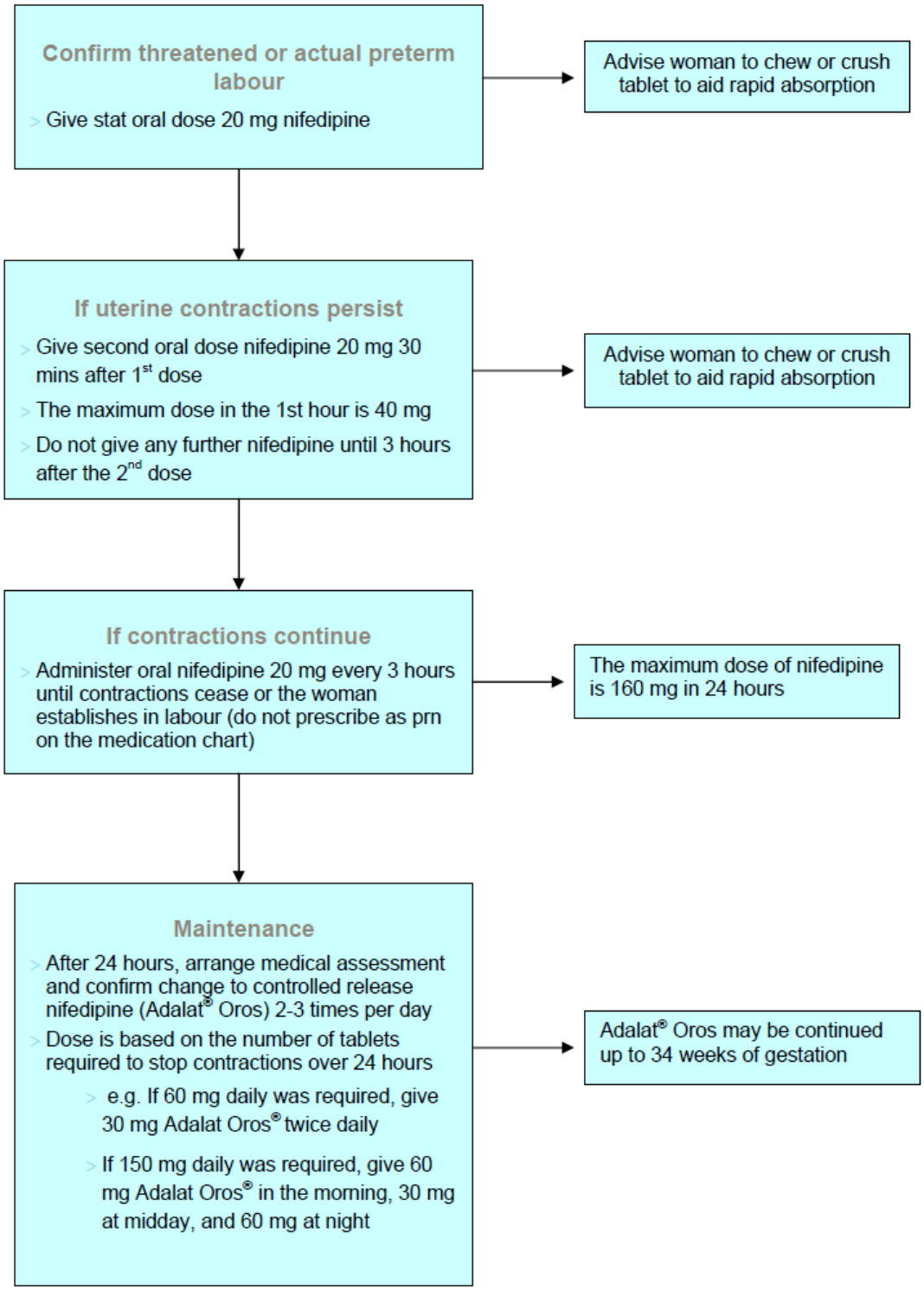
Nifedipine for preterm labour

Nifedipine for suppression of preterm labour



Government of South Australia
SA Health

ISBN number: UNKNOWN
Endorsed by: SA Maternal & Neonatal Clinical Network
Contact: South Australian Perinatal Practice Guidelines workgroup at: cywhs.perinatalprotocol@health.sa.gov.au

