

Morphine is not effective in premature neonates

Clinical question Does a morphine loading dose and follow-up continuous infusion prevent pain in preterm neonates?

Bottom line A morphine infusion does not diminish acute pain when premature infants undergo procedures. That is not to say that it does not treat chronic pain and the stress of starting life under intensive care. What this may tell us is that other pain management methods, such as oral sucrose, may also be necessary in children receiving morphine when they undergo a procedure, although this method of analgesia has not been studied in very low birth weight neonates.

Synopsis The French researchers conducting this study enrolled 42 preterm neonates born between the gestational ages of 23 to 32 weeks with an average weight of less than 1kg. The infants were randomised using concealed allocation to receive either placebo or a 100µg per kg loading dose of morphine over one hour followed by a continuous infusion of 10µg to 30µg per kg depending on gestational age. The infants' response to a heel stick was assessed using two validated pain measurements that measure facial expression, limb movements, heart rate and vocalisation. Mean pain scores following a heel stick before

morphine dosing (baseline) were 4.5 to 4.8 (of a possible 10) on the Douleur Aiguë Nouveau-né (DAN) scale and 10 to 11.5 (of a possible 21) on the Premature Infant Pain Profile (PIPP). Scores declined in the morphine group on the DAN scale when a heel stick was repeated at two hours and 20 to 28 hours following initiation of morphine, from 4.5 at baseline to 4.4 at two hours and 3.1 at 20 to 28 hours, although these differences were not significantly different from placebo (4.8 at baseline to 4.6 and 4.7). PIPP scores declined similarly in both groups. The study may not have had the ability to find a difference if one truly existed; the authors' sample size calculation was based on less variation in results than they had in the study.

Level of evidence 1b (individual randomised controlled trial with narrow confidence interval).

Reference Carbajal R, Lenclen R, Jugie M, Paupe A, Barton BA, Anand KJ. Morphine does not provide adequate analgesia for acute procedural pain among preterm neonates. *Pediatrics* 2005;115:1494–1500.

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