Policy

Clinical Guideline
South Australian Perinatal Practice Guidelines – nifedipine for preterm labour

Policy developed by: SA Maternal & Neonatal Clinical Network
Approved SA Health Safety & Quality Strategic Governance Committee on: 10 June 2014
Next review due: 30 June 2017

Summary
Clinical practice guideline for suppression of preterm labour with nifedipine

Keywords
Nifedipine, suppression, preterm labour, calcium channel blocker, Adalat, tocolytic, contractions, preterm labour, flushing, smooth muscle relaxant, Perinatal Practice Guidelines, nifedipine for preterm labour, clinical guideline

Policy history
Is this a new policy? N
Does this policy amend or update an existing policy? Y
Does this policy replace an existing policy? N
If so, which policies?

Applies to
All SA Health Portfolio
All Department for Health and Ageing Divisions
All Health Networks
CALHN, SALHN, NALHN, CHSALHN, WCHN, SAAS
Other

Staff impact
N/A, All Staff, Management, Admin, Students, Volunteers
All Clinical, Medical, Nursing, Allied Health, Emergency, Dental, Mental Health, Pathology

PDS reference
CG140

Version control and change history

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This guideline provides advice of a general nature. This statewide guideline has been prepared to promote and facilitate standardisation and consistency of practice, using a multidisciplinary approach. The guideline is based on a review of published evidence and expert opinion.

Information in this statewide guideline is current at the time of publication.

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Health practitioners in the South Australian public health sector are expected to review specific details of each patient and professionally assess the applicability of the relevant guideline to that clinical situation.

If for good clinical reasons, a decision is made to depart from the guideline, the responsible clinician must document in the patient’s medical record, the decision made, by whom, and detailed reasons for the departure from the guideline.

This statewide guideline does not address all the elements of clinical practice and assumes that the individual clinicians are responsible for discussing care with consumers in an environment that is culturally appropriate and which enables respectful confidential discussion. This includes:

- The use of interpreter services where necessary,
- Advising consumers of their choice and ensuring informed consent is obtained,
- Providing care within scope of practice, meeting all legislative requirements and maintaining standards of professional conduct, and
- Documenting all care in accordance with mandatory and local requirements.
Nifedipine for suppression of preterm labour

Confirm threatened or actual preterm labour
- Give stat oral dose 20 mg nifedipine

If uterine contractions persist
- Give second oral dose nifedipine 20 mg 30 minutes after 1st dose
- The maximum dose in the 1st hour is 40 mg
- Do not give any further nifedipine until 3 hours after the 2nd dose

If contractions continue
- Administer oral nifedipine 20 mg every 3 to 6 hours for 48 hours, unless contractions cease or the woman establishes in labour (do not prescribe as prn on the medication chart)

- Tocolysis with nifedipine may continue for 48 hours (allows completion of a full course of corticosteroids), provided there is no contraindication to prolonging pregnancy (see under contraindications)
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.

1 Nifedipine is metabolised by the liver and the inactive metabolite is excreted mainly by the kidney.

1 In case of urgency – ask the woman to chew the tablet and swallow to aid faster absorption.

1 Nifedipine tablets may be crushed to aid administration; however this may alter the modified release characteristic of the tablet and therefore administration might be needed more often. Crushed tablets should also be administered within 30-60 seconds of crushing to avoid significant loss in potency of drug.

2 Research has shown nifedipine to be a more effective tocolytic agent than betamimetics in prolonging pregnancy for preterm labour.

2 Nifedipine is classified as a risk Category C drug by the Australian Drug Evaluation Committee.

2 Nifedipine carries the potential for fetal hypoxia associated with maternal hypotension.

2 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.

2 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.

Introduction

Nifedipine is the preferred tocolytic for suppression of preterm labour < 34 weeks.

There is no clear evidence that tocolytic drugs improve outcomes following preterm labour.

Women most likely to benefit from tocolysis with nifedipine are those:

-In very preterm labour.

-Needing transfer to a hospital with neonatal intensive care facilities.

-AND who have not completed a full course of corticosteroids (takes 48 hours to achieve maximum effect of fetal lung maturity).

Discussion with the woman and her partner should include the above points.

Indications

Suppression of

Threatened Preterm Labour < 34 weeks.

Actual Preterm Labour < 34 weeks.

Contact:
cywhs.perinatalprotocol@health.sa.gov.au
Contraindications\textsuperscript{4,6}

**Maternal**
- Hypotension (systolic BP less than 90 mmHg) carries the potential for fetal hypoxia
- Advanced cervical dilatation (particularly if PPROM)
- Allergy to nifedipine
- Cardiac disease (congestive cardiac failure, aortic stenosis)
- Hepatic dysfunction

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

Relative contraindications\textsuperscript{5,6}

**Maternal**
- Concurrent use of IV salbutamol, transdermal nitrates (GTN)
- Nifedipine and magnesium sulphate (MgSO\textsubscript{4}): Concomitant use of MgSO\textsubscript{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\textsubscript{4} 1 g / hour\textsuperscript{5}
- PPROM after adequate steroid cover (48 hours)

**Fetal**
- Suspected intrauterine infection
- Fetal growth restriction
- Multiple pregnancy
- 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

*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 to six hours for 48 hours (unless 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
> Tocolysis with nifedipine may continue for 48 hours (for completion of a full course of corticosteroids), provided there is no contraindication to prolonging pregnancy

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
> Recomence 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)
References


6. Royal College of Obstetricians and Gynaecologists (RCOG). Tocolysis for women in preterm labour Green top guideline No 1b. February 2011


Useful reference

Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
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<tr>
<td>BP</td>
<td>Blood pressure</td>
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<tr>
<td>CTG</td>
<td>Cardiotocograph</td>
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<td>FHR</td>
<td>Fetal heart rate</td>
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<tr>
<td>e.g.</td>
<td>For example</td>
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<tr>
<td>GTN</td>
<td>Glyceryl trinitrate</td>
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<tr>
<td>g</td>
<td>Gram(s)</td>
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<tr>
<td>IUFD</td>
<td>Intrauterine fetal death</td>
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<tr>
<td>IV</td>
<td>Intravenous</td>
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<tr>
<td>MgSO₄</td>
<td>Magnesium sulphate</td>
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<tr>
<td>mg</td>
<td>Milligram(s)</td>
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<tr>
<td>mm Hg</td>
<td>Millimetres of mercury</td>
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<tr>
<td>min</td>
<td>Minute</td>
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<tr>
<td>PPROM</td>
<td>Preterm prelabour rupture of the membranes</td>
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<tr>
<td>TPR</td>
<td>Temperature, pulse, respirations</td>
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<td>TGA</td>
<td>Therapeutic goods administration</td>
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