Corticosteroids for preventing neonatal respiratory morbidity after elective caesarean section at term

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RHL summary

Key Findings

- Statistically significant reduction in the risk of admission to neonatal special and intensive care units due to respiratory distress in the betamethasone group without significant differences in general admission to neonatal care units (overall rate, any indication)
- No statistically significant differences in neonatal respiratory syndrome incidence, transit tachypnea, need for mechanical ventilation
- No data on other neonatal outcomes, maternal infection or infant long term morbidity

Evidence included in this review

One randomized controlled trial conducted in UK was included in this review, involving 942 women. Patients were randomized to betamethasone or usual management without steroids. No placebo was used.

Quality assessment

Selection bias was low as this trial was correctly randomized and allocation was adequately concealed. As there was no blinding the risk of performance and detection bias was high. Overall apart from the lack of blinding methodological quality of this study was good.

Clinical implications

Two doses of betamethasone were given to women 48 hours before elective caesarean section between 37 and 39 weeks of gestation and compared to usual care without steroids. Over 38 women given prophylactic betamethasone, 1 admission to neonatal care units would be avoided. Because of the lack of blinding (not proper when evaluating subjective outcomes) and the number of participants (small to make this trial powered enough to show differences in some important neonatal respiratory outcomes) no firm conclusions can be drawn regarding this potential benefit.

Further research

According to present evidence, there is a need of larger trials. Complete neonatal and long-term infant outcomes and maternal complications should be assessed.
Citation: Sotiriadis Alexandros, Makrydimas George, Papatheodorou Stefania, Ioannidis John PA. Corticosteroids for preventing neonatal respiratory morbidity after elective caesarean section at term. *Cochrane Database of Systematic Reviews* 2009, Issue 4. Art. No.: CD006614. DOI:10.1002/14651858.CD006614.pub2.

**Abstract**

Infants born at term by elective caesarean delivery are more likely to develop respiratory morbidity than infants born vaginally. Prophylactic corticosteroids in singleton preterm pregnancies accelerate lung maturation and reduce the incidence of respiratory complications.

The objective of this review was to assess the effect of prophylactic corticosteroid administration before elective caesarean section at term, as compared to usual management without corticosteroids, in reducing neonatal respiratory morbidity and admission to special care with respiratory complications.

We searched the Cochrane Pregnancy and Childbirth Group's Trials Register (30 June 2009).

Randomised and quasi-randomised controlled trials comparing prophylactic antenatal corticosteroid administration (betamethasone or dexamethasone) with placebo or with no treatment, given before elective caesarean section at term (at or after 37 weeks of gestation).

The co-authors assessed the results of the only available trial independently to retrieve data on perinatal outcomes. Results were expressed as risk ratio (RR) or mean differences (MD), together with their 95% confidence intervals (CI).

One study comparing prophylactic administration of betamethasone (N = 467) versus usual treatment without steroids (N = 475) in term elective caesarean section was included in the review. Women randomised to treatment group received two intramuscular doses of betamethasone in the 48 hours before delivery, whereas the control group received treatment as usual.

Prophylactic betamethasone appeared to significantly decrease the risk of admission to the neonatal intensive care unit for respiratory morbidity (RR 0.15; 95% CI 0.03 to 0.64). However, no statistically significant reduction was found in the incidence of neonatal respiratory distress syndrome (RR 0.32; 95% CI 0.07 to 1.58), transient tachypnoea of the newborn (RR 0.52; 95% CI 0.25 to 1.11), need for mechanical ventilation (RR 4.07; 95% CI 0.46 to 36.27) and length of stay in neonatal intensive care unit (MD) -2.14 days; 95% CI -5.58 to 1.30).

There were no reported events of neonatal sepsis, perinatal deaths or maternal trauma infection, therefore results on these outcomes are non-estimable. The study did not provide data on other pre-defined outcomes.

The results from the single trial are promising, but more studies with larger samples are needed to investigate the effect of prophylactic steroids in the incidence of neonatal complications per se. Also more
data and longer follow up would be needed for potential harms and complications.

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