



Managing procedural pain on the neonatal unit: Do inconsistencies still exist in practice?



Helen Wallace, RN Child BSc (Hons), Neonatal QIS, Staff Nurse^a, Tracey Jones, RN Child BSc (Hons), MSc, ENNP, SFHEA, Lecturer^{b,*}

^a Royal Preston Hospital, Lancashire Teaching Hospitals NHS Trust, UK

^b The University of Manchester, UK

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Abstract It is extensively documented that newborn infants admitted to neonatal units are regularly exposed to painful experiences (Valeri et al., 2015). It is also evidenced that pain has the potential for short and long-term consequences specifically on the neonates' neurological development (Anand et al., 1987; Pasek and Huber, 2012; Stevens et al., 2013; Grunau, 2013; Gray et al., 2015; Carbajal et al., 2015). Pain management in neonatal care has posed a long standing challenge for health professionals. During the last decade substantial research has been undertaken into this area and there has been significant advancement in the recognition and assessment of pain in neonatal population (Stevens et al., 2013). However, despite the wealth of evidence available, it appears that inconsistencies in the management and recognition of pain in practice continue to exist (Boyle, 2011; Lo-sacco et al, 2011; Meek, 2012; Twycross and Collis, 2013). The literature surrounding the management of neonatal pain has been examined to assess if inconsistencies continue to exist.

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Introduction

It is widely documented in the literature that, prior to the 1980's, it was assumed that neonates

* Corresponding author.

E-mail address: Tracey.M.Jones@manchester.ac.uk (T. Jones).

had little or no conception of pain (Grunau, 2013; Vinall and Grunau, 2014; Doesburg et al., 2013). Several milestone studies, conducted around this time period, raised concerns that the brain development of newborn infants may be adversely affected by early pain and stress (Perlman and Volpe, 1983). One particular study conducted by Anand et al., in 1987 concluded that neonates, who were given anaesthesia during surgery, compared to muscle paralytics alone, showed improved survival rates and reduced short term complications. This gave the neonatal medical community a new dilemma. The fact it was now evident that not only did neonatal babies feel pain but that it may potentially cause long term effects (Meek, 2012). Infants, both term and preterm, are subjected to repeated invasive and painful procedures during their admission to the neonatal intensive care unit (NICU), these include heel lance and intravenous cannulation both having the potential to induce behavioural, physiological and hormonal responses (Mokhnach et al., 2010; Grunau, 2013; Scherman et al., 2014). Guaragni et al. (2014) indicated that sick or preterm newborns were subjected to between two and seventeen painful procedures on average per day in the NICU, predominantly without sufficient analgesia. This number increases the lower the gestation. Kozlowski et al. (2014) substantiate this and claim that neonatal pain remains poorly managed.

Preterm infants

Preterm neonates are particularly vulnerable to repeated, invasive interventions. They exhibit a lower threshold to routine touch due to the immaturity of their peripheral and central nervous systems (Brummelte et al., 2012; Anand et al., 2013). Infants who are born prematurely are exposed to pain and stress during a phase when they are undergoing rapid brain development, in which nerve pathways are formed (Ranger et al., 2013). These processes are interrupted by noxious stimuli, such as pain and may potentially lead to abnormal brain development (Doesburg et al., 2013; Valeri et al., 2015), long-term altered pain responses (Vinall and Grunau, 2014) and poor growth (Vinall et al., 2012).

Following review of the literature and observation of care in clinical practice, it appears that procedural pain management is most definitely not standardised practice within all neonatal units in the United Kingdom. There may be several contributing factors for the inconsistent management of procedural pain in neonates. Firstly, this is

due to the neonate's inability to verbalise pain, along with the assumption of the neonate's inability to feel pain. Lack of priority for pain management in clinical practice is also significant (Twycross and Collis, 2013). The latter may be due to a variety of factors but none more so than time and workload allocation (Elcigil et al., 2011; Cong et al., 2013a; Bliss Baby Report, 2015). In addition, research indicates that gaps have been found in the knowledge of medical and nursing professionals in relation to pain physiology, assessment of pain and surrounding the use of pharmacological and non-pharmacological treatment methods. This may also prove valuable in explaining why strategies to minimise pain are not always in the forefront of neonatal care.

Pain assessment

Pain assessment has been extensively studied in the neonatal population (Hummel et al., 2010; Grunau, 2013; Guaragni et al., 2014; Hillman et al., 2015). From reviewing the available literature it was evident that there is an extensive choice of pain assessment tools available for use in neonatal care (Guaragni et al., 2014; Bellieni et al., 2015). There are more than thirty five published pain assessment tools adapted from adult and paediatric tools for use with both term and preterm neonates, predominantly based on the scoring of physiological parameters and behavioural indicators or a combination of both (Guaragni et al., 2014). However, these tools do not appear to be consistently utilised in neonatal care. The reasons for this can be linked to lack of knowledge; failure to prioritise pain management, time constraints and uncertainty about the validity of available tools (Spence, 2010). Inconsistency in the treatment of neonatal pain may be a consequence of the inability to effectively recognise and assess pain. Pain assessment is often a subjective evaluation by health care professionals directly caring for infants which has the potential to heavily influence the management of pain in the neonatal setting (Habich et al., 2012). The inability of newborns to verbalise their pain is clearly a contributing factor, as the pain they endure may be underestimated by the assessing practitioner (Cong et al., 2013b). A number of researchers argue that it is difficult to distinguish between pain and agitation in infants, particularly in preterm infants due to their immature nervous systems and the fact that indicators incorporated in pain assessment tools are not pain-specific,

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