Cohort study

Oxycodone administered as postpartum pain relief is associated with maternal report of infant central nervous system depression in breastfed infants

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Commentary on: **Lam J**, Kelly L, Ciszkowski C, *et al*. Central nervous system depression of neonates breastfed by mothers receiving oxycodone for postpartum analgesia. *J Pediatr* 2012;**160**:33–7.e2.

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Context

Despite our knowledge that codeine is excreted in breast milk, administration of codeine as a pain relief to breastfeeding mothers during the early postpartum period was considered safe until a healthy newborn died.[1] The mother was an ultra-rapid metaboliser of codeine and thus, produced effectively the metabolite morphine. As a consequence, the guidelines for codeine use during breastfeeding were changed to include more caution about the possible central nervous system (CNS) depression effects on the neonate.[2] As a result, many clinicians started to prescribe oxycodone, a semisynthetic opioid, instead. Little is known about the excretion of oxycodone into breast milk and the safety for newborns to mothers taking oxycodone while breastfeeding. Lam *et al* make the first effort to systematically evaluate whether the use of oxycodone is a safe alternative to the use of codeine in breastfeeding mothers.

Methods

This retrospective study compared 533 mother–newborn dyads who had been using oxycodone (n=139), codeine (n=210) or paracetamol only (n=184) during breastfeeding. The incidence of CNS depression in neonates related to maternal intake of the medications was measured using maternal self-report. The participants were selected from the 'Motherisk Program', a hospital information centre at the study site which advises about the use of medication during breastfeeding. The files of participating women were reviewed and mothers were asked about adverse effects they may have experienced, focusing on CNS depression symptoms in the mother or infant. Infants were classified as 'symptomatic' when mothers reported them to have been sleepy or lethargic during the time of exposure to medication through breast milk. Mothers were classified as 'symptomatic' when they reported sedation.

Findings

In the oxycodone cohort, 20.1% of mothers reported CNS depression in the infant, compared with the paracetamol group, where 0.5% of mothers reported CNS depression in the infant, (OR 46.16, 95% CI 6.2 to 344.2), and the codeine group where 16.7% of the mothers reported CNS depression in the infant (OR 0.79, 95% CI 0.46 to 1.38). Mothers of symptomatic infants had taken higher dosages of the medication compared with mothers of asymptomatic infants in both the oxycodone (median dose 0.4 mg/kg/day vs 0.15 mg/kg/day, p=0.005) and codeine groups (median dose 1.4 mg/kg/day vs 0.9 mg/kg/day, p<0.001). Mothers also reported that CNS depression finished when they had ceased breastfeeding or drug intake. Thus, the authors concluded that the use of oxycodone is not a safer choice in comparison to codeine for analgesia in mothers who breastfeed their infants.

Commentary

This study is important for clinicians and patients and contributes to the current knowledge in the field. There are, however, some methodological limitations to this study. First, it may be difficult for the mothers to accurately remember their earlier experiences, and the data may suffer from recall bias. Unfortunately, the study does not state clearly when the mothers were contacted, that is the interval between the mothers experiencing CNS depression in their babies and providing information for the study. Second, it may be argued that mothers who contact the Motherisk centre are a selected population and may consist of women who are more concerned and likely to over-interpret their baby's behaviour. Third, the authors do not state if preterm babies were excluded, which may have influenced the results since younger infants are more sensitive to drug exposure.[3] Finally, more emphasis should be given to the implications for the mother; the study indicates that a large proportion of mothers reported sedation and weakness, raising the question about how attentive and responsive mothers can be with their infants while on medication.

In spite of these limitations, the results reported in this study strongly suggest that the use of oxycodone and codeine as pain relief for breastfeeding women should be reconsidered, and alternative methods of pain control should be assessed. As an example, a randomised study evaluated the effects of intravenous patient controlled analgesia with morphine (PCA-m) and with morphine and high-frequency transcutaneous electrical nerve stimulation (PCA-HI TENS) during the first day after caesarean section. Mothers belonging to the PCA-HI TENS group used only half of the amount of morphine and reported lower levels of sedation and more alertness when compared with the controls[4] indicating that early mother–infant interaction and breast feeding may be enhanced with less sedation, but still with adequate pain relief.

In conclusion, both oxycodone and codeine should be prescribed with caution to breastfeeding mothers. Future studies should focus on the effect of alternative complementary ways for pain relief for breastfeeding women.

Competing interests None.

References

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