Clindamycin concentrations in umbilical cord blood after maternal exposure: a pooled analysis.

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Background and introduction

In the presence of maternal allergy to cephalosporins or because of center-specific guidelines, clindamycin is used in women at delivery. We aimed to summarize the reported observations on clindamycin concentrations in umbilical cord blood (UCB) after maternal exposure.

Methods

Using a systematic PubMed search, we retrieved 4 publications that reported on maternal-UCB concentrations during either single or repeated clindamycin (450 to 900 mg) iv administration [Muller et al, Antimicrob Agents Chemother 2010; Wear et al, J Perinatol 2016; Philipson et al, NEJM 1973; Weinstein et al, Am J Obstet Gynecol 1976].

Results

Based on 33 observations, the mean concentration observed in UCB was 2.78 mg/l. The mean fetal/maternal ratio was 0.72 (SD 0.36). This ratio was higher ($p < 0.05$) during repeated ($n = 14$, 0.8, SD 0.37) compared to single ($n = 19$, 0.6, SD 0.31) dose administration.

Figure 1 illustrates the time-concentrations points collected in maternal and umbilical cord blood after single clindamycin (900 mg) administration in 14 cases from 2 different studies. The pattern suggests that maternal-fetal transfer is fast, but incomplete.

Conclusions

The pattern suggests that maternal-fetal transfer for clindamycin is fast, but incomplete. Since EUCAST minimal inhibitory concentrations (MIC) breakpoints are ≤ 0.5 mg/l for staphylococci and streptococci (including group B streptococcus), ≤ 4 mg/l for gram-positive anaerobes or gram-negative anaerobes, the concentrations reached are sufficient for some of the pathogens involved in neonatal sepsis.