BUPRENORPHINE AND METHADONE IN PREGNANCY: EFFECTS ON THE MOTHER, FETUS AND NEONATE

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Abstract

The current study aimed to assess the efficacy and safety of buprenorphine maintenance for the treatment of illicit opioid dependence during pregnancy. Parameters investigated assessed pregnancy progression and Neonatal Abstinence Syndrome (NAS) compared to methadone maintenance and non-opioid exposed control pregnancies. This is the first study to present results comparing the two treatment groups to a control population. The trial was a prospective, non-randomised, open-label, flexible dosing study (n=25 for each group). Women were recruited up to a gestational age of 28 weeks and their infants observed postnatally for 4 weeks. Methadone and buprenorphine doses did not change significantly from recruitment to delivery and were 48.40±5.95 $mg.day^{-1}$ and 7.46±0.84 $mg.day^{-1}$, respectively at delivery. Both subjective and objective measures of maternal withdrawal were significantly lower for buprenorphine compared to the methadone group ($p<0.01$ and $p<0.05$, respectively) at the sub-optimal does observed in this study. Direct drug effects were similar between methadone and buprenorphine groups and did not change over the course of pregnancy. Additional substance use during pregnancy was significantly higher for methadone and buprenorphine groups compared to controls but was not significantly different between each other. Patterns of maternal symptom complaints during pregnancy were higher for methadone and buprenorphine compared to controls but were not significantly different to each other and raised several issues regarding maternal health, and re-dosing in the antenatal period. Obstetric complications in the antenatal period and during labour and delivery were similar between the three groups. There was no significant difference between the three groups for infant gestational age at delivery or their Apgar scores. However, methadone exposed infants were significantly smaller than control infants (birth weight $p<0.05$, body length $p<0.05$, head circumference $p<0.05$) while buprenorphine exposed infants did not differ to controls. There was no significant

difference between methadone and buprenorphine exposed infants for the percentage of infants who required pharmacological treatment to control NAS (methadone 60%, buprenorphine 48%). However, significantly less morphine was required to control NAS in buprenorphine compared to methadone exposed infants (methadone: 40.07 ± 3.95 mg, buprenorphine: 22.77 ± 4.29 mg; $p<0.05$) and may have been due to reduced placental transfer of buprenorphine. The current study observed buprenorphine to be at least as efficacious as methadone for the treatment of opioid dependence during pregnancy while minimising NAS.