Tocolytics for preterm premature rupture of membranes

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RHL summary

Findings of the review: The objective of this review was to assess the benefits of tocolysis in women with preterm premature rupture of membranes (PPROM) between 23 weeks and 36 weeks and six days. Eight trials (408 women) were included in the review. Trials included in the review were as follows: seven had compared any tocolytic therapy with no tocolytic (four trials assessed ritodrine, one trial assessed a combination of ritodrine and magnesium, one trial had compared either ritodrine or terbatuline or magnesium, and one trial had used indomethacin); one trial compared two tocolytics (nifedipine to terbutaline). Although tocolysis was associated with longer latency and fewer births within 48 hours, it was also associated with increased number of babies with five-minute Apgar score of less than seven and increased use of ventilation in the neonate. A significantly increased risk of chorioamnionitis was found in women with PPROM before 34 weeks who received tocolysis versus no tocolysis based on small studies of not adequate quality. Included studies did not consistently administer antibiotics and corticosteroids. No differences were seen in maternal and neonatal outcomes when comparing cox inhibitors versus no tocolysis, calcium channel blocker versus betamimetic, antibiotic, corticosteroid, or combined antibiotic/corticosteroid.

Implementation: There is no evidence to support tocolytic therapy for women with PPROM because of an increase in maternal chorioamnionitis without improvements in neonatal outcomes. However, studies included in this review have not used routinely antibiotics and corticosteroids, which are now considered standard care for PPROM.

Cochrane review


Abstract

In women with preterm labor, tocolysis has not been shown to improve perinatal mortality; however, it is often given for 48 hours to allow for the corticosteroid effect for fetal maturation. In women with preterm premature rupture of membranes (PPROM), the use of tocolysis is still controversial. In theory, tocolysis may prolong pregnancy in women with PPROM, thereby allowing for the corticosteroid benefit and reducing the morbidity and mortality associated with prematurity.
To assess the potential benefits and harms of tocolysis in women with preterm premature rupture of membranes.

We searched the Cochrane Pregnancy and Childbirth Group's Trials Register (15 January 2014).

We included pregnant women with singleton pregnancies and PPROM (23 weeks to 36 weeks and six days). We included any tocolytic therapy compared to no tocolytic, placebo, or another tocolytic.

All review authors assessed the studies for inclusion. We extracted and quality assessed data.

We included eight studies with a total of 408 women. Seven of the studies compared tocolysis to no tocolysis. One study compared nifedipine to terbutaline. Compared to no tocolysis, tocolysis was not associated with a significant effect on perinatal mortality in women with PPROM (risk ratio (RR) 1.67; 95% confidence interval (CI) 0.85 to 3.29). Tocolysis was associated with longer latency (mean difference (MD) 73.12 hours; 95% CI 20.21 to 126.03; three trials of 198 women) and fewer births within 48 hours (average RR 0.55; 95% CI 0.32 to 0.95; six trials of 354 women; random-effects, $\tau^2 = 0.18$, $I^2 = 43\%$) compared to no tocolysis. However, tocolysis was associated with increased five-minute Apgar of less than seven (RR 6.05; 95% CI 1.65 to 22.23; two trials of 160 women) and increased need for ventilation of the neonate (RR 2.46; 95% CI 1.14 to 5.34; one trial of 81 women). In the subgroup analysis comparing betamimetic to no betamimetics, tocolysis was associated with increased latency and borderline significance for chorioamnionitis. Prophylactic tocolysis with PPROM was associated with increased overall latency, without additional benefits for maternal/neonatal outcomes. For women with PPROM before 34 weeks, there was a significantly increased risk of chorioamnionitis in women who received tocolysis. However, neonatal outcomes were not significantly different. There were no significant differences in maternal/neonatal outcomes in subgroup analyses comparing cox inhibitor versus no tocolysis, calcium channel blocker versus betamimetic, antibiotic, corticosteroid or combined antibiotic/corticosteroid.

Our review suggests there is insufficient evidence to support tocolytic therapy for women with PPROM, as there was an increase in maternal chorioamnionitis without significant benefits to the infant. However, studies did not consistently administer latency antibiotics and corticosteroids, both of which are now considered standard of care.

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