Antibiotic prophylaxis during the second and third trimester to reduce adverse pregnancy outcomes and morbidity

16 July 2015

RHL summary

Key Findings

Antibiotic prophylaxis during the second and third trimester may:

- Reduce the incidence of preterm delivery in pregnant women with a previous preterm birth and current bacterial vaginosis
- Reduce the risk of postpartum endometritis and gonococcal infection
- Reduce the risk of preterm rupture of membranes

Evidence included in this review

Seven trials with a total of 2,408 pregnant women were included that compared prophylactic antibiotics to placebo/no treatment.

Trials were included from Kenya (1), Belgium (1), US (1), India (2), and The Netherlands (1).

Quality assessment

The included trials were of satisfactory quality, however substantial bias possibly exists due to high loss to follow-up and a small number of studies included for each analysis.

The GRADE quality of evidence for antibiotic prophylaxis versus placebo was moderate for incidence of post-partum endometritis, but low for the incidence of PROM, PPROM, preterm delivery or chorioamnionitis.

Clinical implications

There is insufficient evidence, especially on possible harmful effects to the baby, to support the routine use of antibiotics in the second and third trimesters to prevent infectious complications.

Further research

Antibiotic prophylaxis may be effective in reducing puerperal infection; however, further well-designed studies are required to produce sufficient evidence to support routine antibiotic use. Studies should examine
effects on neonates, short- and long-term effects on children, while ensuring adequate follow-up.

Cochrane review


Abstract

Several studies have suggested that prophylactic antibiotics given during pregnancy improved maternal and perinatal outcomes, while others have shown no benefit and some have reported adverse effects.

To determine the effect of prophylactic antibiotics on maternal and perinatal outcomes during the second and third trimester of pregnancy for all women or women at risk of preterm delivery.

We searched the Cochrane Pregnancy and Childbirth Group's Trials Register (30 April 2015) and reference lists of retrieved articles.

Randomised controlled trials comparing prophylactic antibiotic treatment with placebo or no treatment for women in the second or third trimester of pregnancy before labour.

We assessed trial quality and extracted data.

The review included eight randomised controlled trials. Approximately 4300 women were recruited to detect the effect of prophylactic antibiotic administration on pregnancy outcomes.

**Primary outcomes**

Antibiotic prophylaxis did not reduce the risk of preterm prelabour rupture of membranes (risk ratio (RR) 0.31; 95% confidence interval (CI) 0.06 to 1.49 (one trial, 229 women), low quality evidence) or preterm delivery (RR 0.88; 95% CI 0.72 to 1.09 (six trials, 3663 women), highquality evidence). However, preterm delivery was reduced in the subgroup of pregnant women with a previous preterm birth who had bacterial vaginosis (BV) during the current pregnancy (RR 0.64; 95% CI 0.47 to 0.88 (one trial, 258 women)), but there was no reduction in the subgroup of pregnant women with previous preterm birth without BV during the pregnancy (RR 1.08; 95% CI 0.66 to 1.77 (two trials, 500 women)). A reduction in the risk of postpartum endometritis (RR 0.55; 95% CI 0.33 to 0.92 (one trial, 196 women)) was observed in high-risk pregnant women (women with a history of preterm birth, low birthweight, stillbirth or early perinatal death) and in all women (RR 0.53; 95% CI 0.35 to 0.82 (three trials, 627 women), moderate quality evidence).

There was no difference in low birthweight (RR 0.86; 95% CI 0.53 to 1.39 (four trials; 978 women)) or neonatal sepsis (RR 11.31; 95% CI 0.64 to 200.79) (one trial, 142 women)); and blood culture confirming sepsis was not reported in any of the studies.

**Secondary outcomes**

Antibiotic prophylaxis reduced the risk of prelabour rupture of membranes (RR 0.34; 95% CI 0.15 to 0.78 (one trial, 229 women), low quality evidence) and gonococcal infection (RR 0.35; 95% CI 0.13 to 0.94 (one trial, 204 women)). There were no differences observed in other secondary outcomes (congenital abnormality; small-for-gestational age; perinatal mortality), whilst many other secondary outcomes (e.g. intrapartum fever needing treatment with antibiotics) were not reported in included trials.

Regarding the route of antibiotic administration, vaginal antibiotic prophylaxis during pregnancy did not prevent infectious pregnancy outcomes. The overall risk of bias was low, except that incomplete outcome
data produced high risk of bias in some studies. The quality of the evidence using GRADE was assessed as low for preterm prelabour rupture of membranes, high for preterm delivery, moderate for postpartum endometritis, low for prelabour rupture of membranes, and very low for chorioamnionitis. Intrapartum fever needing treatment with antibiotics was not reported in any of the included studies.

Antibiotic prophylaxis did not reduce the risk of preterm prelabour rupture of membranes or preterm delivery (apart from in the subgroup of women with a previous preterm birth who had bacterial vaginosis). Antibiotic prophylaxis given during the second or third trimester of pregnancy reduced the risk of postpartum endometritis, term pregnancy with pre-labour rupture of membranes and gonococcal infection when given routinely to all pregnant women. Substantial bias possibly exists in the review's results because of a high rate of loss to follow-up and the small numbers of studies included in each of our analyses. There is also insufficient evidence on possible harmful effects on the baby. Therefore, we conclude that there is not enough evidence to support the use of routine antibiotics during pregnancy to prevent infectious adverse effects on pregnancy outcomes.


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