

**Reynolds F. Labour analgesia and the baby: good news is no news. Int J Obstet Anesth 2011;20:38-50.**

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#### Abstract

When investigating different methods of maternal pain relief in labour, neonatal outcome has not always been at the forefront, or else maternal changes, such as haemodynamics, fever, length of labour, need for oxytocin or type of delivery, are taken as surrogates for neonatal outcome. It is essential to examine the actual baby and to appreciate that labour pain itself has adverse consequences for the baby. For systemic analgesia, pethidine has been most extensively studied and compared with neuraxial analgesia. It depresses fetal muscular activity, aortic blood flow, short-term heart rate variability and oxygen saturation. In the newborn it exacerbates acidosis, depresses Apgar scores, respiration, neurobehavioural score, muscle tone and suckling. Alternatives have few advantages, remifentanyl being the most promising. Neuraxial analgesia is associated with better Apgar scores and variable neurobehavioural changes. Neonatal acid-base status is not only better with epidural than with systemic opioid analgesia, it is also better than with no analgesia. The effect on breast feeding has yet to be established, though it is certainly no worse than that of systemic opioid analgesia. Variations in neuraxial technique have little impact on the newborn. Widespread ignorance of the benefit to the newborn of neuraxial labour analgesia in the UK among non-anaesthetists needs to be combated.

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**Reynolds F<sup>1</sup>, Sharma SK, Seed PT. Analgesia in labour and fetal acid-base balance: a meta-analysis comparing epidural with systemic opioid analgesia. BJOG 2002;109:1344-53.**

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#### ABSTRACT

**OBJECTIVE:** To assess the effect of epidural versus systemic labour analgesia on funic acid-base status at birth.

**DESIGN:** A systematic review of trials, both randomised and non-randomised, comparing epidural with systemic opioid analgesia.

**POPULATION:** Babies of 2102 mothers taking part in trials comparing epidural with systemic analgesia in five countries.

**METHODS:** From the published and unpublished figures obtained from authors, fetal pH data from 12 studies (eight randomised) (1098 babies in the epidural group + 1004 controls) and base excess from 8 studies (four randomised) (856 epidural + 842 controls) were subjected to random effect meta-analysis.

**MAIN OUTCOME MEASURES:** Umbilical artery pH and base excess values.

**RESULTS:** Fetal pH was higher in the epidural than in the control group in the randomised trials (difference +0.009, 95% CI +0.002 to +0.015), but when all studies were included, the difference was not significant (+0.004, 95% CI -0.005 to +0.014). Fetal base excess was higher in the epidural group in the four randomised studies (difference +0.779 mEq/L, 95% CI +0.056 to +1.502) and in all eight studies (difference +0.837 mEq/L, 95% CI +0.330 to +1.343).

**CONCLUSION:** Umbilical artery pH is influenced by maternal hyperventilation. Base excess is therefore a better index of metabolic acidosis after labour. Epidural analgesia is associated with improved neonatal acid-base status, suggesting that placental exchange is well preserved in association with maternal sympathetic blockade and good analgesia. Although epidural analgesia may cause maternal hypotension and fever, longer second stage of labour and more instrumental vaginal deliveries, these potentially adverse factors appear to be outweighed by benefits to neonatal acid-base status.

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**Reynolds F<sup>1</sup>. The effects of maternal labour analgesia on the fetus. *Best Pract Res Clin Obstet Gynaecol.* 2010;24:289-302.**

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Abstract

Maternal labour pain and stress are associated with progressive fetal metabolic acidosis. Systemic opioid analgesia does little to mitigate this stress, but opioids readily cross the placenta and cause fetal-neonatal depression and impair breast feeding. Pethidine remains the most widely used, but alternatives, with the possible exception of remifentanyl, have little more to offer. Inhalational analgesia using Entonox is more effective and, being rapidly exhaled by the newborn, is less likely to produce lasting depression. Neuraxial analgesia has maternal physiological and biochemical effects, some of which are potentially detrimental and some favourable to the fetus. Actual neonatal outcome, however, suggests that benefits outweigh detrimental influences. Meta-analysis demonstrates that Apgar score is better after epidural than systemic opioid analgesia, while neonatal acid-base balance is improved by epidural compared to systemic analgesia and even compared to no analgesia. Successful breast feeding is dependent on many factors, therefore randomized trials are required to elucidate the effect of labour analgesia.

**Anderson D<sup>1</sup>. A review of systemic opioids commonly used for labor pain relief. J Midwifery Womens Health. 2011;56:222-39.**

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Erratum in J Midwifery Womens Health. 2011 Jul-Aug;56(4):411-8.

#### Abstract

Parenteral opioids for pain relief during labor have been the subject of research for many decades. Commonly used systemic opioids provide limited pain relief during labor yet are used extensively for managing labor pain. These opioids share similar pharmacologic profiles but differ in potency, pharmacokinetics, and side effects. This article reviews the pharmacokinetics, pharmacodynamics, and clinical research related to the commonly used systemic labor pain analgesics morphine, meperidine, fentanyl, remifentanyl, butorphanol, and nalbuphine.