**Review: antibiotics improve maternal and fetal outcomes and are safe in preterm, prelabour rupture of membranes**


**QUESTION:** In women with preterm, prelabour rupture of membranes, what are the effectiveness and safety of antibiotics for maternal and fetal outcomes?

**Data sources**
Studies were identified by searching Medline (from 1966), the Cochrane Controlled Trials Register, key journals, and conference proceedings. Where possible, unpublished data were sought from investigators.

**Study selection**
Studies were selected if they were randomised controlled trials, compared antibiotic use with placebo or different antibiotic regimens, included women with preterm (defined as < 37 wk) rupture of membranes, and reported clinically relevant outcomes.

**Data extraction**
Data were extracted on antibiotic type, outcomes, and study quality.

**Main results**
32 trials were identified, and 13 trials that randomised > 6000 women and their babies were included in the review. Most trials were small except for 2 large trials (1 with 4826 and 1 with 614 women). Women were recruited between 20 and 37 weeks of gestation, and most women were not in active labour. 9 trials tested broad spectrum penicillin alone or in combination, 5 tested β-lactam antibiotics alone or in combination, and 1 tested clindamycin and gentamycin. 5 trials used oral antibiotics alone, 2 used intravenous antibiotics alone, and 6 used a combination of oral and intravenous antibiotics. Any antibiotic, especially a macrolide antibiotic, was associated with greater improvements in maternal and fetal outcomes than placebo (table). β-lactam antibiotics were associated with greater neonatal necrotising enterocolitis risk than was placebo (table). No evidence existed for major adverse drug reactions.

**Conclusions**
In women with preterm, prelabour rupture of membranes, antibiotics are generally safe and improve maternal and fetal outcomes. Macrolide antibiotics are associated with improved outcomes. β-lactam antibiotics are associated with increased neonatal necrotising enterocolitis.

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**Outcomes**

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Any antibiotic vs placebo</th>
<th>Weighted event rates</th>
<th>RRR (95% CI)</th>
<th>NNT (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal infection after delivery and before discharge</td>
<td>18% vs 20%</td>
<td>15% (4 to 24)</td>
<td>33 (19 to 143)</td>
<td></td>
</tr>
<tr>
<td>Chorioamnionitis</td>
<td>16% vs 26%</td>
<td>38% (25 to 49)</td>
<td>11 (8 to 17)</td>
<td></td>
</tr>
<tr>
<td>Birth within 24 hours</td>
<td>32% vs 40%</td>
<td>23% (17 to 28)</td>
<td>12 (9 to 16)</td>
<td></td>
</tr>
<tr>
<td>Birth within 7 days</td>
<td>8% vs 67%</td>
<td>12% (8 to 16)</td>
<td>13 (10 to 19)</td>
<td></td>
</tr>
<tr>
<td>Neonatal infection, including pneumonia</td>
<td>11% vs 17%</td>
<td>33% (15 to 48)</td>
<td>18 (12 to 46)</td>
<td></td>
</tr>
<tr>
<td>Positive neonatal blood culture</td>
<td>6.4% vs 8.4%</td>
<td>25% (7 to 40)</td>
<td>48 (27 to 200)</td>
<td></td>
</tr>
<tr>
<td>Neonatal oxygenation &gt; 28 days</td>
<td>8.5% vs 11%</td>
<td>19% (3 to 32)</td>
<td>48 (27 to 334)</td>
<td></td>
</tr>
<tr>
<td>Abnormal cerebral ultrasonographic scan before discharge</td>
<td>5.6% vs 9.4%</td>
<td>18% (1 to 32)</td>
<td>67 (35 to 1000)</td>
<td></td>
</tr>
</tbody>
</table>

**Macrolide antibiotics vs placebo**

| Birth within 48 hours                   | 35% vs 41%                | 16% (7 to 24)        | 16 (10 to 35)  |

**β-Lactam antibiotics vs placebo**

| Neonatal necrotising enterocolitis      | 2.4% vs 0.48%             | 360% (98 to 972)     | 53 (36 to 112)  |

*Abbreviations defined in glossary: RRR, RRI, NNT, NNH, and CI calculated from data in article using fixed effects.*
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