

Stay cool, keep them warm

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HYPOTHERMIA

For more than 40 years hypothermia has been recognised as an independent risk factor for death in newborns, (Day et al 1964). The adverse effects of hypothermia have also been associated with other co-morbidities.

Russo et al (2014) noticed links between respiratory distress syndrome, late onset sepsis and hypothermia. Associations have also been made between hypothermia and retinopathy of prematurity, disseminated intravascular haemorrhage, intraventricular

Hypothermia is defined as:

- ❄ Mild (36-36.5°C)
- ❄ Moderate (32-36°C)
- ❄ Severe (<32°C)

WHO (1997)

haemorrhage and necrotising enterocolitis, (Soll 2008). Despite the publication of these facts, and the current advances in neonatal care, hypothermia remains a significant and potentially avoidable, contributory factor to neonatal morbidity and mortality, (Lunze et al 2013).

LOCAL ISSUE

Standards dictated by the National Neonatal Audit Program (NNAP) advise that on admission to the NICU the infants' temperature should be between 36.5-37.5°C, (NNAP 2017). Studies have indicated that a NICU admission temperature of <36.5°C results in a significantly increased risk of neonatal death, (Acolet et al 2005).

The NNAP (2017) report documents that 24% of the babies born at <32 week gestation nationally, and 18% regionally, were admitted to the NICU with a temperature below the recommended range of 36.5-37.5°C.

Statistics from the live neonatal network dashboard indicate 50% of admissions to the local NICU had a temperature outside the recommended range of 36.5-37.5°C, (Badgernet 2017), and indeed 44% of those had a temperature below 36.4°C. These were comparably the worst statistics across the Yorkshire and Humber region.

In response to these statistics a local internal audit addressing neonatal temperature management was completed, (Aucharaz et al 2018). The results mirrored those of the Badgernet data. Of major concern was an additional finding that the majority of hypothermic babies were admitted from labour suite or labour suite theatre. Conclusions identified that neonatal temperature management within the initial stabilisation/resuscitation period requires improvement.



LOCAL RESPONSE

A local working group consisting of the Paediatric Consultant, neonatal staff and midwives devised a quality improvement project (QIP) with the aim of increasing the number of admissions to the NICU with a temperature within the desired range (36.5-37.5°C).

Several initiatives identified by the QIP included:

- Development of local guidelines directing the initial resuscitation and stabilisation of neonates born at 28 week – term gestation
- Allocation of a "temperature champion" at each delivery
- Use of the transport incubator to move neonates from labour suite to the NICU
- Education and simulation training for staff pertaining to thermoregulation during stabilisation
- Education leaflets for parents explaining their role in the temperature management of their new baby
- A poster to inform staff of evidence-based practices to ensure neonatal thermoregulation during stabilisation after delivery

THE POSTER

In response to the Aucharaz et al (2018) study, the author was tasked to design a poster to educate and inform staff regarding neonatal temperature management during delivery room stabilisation.

To avoid discrimination or possible offence, the poster is aimed at all disciplines involved in neonatal delivery.

Information on the poster educates staff about the importance of thermoregulation, mechanisms of heat loss, and identifies at risk groups.

It also identifies methods of preventing hypothermia for both the well-baby and those at risk.

The graphic design aims to capture the attention of staff during what is often an emergency situation.

THE FUTURE

The vulnerable neonate is not only vulnerable in terms of their physiology but also in terms of the decisions and actions of the team managing their neonatal resuscitation.

Hypothermia is avoidable. Interventions are available to prevent hypothermia and these must be implemented. The actions of the clinicians and family at the very start of life impact on the outcome of that very same life. Optimal thermoregulation may reduce neonatal morbidity and mortality.

Following an agreed period of implementation, a re-audit will be completed in order to evaluate the effectiveness of the QIP, including the poster, and direct future care.

POTENTIAL BARRIERS

In order to improve neonatal outcomes local practice must change!

- Planned changes in practice often fail due to lack of time, funding, commitment, education and resistance from staff.
- Changing deep-rooted habitual practices is difficult but by offering knowledge, education, low cost and easy to implement solutions change will be more readily embraced.
- Staff and family each must accept accountability for their role in the thermoregulation of the neonate.

*References are available on request