



Newborn Metabolic Screening Programme (NMSP) Heel pricks – warming, pain relief and lancet use March 2008

Recently in the NZ media, a journal article from Pediatrics¹ was reported regarding the use of sucrose as pain relief in neonates. We therefore considered it timely to provide information on best practice for heel pricks including heel warming, pain relief and lancets.

Heel warming

International studies have shown no benefit to warming the heel using commercially available gel packs, immersion of the foot in water or using a warm wrap on the heel.

Barker et al² concluded that blood flow in the capillary bed is unaffected by temperature over a range of peripheral skin temperatures found in healthy mature newborn infants. Norman et al³ used video photometric microscopy to examine capillary blood flow and found no correlation between capillary blood cell velocity and skin temperature over a range of 27 to 33 degrees Celsius. Janes et al⁴ concluded no benefit to warming the heel when using an automated incision device. The volume of blood obtained, time needed to collect the sample, crying time and repeat procedures were not different between the groups in the study.

Our NZ guideline recommends asking the parents to ensure their baby is warm by putting on booties and wrapping the baby up prior to the heel prick procedure.

Pain relief

The Royal Australasian College of Physicians (Paediatrics and Child Health Division) provide guidelines for the management of procedure-related pain in neonates⁵ as follows:

1. Encourage the mother to breastfeed or if the baby is taking artificial milk then bottle feed during the procedure;
2. Ensure the parent or carer holds the infant during the procedure and employs multi-sensory stimulation;
3. If 1 or 2 above are not possible, consider the use of oral sucrose (concentration 12% - 24%). Systematic reviews of the literature suggest doses in the order of 0.5 – 1.0 mls of 24% sucrose in 0.25ml aliquots, commencing 2 minutes before the procedure.

The reasons for the effect of sucrose as pain relief is unclear, however studies have shown that oral sucrose provides short acting analgesia for relief of procedure related pain in neonates.



Lancets

Studies have examined the differences between lancet types ('stabbers' versus 'slicers') to determine the effectiveness of both. Shephard et al⁶ found the slicing device was more effective than the stabbing device through time saving and reducing the need for more than one heel prick per test.

Our NZ guideline recommends slicer lancets. There are two brands available – Quickheel by Becton Dickenson (BD) and Tenderfoot by In Vitro.

Further details are available on www.nsu.govt.nz or contact Kathy Bendikson on 09 580 9180.

References

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