Fetal assessment methods for improving neonatal and maternal outcomes in preterm prelabour rupture of membranes

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RHL summary

Key Findings

- Overall, trials showed few statistically significant improvements in maternal, fetal or neonatal outcomes.
- There was a non-statistically significant increase in the risk of neonatal death in the intervention groups of endovaginal ultrasound and amniocentesis for fetal lung surfactant, compared to their respective control groups. This may be of clinical interest, but the relationship has not been scientifically proven.

No meta-analysis was conducted due to differences in comparisons.

Evidence included in this review

- endovaginal ultrasound scans versus no assessment;
- amniocentesis for fetal lung surfactant versus no assessment; and
- daily non-stress test versus modified biophysical profile testing;

No meta-analysis was conducted due to differences in comparisons.

Clinical implications

Due to the low number of trials, there is insufficient data to draw firm conclusions regarding the benefits and harms of fetal assessment methods for improving neonatal and maternal outcomes in women with PPROM. In the included trials, few of the outcomes reported were statistically significant for any assessment method.

Quality assessment

The quality in all three trials was poor. It was not possible to blind participants in any of the trials, and one study did not report data for several of its proposed outcomes.

Further research

Further randomised controlled trials of high quality are required. These trials should collect data on a wide range of maternal, neonatal and fetal outcomes.
Abstract

Fetal assessment following preterm prelabour rupture of membranes (PPROM) may result in earlier delivery due to earlier detection of fetal compromise. However, early delivery may not always be in the fetal or maternal interest, and the effectiveness of different fetal assessment methods in improving neonatal and maternal outcomes is uncertain.

To study the effectiveness of fetal assessment methods for improving neonatal and maternal outcomes in PPROM. Examples of fetal assessment methods that would be eligible for inclusion in this review include fetal cardiotocography, fetal movement counting and Doppler ultrasound.

We searched the Cochrane Pregnancy and Childbirth Group's Trials Register (30 June 2014) and reference lists of retrieved studies.

Randomised controlled trials comparing any fetal assessment methods, or comparing one fetal assessment method to no assessment.

Two review authors independently assessed trials for inclusion into the review. The same two review authors independently assessed trial quality and independently extracted data. Data were checked for accuracy.

We included three studies involving 275 women (data reported for 271) with PPROM at up to 34 weeks' gestation. All three studies were conducted in the United States. Each study investigated different methods of fetal assessment. One study compared weekly endovaginal ultrasound scans with no assessment (n = 93), one compared amniocentesis with no assessment (n = 47), and one compared daily nonstress testing with daily modified biophysical profiling (n = 135). We were unable to perform a meta-analysis, but were able to report data from individual studies.

There was no convincing evidence of increased risk of neonatal death in the group receiving endovaginal ultrasound scans compared with the group receiving no assessment (risk ratio (RR) 7.30, 95% confidence interval (CI) 0.39 to 137.54; one study, 92 women), or in the group receiving amniocentesis compared with the group receiving no amniocentesis (RR 1.00, 95% CI 0.07 to 15.00; one study, 44 women). For both these interventions, we inferred that there were no fetal deaths in the intervention or control groups. The study comparing daily nonstress testing with daily modified biophysical profiling did not report fetal or neonatal death. Primary outcomes of maternal death and serious maternal morbidity were not reported in any study. Overall, there were few statistically significant differences in outcomes between the comparisons.

The overall quality of evidence is poor, because participant blinding was not possible for any study.

There is insufficient evidence on the benefits and harms of fetal assessment methods for improving neonatal and maternal outcomes in women with PPROM to draw firm conclusions. The overall quality of evidence
that does exist is poor.

Further high-quality randomised controlled trials are required to guide clinical practice.