Maintenance therapy with calcium channel blockers for preventing preterm birth

23 December 2013

RHL summary

Findings of the review: Maintenance treatment with calcium channel blockers is used as one of the tocolytic therapies to prevent further contractions after an episode of threatened preterm labour. Six randomized controlled trials (794 women) undertaken in the Malaysia, the Netherlands (406 women), New Zealand, Turkey, and the USA were included in the review. All the trials had sought to evaluate the benefits of nifedipine. Women who received nifedipine were more likely to have their pregnancy prolonged by 5.35 days. However, there was no difference between nifedipine and placebo groups in terms of birth before 34 weeks or before 28 weeks, or within 7 days or within 48 hours of treatment, or gestational age at birth. Moreover, no difference was observed for perinatal and neonatal mortality and morbidity. Infants whose mothers received nifedipine had longer hospital stay (14 days) compared with infants whose mothers received placebo. None of the trials reported on neurological disability or long-term infant outcomes.

Implementation: Current evidence does not support the use of maintenance treatment with calcium channel blockers after threatened preterm birth to prevent the onset of further contractions.

Cochrane review

Citation: Naik Gaunekar N, Raman P, Bain E, Crowther CA. Maintenance therapy with calcium channel blockers for preventing preterm birth after threatened preterm labour. Cochrane Database of Systematic Reviews 2013, Issue 10. Art. No.: CD004071. DOI:10.1002/14651858.CD004071.pub3

Abstract

Calcium channel blocker maintenance therapy is one of the types of tocolytic therapy that may be used after an episode of threatened preterm labour (and usually an initial dose of tocolytic therapy) in an attempt to prevent the onset of further preterm contractions.

To assess the effects of calcium channel blockers as maintenance therapy on preventing preterm birth after threatened preterm labour.

We searched the Cochrane Pregnancy and Childbirth Group's Trials Register (31 May 2013) and reference lists of retrieved studies.
Randomised controlled trials of calcium channel blockers used as maintenance therapy to prevent preterm birth after threatened preterm labour, compared with placebo or no treatment.

Two review authors independently assessed study eligibility, extracted data and assessed the risk of bias of included studies.

We included six trials that enrolled 794 women and their babies and all assessed nifedipine as calcium channel blocker maintenance therapy. The six trials were judged to be at a moderate risk of bias overall. No differences in the incidence of preterm birth (risk ratio (RR) 0.97; 95% confidence interval (CI) 0.87 to 1.09; five trials, 681 women), birth within 48 hours of treatment (RR 0.46; 95% CI 0.07 to 3.00; two trials, 128 women) or neonatal mortality (average RR 0.75; 95% CI 0.05 to 11.76; two trials, 133 infants) were seen when nifedipine maintenance therapy was compared with placebo or no treatment. No stillbirths were reported in the one trial that provided data for this outcome. No trials reported on longer-term follow-up of infants.

Women receiving nifedipine maintenance therapy were significantly more likely to have their pregnancy prolonged (mean difference (MD) 5.35 days; 95% CI 0.49 to 10.21; four trials, 275 women); however, no differences between groups were shown for birth at less than 34 weeks' gestation, birth at less than 28 weeks' gestation, birth within seven days of treatment, or gestational age at birth. No significant differences were shown between the nifedipine and control groups for any of the secondary neonatal morbidities reported. Similarly, no significant differences were seen for the outcomes relating to the use of health services, except for in one trial, where infants whose mothers received nifedipine were significantly more likely to have a longer length of hospital stay as compared with infants born to mothers who received a placebo (MD 14.00 days; 95% CI 4.21 to 23.79; 60 infants).

Based on the current available evidence, maintenance treatment with a calcium channel blocker after threatened preterm labour does not prevent preterm birth or improve maternal or infant outcomes.

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