

# Hot topics from the web

Compiled by Stevie Boyd BSc(Hons) RGN RSCN

Comments by Mark Thomas BSc MBBS MRCP MRCPCH

Neonatal-talk ([www.infantgrapevine.co.uk](http://www.infantgrapevine.co.uk)) and NICU-NET ([www.neonatology.org/nicu-net/join.html](http://www.neonatology.org/nicu-net/join.html)) are just two of the many websites devoted to the exchange of information between staff involved in the care of neonates and infants, and the following are just a few of the new and on-going topics discussed. The opinions expressed do not claim to be evidence-based but will hopefully promote further discussion.



## Premedication for elective intubation

### NICU-NET

A questioner from the UK asked what drugs were being used prior to elective intubation of neonates. There were many replies from as far afield as Qatar, Canada, Mexico, Wales, India, USA, Germany and the Isle of Man. Although a couple of units were not using a premed the majority appeared to think it was inhumane not to. These units were using an analgesic such as morphine or fentanyl, plus a sedative such as midazolam +/- a short acting paralytic. Some units were using atropine routinely, but some only in cases of bradycardia unresponsive to adequate airway management.

### Comments

Awake intubation can cause significant discomfort and is technically more difficult. It is also associated with acute physiological changes including rise in blood pressure and drop in heart rate and oxygen saturation<sup>1</sup>. In some situations it may be necessary to intubate without premedication, in order to avoid any delay due to preparing and administering drugs, or to avoid their haemodynamic and respiratory effects. In the absence of these contraindications it is desirable to administer premedication prior to neonatal intubation. Balanced anaesthesia comprises sedation, analgesia and muscle relaxation, using a combination of drugs at the lowest doses required to be effective. Single agent premedication, with midazolam or morphine for example, is unlikely to be effective and may cause adverse effects<sup>2</sup>. There is limited evidence regarding the optimal combination of drugs and no consensus among neonatal units, as shown by the responses on NICU-NET. The combination of morphine, suxamethonium

and atropine has been subjected to a randomised controlled trial and found to be effective at reducing both the time and adverse effects of intubation<sup>3</sup>. Other combinations, such as fentanyl with mivacurium, also appear to be safe and effective<sup>4</sup>.

1. Marshall T.A., Deeder R., Pai S. et al. Physiologic changes associated with endotracheal intubation in preterm infants. *Crit Care Med* 1984; **12**: 501-03.
2. Attardi D.M., Paul D.A., Tuttle D.J. et al. Premedication for intubation in neonates. *Arch Dis Child Fetal Neonatal Ed* 2000; **83**: F161.
3. Oei J., Hari R., Buttha T. et al. Facilitation of neonatal nasotracheal intubation with premedication: A randomized controlled trial. *J Paediatr Child Health* 2002; **38**: 146-50.
4. Dempsey E.M., Al Hazzani F., Faucher D. et al. Facilitation of neonatal endotracheal intubation with mivacurium and fentanyl in the neonatal intensive care unit. *Arch Dis Child Fetal Neonatal Ed* 2006; **91**: F279-282.

## Fortifier for breast milk neonatal-talk

A UK based inquiry asked what other units were doing as regards fortifying breast milk for tiny babies. It would appear that other units did use fortifier – one sachet per 25mL of milk. Warming the milk guaranteed that the powder was adequately dissolved.

## Plastic bags/wrap in the delivery room

### NICU-NET

Plastic bags or wrap can be used to prevent hypothermia in very preterm infants. An American questioned what product was being used – and how. The majority of units responding appeared to use food grade bags or wrap as opposed to wraps produced specifically for the purpose – because they were cheaper. This is in spite of the extreme permeability of the skin, and what could possibly be absorbed from the plastic. Some units dried the infants first; some did not. Venous access can be gained by tearing a small hole in the bag/wrap. In general, the

plastic was removed once the infant was admitted to the neonatal unit and placed under a radiant heater or inside an incubator.

### Comments

Hypothermia following delivery of very preterm infants has been shown to be an independent risk factor for death<sup>1</sup>. There is good evidence to show that wrapping the newborn infant in a small plastic bag immediately after delivery is effective in preventing hypothermia<sup>2</sup>. There has been some concern raised that such wrapping may cause hyperthermia in a proportion of infants<sup>3</sup>, but such hyperthermia may be present at birth rather than iatrogenic<sup>4</sup>. No study has conclusively shown that occlusive wrapping reduces mortality or morbidity, and none has demonstrated superiority of one type of wrapping over another, although all three randomised controlled trials included in the Cochrane review used bags rather than 'cling-film' type wrap<sup>2</sup>. Based on the available evidence it seems sensible to use plastic bags at delivery for very preterm infants, whilst monitoring for hyperthermia. The NLS guidelines have recently been updated to include this recommendation<sup>5</sup>.

1. Costeloe K., Hennessy E., Gibson A.T. et al. The EPICure study: outcomes to discharge from hospital for infants born at the threshold of viability. *Pediatrics* 2000; **106**: 659-71.
2. McCall E.M., Alderdice F.A., Halliday H.L. et al. Interventions to prevent hypothermia at birth in preterm and/or low birthweight babies. *Cochrane Database of Systematic Reviews* 2005, Issue 1. Art. No.: CD004210. DOI: 10.1002/14651858.CD004210.pub2.
3. Newton T., Watkinson M. Preventing hypothermia at birth in preterm babies: at a cost of overheating some? *Arch Dis Child Fetal Neonatal Ed* 2003; **88**: F256.
4. Smith C.L., Quine D., McCrosson F. et al. Changes in body temperature after birth in preterm infants stabilised in polythene bags. *Arch Dis Child Fetal Neonatal Ed* 2005; **90**: F444.
5. **Newborn Life Support – Resuscitation at birth (2nd Ed)**. Resuscitation Council (UK), 2006.