 1 mL). Can be repeated after 2-3 minutes **to a total of 250 micrograms**	> rapid - less than 1 minute and lasts 45 minutes
Last reviewed 18/09/12		

Side effects

- Usually well tolerated, however nausea and vomiting may occur
- Adverse effects are more common with the intravenous route
- Hypertension, abdominal pain and headache are infrequent
- Ischaemic heart disease, hypertension and peripheral vascular disease may be exacerbated by vasoconstriction

Contraindications

- Hypertension including preeclampsia, cardiac disease

Methylergometrine

- Methylergometrine differs little from ergometrine in its pharmacokinetics
- Methylergometrine may be obtained under the special access scheme (SAS) in the event of a shortage of ergometrine in Australia

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Methylergometrine

- Methylergometrine differs little from ergometrine in its pharmacokinetics
- Methylergometrine may be obtained under the special access scheme (SAS) in the event of a shortage of ergometrine in Australia

Indications

- Methylergometrine is not recommended for prophylaxis for third stage management due to significant adverse effects
- For first line management of postpartum haemorrhage due to uterine atony, methylergometrine is usually given as a single intramuscular dose

Dosage and administration

- 200 micrograms in 1 mL
- Intramuscular dosage: 200 micrograms
- Intravenous dosage: 200 micrograms over at least 1 minute

Side effects

- Sudden hypertension, cerebrovascular accident, headache, seizure

Contraindications

- Hypertension including preeclampsia

References

1. McDonald SJ, Abbott JM, Higgins SP. Prophylactic ergometrine-oxytocin versus oxytocin for the third stage of labour. *Cochrane Database of Systematic Reviews* 2004, Issue 1. Art. No.: CD000201. DOI: 10.1002/14651858.CD000201.pub2. (Level I). Available from URL: http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD000201/pdf_fs.html
2. Svanstrom MC, Biber B, Hanes M, Johansson G, Naslund U, Balfors EM. Signs of myocardial ischaemia after injection of oxytocin: a randomized double-blind comparison of oxytocin and methylergometrine during Caesarean section. BJOA 2008; 100: 683-9 (Level I).
3. Bouwmeester FW, Bolte AC, Van Geijn HP. Pharmacological and surgical therapy for primary postpartum hemorrhage. Current Pharmaceutical Design 2005; 11: 759-773.

Useful web site:

RANZCOG: Management of the third stage of labour
http://www.ranzcog.edu.au/publications/statements/C-obs21.pdf

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Abbreviations

et al	And others
IV	Intravenous
mg	Milligram(s)
mL	Millilitre(s)
PPH	Postpartum haemorrhage
SAS	Special access scheme

Version control and change history

PDS reference: OCE use only

Version	Date from	Date to	Amendment
1.0	23 June 09	18 Sept 12	Original version
2.0	18 Sept 12	Current	Reviewed

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