Nifedipine for preterm labour

Product information

- Nifedipine, a dihydropyridine calcium channel blocker, is an effective smooth muscle relaxant with low toxicity. Although nifedipine is known as an antihypertensive drug, the drop in blood pressure in normotensive women after starting tocolytic therapy is significantly more with intravenous salbutamol as compared to nifedipine
    - Adalat®: Absorption of nifedipine is delayed. Maximum plasma concentrations occur in 1.5 – 4.2 hours. The half life is 6 – 12 hours
    - Adalat Oros® (controlled release nifedipine) reaches a plateau 6 hours after administration. Adalat Oros® must be swallowed whole
    - Nifedipine is metabolised by the liver and the inactive metabolite is excreted mainly by the kidney
    - In case of urgency – ask the woman to chew the tablet and swallow. This does not apply to Adalat Oros®.Grapefruit juice inhibits hepatic metabolism
    - Research has shown nifedipine to be a more effective tocolytic agent than betamimetics in prolonging pregnancy for preterm labour (King et al. 2003)
    - Nifedipine is classified as a risk Category C drug by the Australian Drug Evaluation Committee
    - Nifedipine carries the potential for fetal hypoxia associated with maternal hypotension
    - The TGA approved Product information and Consumer Medicine Information says: "Nifedipine is contraindicated throughout pregnancy, and breastfeeding should be stopped first if nifedipine treatment becomes necessary during the breastfeeding period." and "Do not take if you are pregnant or breastfeeding", respectively
    - This guideline should only be used in consultation with specialists who are familiar with the management of preterm labour and the care of preterm infants

Indications

Suppression of

- Threatened Preterm Labour < 34 weeks
- Actual Preterm Labour < 34 weeks

Contraindications

Maternal

- Hypotension (systolic BP less than 90 mmHg) carries the potential for fetal hypoxia
- Allergy to nifedipine
- Cardiac disease (congestive cardiac failure, aortic stenosis)
- Hepatic dysfunction

Government of South Australia
SA Health

ISBN number: UNKNOWN
Endorsed by: SA Maternal & Neonatal Clinical Network
Contact: South Australian Perinatal Practice Guidelines workgroup at: cywhs.perinatalprotocol@health.sa.gov.au

Nifedipine for preterm labour

Fetal

- Proven intrauterine infection
- Fetal compromise requiring delivery
- Placental abruption
- Severe growth restriction
- Lethal fetal anomalies
- Intrauterine fetal death (IUFD)

Relative contraindications

Maternal

- Concurrent use of IV salbutamol, transdermal nitrates (GTN)
- Nifedipine and magnesium sulphate ($MgSO_4$): Concomitant use of $MgSO_4$ with nifedipine may result in significant hypotension, and neuromuscular weakness if using the conventional 4 – 6 g IV bolus. An alternative is continuous infusion of $MgSO_4$ 1 g / hour (King et al. 2003)
- PPROM after adequate steroid cover (48 hours)

Fetal

- Suspected intrauterine infection
- Preterm labour in the presence of placenta praevia
- Undiagnosed significant vaginal bleeding

Dosage

Check blood pressure before administering nifedipine

Confirm threatened or actual preterm labour

- Give stat dose nifedipine 20 mg. The tablet should be chewed or crushed to aid the speed of absorption (grapefruit juice increases the bioavailability of nifedipine by inhibiting its metabolism)

If uterine contractions persist

- The second dose of nifedipine 20 mg is given 30 minutes after the first dose. The tablet should be chewed or crushed to maximise speedy absorption
- The maximum dose of nifedipine in the first hour is 40 mg
- Do not give any further nifedipine until three hours after the second dose

If contractions continue

- Administer nifedipine 20 mg every three hours as prescribed, i.e. until the contractions cease or the woman establishes in labour
- Prescribe as written above (do not prescribe as prn)
- The maximum dose of nifedipine is 160 mg in 24 hours

Government of South Australia
SA Health

ISBN number: UNKNOWN
Endorsed by: SA Maternal & Neonatal Clinical Network
Contact: South Australian Perinatal Practice Guidelines workgroup at: cywhs.perinatalprotocol@health.sa.gov.au

Nifedipine for preterm labour

Stop the nifedipine if:

- There is marked hypotension, e.g. systolic < 90 mm Hg
- Significant dyspnoea

Observations

- Maternal baseline BP, TPR, FHR before administering the first dose of nifedipine 20 mg
- Continue hourly BP and maternal pulse for four hours
- Check BP before administering nifedipine
- Temperature every 4 hours
- The rate of observations should be tapered according to the clinical situation
- Continuous CTG while contracting
- Recommence CTG in the presence of:
    - Regular abdominal pains or tenderness
    - Change in amount, colour of liquor
    - Antepartum haemorrhage
- And arrange medical review

