The role of temperature management in delayed cord clamping

Delayed cord clamping in preterm babies

The benefits of delayed cord clamping (DCC) in preterm babies have long been debated. On delivery, most preterm infants are only in need of assisted transition, not resuscitation.[1] Providing that this is the case and that the baby can be kept warm, the Resuscitation Council UK recommends DCC for at least 60 seconds while breathing is established.[2]

Recent studies have demonstrated that DCC can improve cardiovascular stability in the key postnatal period, and is associated with a reduction in the requirement for blood transfusion.[3] Provision of DCC has been shown to reduce the relative risk of intraventricular haemorrhage by 41% and necrotising enterocolitis by 38%.[3] However, performing DCC requires an environment that is warm and, for the significant proportion of babies delivered by operative delivery (caesarean section), this would also need to be sterile.

Importance of providing thermal care

Thin skin, reduced subcutaneous fat, poor vasomotor control and an increased body surface to mass ratio, can significantly increase the risk of heat loss and subsequent hypothermia to a preterm baby. For instance, for every 1°C decrease below 36.5°C, the risk of sepsis in preterm babies is increased by 11%, while the risk of mortality is increased by 28%.[4] To put this in perspective, in the first 10-20 minutes, without any skin protection, temperatures can fall by 2-4°C,[5] with 50% of heat loss escaping from the baby's head.[6] Even brief exposure to the effects of hypothermia has been associated with neonatal morbidity: impaired surfactant synthesis, impaired surfactant spreading within the lungs, pulmonary hypertension, hypoxia and coagulation defects. Acidosis and hypoxia further inhibit surfactant production.[7,8]

For a preterm infant delivered by c-section, the baby must first be placed in a warm and sterile environment, providing thermal care and skin protection. Vygon (UK) Ltd has recently launched a sterile neonatal heat loss prevention suit called Neohelp. This suit helps to prevent heat loss through its double layer of soft, clear polyethylene, integrated hood and hermetic Velcro seal, while DCC and 'golden hour care' take place.[9,10]

Case study: Neohelp and its role in DCC

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As a local neonatal unit (LNU) within the SW Neonatal Network, we recognised the importance of providing DCC as a key intervention to preterm neonates but realised that there were barriers to implementation resulting in DCC being achieved in only 6% of c-section births in our unit (2016 data).

We started using Neohelp in April 2017 and have been really impressed with:

- **sterile thermal care, humidity and skin protection**
- **ease of placing the baby in (and cord management) via the front Velcro opening**
- **prevention of heat loss from the head through use of the hood and drawcord fastening.**

We have used Neohelp to provide thermal care in a sterile environment for over 10 babies (<32 weeks' gestation and born by c-section) in four months, and all have received at least 60 seconds of DCC. None have had an admission temperature below 36.5°C.

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