



Prenatal buprenorphine versus methadone exposure and neonatal outcomes: systematic review and meta-analysis

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Abstract

Increasing rates of maternal opioid use during pregnancy and neonatal withdrawal, termed neonatal abstinence syndrome (NAS), are public health concerns. Prenatal buprenorphine maintenance treatment (BMT) versus methadone maintenance treatment (MMT) may improve neonatal outcomes, but associations vary. To summarize evidence, we used a random-effects meta-analysis model and estimated summary measures of BMT versus MMT on several outcomes. Sensitivity analyses evaluated confounding, publication bias, and heterogeneity. Subjects were 515 neonates whose mothers received BMT and 855 neonates whose mothers received MMT and who were born from 1996 to 2012 and who were included in 12 studies. The unadjusted NAS treatment risk was lower (risk ratio=0.90, 95% confidence interval (CI): 0.81, 0.98) and mean length of hospital stay shorter (-7.23 days, 95% CI: -10.64, -3.83) in BMT-exposed versus MMT-exposed neonates. In treated neonates, NAS treatment duration was shorter (-8.46 days, 95% CI: -14.48, -2.44) and morphine dose lower (-3.60 mg, 95% CI: -7.26, 0.07) in those exposed to BMT. BMT-exposed neonates had higher mean gestational age and greater weight, length, and head circumference at birth. Fewer women treated with BMT used illicit opioids near delivery (risk ratio=0.44, 95% CI: 0.28, 0.70). Simulations suggested that confounding by indication could account for some of the observed differences. Prenatal BMT versus MMT may improve neonatal outcomes, but bias may contribute to this protective association. Further evidence is needed to guide treatment choices.

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