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RESEARCH

Parents' Use of Nonpharmacologic Methods to Manage Procedural Pain in Infants

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ABSTRACT

Objective: To describe parents' use of nonpharmacologic methods to manage infant procedural pain in the NICU and determine the demographic factors related to such use.

Design: A cross-sectional and descriptive study design.

Setting: Level III and Level II NICUs (seven units) of four University Hospitals in Finland.

Participants: Parents ($N = 178$) whose infants were treated in Finnish NICUs.

Methods: Parents were asked to respond to a structured questionnaire during their infants' hospitalizations. We analyzed the data using the nonparametric Kruskal–Wallis one-way analysis of variance and Mann-Whitney *U* test.

Results: Most parents reported that they used physical methods, such as touching, holding, and positioning, *nearly always/always* (86%, 76%, and 55%, respectively). However, less commonly used strategies included recorded music (2%), breastfeeding (2%), non-nutritive sucking, and oral sucrose (6%). Many characteristics of the infants, such as their gestational ages and their conditions, were significantly related to the implementation of nonpharmacologic methods.

Conclusion: There is a clear need to extend parents' use of nonpharmacologic methods to manage their infants' procedural pain in the NICU. Because many methods were not considered as pain-relieving strategies, it is important to increase knowledge about the effectiveness of these interventions among parents and nurses.

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A central principle of family-centered care in the NICU is to encourage parents to become fully engaged and active participants in the care of their infants (Mullaney, Edvards, & DeGrazia, 2014). This is important because parents often struggle to find their places, perform normal parenting tasks, and protect their infants from harm within the highly medicalized NICU setting (Aagaard & Hall, 2008; Finlayson, Dixon, Smith, Dykes, & Flacking, 2014). Another concern is stress in parents caused by the painful procedures that infants may undergo during their stays in the hospital. However, changes in parental roles can be the greatest sources of stress for mothers and fathers of preterm infants (Baía et al., 2016), and this can be related to the different levels of involvement in infant pain management (Axelin, Lehtonen, Pelander, & Salanterä, 2010).

Background

Many researchers found that parents, particularly mothers, wish to participate in pain management or to function as primary caregivers (Aagaard & Hall, 2008; Finlayson et al., 2014; Nyqvist & Engvall, 2009). Evidence also suggests that parent participation has positive effects for infants and parents; it increases developmental support for infants and facilitates the transfer of responsibility from nurse to parent (Franck, Oulton, & Bruce, 2012; Lester et al., 2014; Skene, Franck, Curtis, & Gerrish, 2012). Parent participation can also improve pain assessment (Franck et al., 2011) and pain management practices in NICUs (Johnston, Barrington, Taddio, Carbajal, & Filion, 2011). Therefore, it is essential for parents to take active roles in infant pain management, but to do so they need increased information about all aspects of pain care and encouragement from the NICU staff (Franck et al., 2012; Skene et al., 2012).

In the NICU, infants undergo many painful procedures, such as heel sticks and tracheal suctioning, and are exposed to repeated painful stimuli. These may have profound, long-lasting

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Many nonpharmacologic methods can be used to effectively relieve an infant's pain, but there is a lack of knowledge about which methods are used by parents in the NICU.

effects, including many adverse consequences related to neurologic and behavior-oriented development (Johnston et al., 2011). According to the American Academy of Pediatrics (2016), the prevention and management of pain in infants should be the goal of all health care professionals, and family members should receive education on this topic. Nonpharmacologic methods have been shown to be useful to reduce pain scores of infants during short-term mildly to moderately painful procedures (American Academy of Pediatrics, 2016). They are recommended particularly for procedural pain management in infants because there are no adverse effects or other adverse outcomes in this population, and parents can use these approaches safely (Campbell-Yeo, Fernandes, & Johnston, 2011; Johnston et al., 2011).

Recently, a number of researchers found that nonpharmacologic methods, such as non-nutritive sucking, swaddling, skin-to-skin care, facilitated tucking, rocking/holding (Chidambaram, Manjula, Adhisivam, & Bhat, 2014; Pillai Riddell et al., 2011), and music (Bergomi et al., 2014) can be used to effectively reduce pain in infants in the NICU. In addition, Shah, Herbozo, Aliwalas, and Shah (2012) found that administration of glucose/sucrose was similar to breastfeeding in its effectiveness in the reduction of pain in neonates.

Although there is evidence on the effectiveness of nonpharmacologic methods to manage procedural pain in infants, there is less knowledge about which methods are actually used by parents in the NICU setting. Campbell-Yeo et al. (2011) argued that these strategies are generally used by nurses when they desire to maintain authority over infant caregiving, even though parents wish to actively participate in comforting their infants.

Previous researchers addressed the need to increase the participation of parents in infant pain management in the NICU (Franck et al., 2012; Franck et al., 2011; Skene et al., 2012), but none focused specifically on the use of nonpharmacologic methods from the viewpoints of parents. Therefore, the purpose of our study was to describe parents' use of these methods to manage the procedural pain of their infants in the NICU and to explore the background factors related to such use. When striving to provide family-centered care, it is important to clarify parents' tasks in the NICU and to share responsibility with open communication and dynamic negotiation (Mikkelsen & Frederiksen, 2011).

Methods

Design

We used a cross-sectional and descriptive study design based on a survey of parents whose infants were treated in NICUs in Finland. The study was reviewed and approved by all participating hospitals, and ethical permission was granted by the ethics committee.

Sample and Setting

The sample consisted of 178 parents whose infants were hospitalized in one of the NICUs in the country's four university hospitals (Helsinki, Kuopio, Tampere, and Turku). One hospital (Oulu) was excluded because the questionnaires were pilot-tested there. In Finland, Level III NICU care is centralized into five university hospitals that admit the most critically ill and the most preterm infants, those who require mechanical ventilation, have difficult-to-treat infections, or require cooling therapy because of asphyxia. Most newborns are transferred to the NICU immediately after birth. There are also special care infant nurseries (Level II NICUs) in the same hospital district areas. These Level II NICUs care for less severely ill infants and are responsible for follow-up care after intensive care. We included infants treated in Level III and Level II NICUs (seven units). Potential participants who met the following inclusion criteria were recruited: being the child's mother or father, having an infant hospitalized in the NICU, and being able to understand the Finnish language.

Procedures

The nurse managers of each unit in the NICUs organized the data collection from February 2012 through February 2013. The parents responded to the questionnaire a day or two before their infants' discharge or transfer to another hospital. They were asked to recall the entire hospitalization and the nonpharmacologic methods that they used for their infants during painful procedures. At the end of the study, the nurse managers mailed the completed questionnaires back to the researcher in prestamped return envelopes.

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