Medicine by the Numbers

A Collaboration of TheNNT.com and AFP

Effectiveness of Intrapartum Antibiotics for Meconium-Stained Amniotic Fluid

Drew Baird, MD, FAAFP, and Barrett Campbell, MD, FAAFP

Details for This Review

Study Population: Women at more than 24 weeks' gestation in active labor with meconium-stained amniotic fluid

Efficacy End Points: Neonatal sepsis avoided, intrapartum chorioamnionitis avoided, postpartum endometritis avoided, or neonatal intensive care admission avoided

Harm End Points: None measured

Narrative: Meconium-stained amniotic fluid occurs in approximately 12% of all deliveries and increases the risk of maternal complications (e.g., dystocia, operative delivery, and postpartum endometritis) and neonatal complications (e.g., sepsis, admission to the neonatal intensive care unit [NICU], and meconium aspiration syndrome). This review sought to determine if intrapartum antibiotics, specifically ampicillin-sulbactam (Unasyn), given to women in labor with meconium-stained amniotic fluid could limit these complications.[1]

Two randomized controlled trials[2,3] involving 362 pregnant women in labor with meconium-stained amniotic fluid were included in this analysis. Both compared administration of ampicillin-sulbactam intravenously with normal saline. In this analysis,[1] there was no significant reduction in the primary outcome of neonatal sepsis (5% in both groups; risk ratio [RR] = 1.00; 95% confidence interval [CI], 0.21 to 4.76) or the secondary outcomes of postpartum endometritis and NICU admissions. No serious adverse effects were reported.[1]

For the secondary outcome of chorioamnionitis, there was a significant reduction (RR = 0.36; 95% CI, 0.21 to 0.62) with the use of intrapartum antibiotics compared with placebo. This corresponds to a number needed to treat of 7 to prevent one episode of chorioamnionitis. There were nonsignificant reductions in the risk of postpartum endometritis (RR = 0.4; 95% CI, 0.18 to 1.38) and NICU admissions (RR = 0.83; 95% CI, 0.39 to 1.78).

Caveats: This review has several limitations, including a low number of studies and patients.[1] This may have contributed to the inability to determine a significant difference in neonatal sepsis, postpartum endometritis, and NICU admissions (although the latter two had nonsignificant reductions favoring intrapartum antibiotics). The domains for risk of bias in one study[2] were mostly rated as low, whereas the other study[3] had uncertain risk of bias across all domains. The quality of evidence for chorioamnionitis was considered moderate, whereas the quality of evidence for neonatal sepsis, postpartum endometritis, and NICU admissions was considered low. The review sought to identify studies that reported antibiotic adverse effects, such as allergy or anaphylactic shock, and antibiotic resistance, but no studies with reported data were found. The particular

INTRAPARTUM ANTIBIOTICS IN WOMEN WITH MECONIUM-STAINED AMNIOTIC FLUID

Benefits	Harms
1 in 7 women had intrapartum chorioamnionitis prevented	None

The NNT Group Rating System

Green	Benefits greater than harms
Yellow	Unclear benefits
Red	No benefits
Black	Harms greater than benefits

harms of intrapartum antibiotics in this clinical context remain uncertain. The general harms of intravenous antibiotics (e.g., allergic reactions, antibiotic resistance, *Clostridium difficile*–associated diarrhea) are known, however, and may outweigh the benefits identified in this review.[1]

This review concluded that there is insufficient evidence to recommend prophylactic intrapartum antibiotics in laboring women with meconium-stained amniotic fluid because of the lack of difference in rates of neonatal sepsis between the antibiotic and placebo groups.[1] Further studies are needed to determine the benefits and harms of intrapartum antibiotics for meconium-stained amniotic fluid in preventing neonatal sepsis.

This series is coordinated by Dean A. Seehusen, MD, MPH, *AFP* Assistant Medical Editor, and Daniel Runde, MD, from the NNT Group.

A collection of Medicine by the Numbers published in *AFP* is available at https://www.aafp.org/afp/mbtn.

Author disclosure: No relevant financial affiliations.

The opinions and assertions contained herein are the private views of the authors and are not to be construed as official or as reflecting the views of the U.S. Army Medical Department or the U.S. Army Service at large.

References

1. Siriwachirachai T, Sangkomkamhang US, Lumbiganon P, Laopaiboon M. Antibiotics for meconium-stained amniotic fluid in labour for preventing maternal and neonatal infections. *Cochrane Database Syst Rev.* 2014;(11): CD007772.
2. Adair CD, Ernest JM, Sanchez-Ramos L, Burrus DR, Boles ML, Veille J. Meconium-stained amniotic fluid-associated infectious morbidity: a randomized, double-blind trial of ampicillin-sulbactam prophylaxis. *Obstet Gynecol*. 1996; 88(2):216-220.
3. Adair CD, Lewis D, Weeks J, et al. Is meconium-stained amniotic fluid infectious morbidity reduced by prophylactic ampicillin sulbactam? *Am J Obstet Gynecol*. 1999;180: s22. ■