

HRB Centre for Primary Care Research Research Briefs

Methadone Use in Pregnancy

Neonatal abstinence syndrome and other pregnancy outcomes



Opioid addiction in pregnancy is an important public health issue leading to adverse outcomes. Methadone treatment helps women to engage with antenatal care and has been associated with improved outcomes compared with ongoing illicit drug use.

Although methadone treatment has many benefits, there is a risk of withdrawal in the baby. There is a lack of clarity on risk factors for this withdrawal, known as neonatal abstinence syndrome (NAS). Women on methadone during pregnancy frequently request dose reductions in the hope of decreasing their baby's chances of suffering from NAS. Research findings on whether or not the mother's dose affects the chances of the baby developing NAS are controversial. The optimal dosing is further complicated by the fact that women's bodies handle methadone differently during pregnancy, leading to lower concentrations of the drug and possibly withdrawal symptoms.



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The researchers at the HRB Centre for Primary Care Research (www.hrbcentreprimarycare.ie) have conducted a number of studies examining methadone use and pregnancy outcomes including NAS. In a project co-funded by the School of Pharmacy, RCSI and the Friends of the Coombe charity, Dr Brian Cleary led a systematic review and meta-analysis examining the relationship between the mother's methadone dose and the chances of developing NAS. ¹ The meta-analysis demonstrated that there was no consistent statistically significant relationship between maternal methadone dose and the incidence of NAS. This study suggests efforts to reduce methadone doses during pregnancy may have no impact on the chances of the baby developing NAS, however, the woman may be put at an increased risk of illicit drug use. The review makes recommendations for further research examining potential risk factors for NAS.

The systematic review informed the design of a retrospective cohort study examining pregnancy outcomes in women on methadone who delivered in the Coombe Women and Infants University Hospital between 2000 and 2007. ² Out of a total of 61,030 pregnancies, there were 618 (1%) women on methadone at delivery. Women prescribed methadone were more likely to be younger, to book late for antenatal care, and to be smokers than the rest of the population. Methadone exposure was associated with an increased risk of very preterm birth (less than 32 weeks' gestation), being small for gestational age (below the 10th percentile, being admitted to the neonatal unit and diagnosis of a major congenital anomaly. Diagnosis of congenital anomalies may have been more likely in the methadone group because of the increased rate of admission to the neonatal intensive care unit. Babies exposed to higher methadone doses at delivery were more likely to have a recorded diagnosis of NAS.

Our research answers some questions on the risk factors for NAS and also highlights the fact that despite the benefits of methadone treatment there is still a risk of adverse pregnancy outcomes. This vulnerable group of women and their babies require dedicated, well-resourced, multidisciplinary care to improve short and long-term outcomes.

These studies will contribute to the ongoing work at the HRB Centre for Primary Care Research in the development of a research programme addressing vulnerable patient groups.

The articles can be viewed at:

[1] Cleary BJ, Donnelly J, Strawbridge JD, Gallagher PJ, Fahey T, Clarke M, Murphy DJ. Methadone dose and neonatal abstinence syndrome—systematic review and meta-analysis. *Addiction* 2010; 105 (12):2071-84.

www.ncbi.nlm.nih.gov/pubmed/20840198

[2] Cleary BJ, Donnelly JM, Strawbridge JD, Gallagher PJ, Fahey T, White MJ, et al. Methadone and perinatal outcomes: a retrospective cohort study. *American Journal of Obstetrics and Gynecology* 2011;204(2):139.e1-39.e9.

www.ncbi.nlm.nih.gov/pubmed/21145035