Side Effects

- In normotensive women, the effects of nifedipine on BP are minimal
- Headache
- Tachycardia, palpitations
- Flushing
- Fatigue
- Dizziness
- Constipation
- Nausea and heartburn.
- Peripheral oedema secondary to arteriolar vasodilatation
- Transient rise in liver function test results

- NB: Care with concomitant use of antihypertensive medications (check blood pressure before administering nifedipine)

Maintenance treatment with nifedipine

- Evidence for the effectiveness of maintenance treatment is lacking (Naik Gaunekar, Crowther 2004)
- After 72 hours, the dosage of nifedipine tablets that was required to stop contractions is given as nifedipine controlled release tablets (Adalat Oros®) 2 – 3 times per day and can be continued to 34 weeks of gestation

Government of South Australia
SA Health

ISBN number: UNKNOWN
Endorsed by: SA Maternal & Neonatal Clinical Network
Contact: South Australian Perinatal Practice Guidelines workgroup at: cywhs.perinatalprotocol@health.sa.gov.au

For example:

- If 60 mg daily was required, give 30 mg Adalat Oros® twice daily
- If 150 mg daily was required, give 60 mg (Adalat Oros®) in the morning, 30 mg (Adalat Oros®) at midday, and 60 mg (Adalat Oros®) at night

References

1. MIMS Online. MIMS Pharmaceutical Product Information. [online database] Full product information Adalat® tablets data version August 2010 [cited 2010 Aug 16]. Available: MIMS Online. (Level I).
2. King JF, Flenady VJ, Papatsonis DNM, Dekker GA, Carbonne B. Calcium channel blockers for inhibiting preterm labour. *CochraneDatabase of Systematic Reviews* 2003, Issue 1. Art. No.: CD002255. DOI: 10.1002/14651858.CD002255. (Level I). Available from URL: http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD002255/pdf_fs.html
3. Naik Gaunekar N, Crowther CA. Maintenance therapy with calcium channel blockers for preventing preterm birth after threatened preterm labour. Cochrane Database of Systematic Reviews 2004, Issue 3. Art. No.: CD004071. DOI: 10.1002/14651858.CD004071.pub2 (Level I). Available from URL: http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD004071/pdf_standard_fs.html
4. King JF, Flenady V, Papatsonis D, Dekker G, Carbonne B. Calcium channel blockers for inhibiting preterm labour; a systematic review of the evidence and a protocol for the administration of nifedipine. Aust NZ J Obstet Gynaecol 2003; 43:192-98 (Level I).
5. NSW Health Department. Protocols for administration of tocolytic agents (Intravenous Salbutamol or oral Nifedipine) for Threatened Preterm Labour. North Sydney: NSW; 2002. Available from URL: http://www.health.nsw.gov.au/policies/PD/2005/pdf/PD2005_249.pdf

Useful reference

RANZCOG College Statement: The use of nifedipine in obstetrics. Available from URL: http://www.ranzcog.edu.au/publications/statements/C-obs15.pdf

Government of South Australia
SA Health

ISBN number: UNKNOWN
Endorsed by: SA Maternal & Neonatal Clinical Network
Contact: South Australian Perinatal Practice Guidelines workgroup at: cywhs.perinatalprotocol@health.sa.gov.au

Nifedipine for preterm labour

Abbreviations

mm Hg	Millimetres of mercury
BP	Blood pressure
IV	Intravenous
GTN	Glyceryl trinitrate
et al	And others
$MgSO_4$	Magnesium sulphate
PPROM	Preterm prelabour rupture of the membranes
g	Gram/s
min	minute
IUFD	Intrauterine fetal death
TGA	Therapeutic goods administration
mg	milligram/s
e.g.	for example
TPR	Temperature, pulse, respirations
FHR	Fetal heart rate
CTG	Cardiotocograph

Version control and change history

PDS reference: OCE use only

Version	Date from	Date to	Amendment
1.0	16 June 04	18 Mar 10	Original version
2.0	18 May 10	18 Oct 10	Reviewed
3.0	18 Oct 10	current	

Government of South Australia
SA Health

ISBN number: UNKNOWN
Endorsed by: SA Maternal & Neonatal Clinical Network
Contact: South Australian Perinatal Practice Guidelines workgroup at: cywhs.perinatalprotocol@health.sa.gov.au