



Nurses' experiences by using heated humidified high flow cannula to premature infants versus nasal continuous positive airway pressure



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KEYWORDS

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Abstract *Background:* Some premature infants are now being treated with heated humidified high flow nasal cannula (HHHFNC) instead of nasal continuous positive airway pressure (nCPAP).

Purpose: To explore nurses' experiences of using HHHFNC compared with nCPAP for premature infants.

Method: Six qualitative in-depth interviews were completed with nurses at two different newborn intensive care units.

Results: Preterm infants showed greater satisfaction with HHHFNC than nasal continuous positive airway pressure. HHHFNC was also associated with fewer pressure injuries and less facial discomfort, and an increased bonding between baby and parent. However, HHHFNC gave less ventilation support than nCPAP.

Conclusion: Whenever clinically possible, premature infants should be placed on HHHFNC because, compared to nCPAP, it results in less pressure related injuries, provides the most comfort and allows increased interaction between the parents and infant.

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Introduction

Many premature infants need noninvasive ventilation support. The most commonly used method is nasal continuous positive airway pressure (nCPAP). In recent years, a new method, heated humidified high flow nasal cannula (HHHFNC), has been introduced. Previous research describes the benefits of HHHFNC, but recommends that it is used with caution because of a lack of evidence (de Klerk, 2008; Hochwald and Osiovič, 2010; Mosca et al., 2012; Narasimhan and Krishnamurthy, 2014; Trevisanuto et al., 2009; Wilkinson et al., 2011). The effects of HHHFNC and nCPAP have been compared, and several studies conclude that there is no difference in respiratory support (Collins et al., 2013; Holleman-Duray et al., 2007; Ignacio and Alfaleh, 2013; Shoemaker et al., 2007; Yoder et al., 2013). However, several studies have shown that HHHFNC provides less nasal trauma than nCPAP (Collins et al., 2014; Hochwald and Osiovič, 2010; Shoemaker et al., 2007; Trevisanuto et al., 2009). Manley et al. (2012) examined nursing staff's experiences with HHHFNC and found that babies were perceived to have increased mobility and comfort, that parents were less fearful, and that HHHFNC made it easier to breastfeed than nCPAP. Klingenberg et al. (2014) compared patient comfort in premature infants treated with HHHFNC and nCPAP and found no significant difference between pain scores or sound, but found that parents preferred HHHFNC and that infants had lower respiratory rates during HHHFNC. All studies suggest further research is required in this area.

The purpose of this study was to gain insight into the experiences nurses have of using HHHFNC versus nCPAP with premature infants.

Methods

To gain insight into the nurses' experiences, a qualitative research design inspired by phenomenology was chosen. Ten neonatal departments in Norway were contacted by telephone and asked about their use of HHHFNC. Six of the departments were regional intensive care units and four were smaller local intensive care units. All of the departments had extensive experience using nCPAP. The experience with HHHFNC was varying; one department did not use it at all, some departments had just started using it, others had several years of experience and even did research on nCPAP versus HHHFNC.

In Norway there are obstetric guidelines (Sand, 2008) stating that all incipient premature births between 24 + 0 to 33 + 6 week's gestation receive antenatal steroids. However, there are no national guidelines on management of the baby once it is born, and various departments follow different guidelines. Some departments have created their own policies on the basis of research and have made this available to other departments. Klingenberg's (2012) guideline is an example of this. Regarding the use of surfactant; infants born before 27 weeks gestation are administered surfactant if they have moderate respiratory distress syndrome (RDS) (Klingenberg, 2012) and all babies under 32 weeks gestation requiring ventilation from birth receive surfactant. nCPAP has been used for a long time and all neonatal intensive care units in Norway have a lot of experience with it. The experience with HHHFNC is limited due to lack of evidence. The departments that have the most experience with HHHFNC in Norway introduced it 5 years ago. All preterm babies are therefore placed on nCPAP first and put onto HHHFNC if stable after certain criteria are met (Klingenberg, 2012). The babies that the informants shared their experiences about were treated with nCPAP and/or ventilated before being switched to HHHFNC. If they were born earlier than 28 weeks, they were initially treated with nCPAP, which was continued until they had passed 28 weeks. The nurses' experiences were related to newborn premature babies placed on HHHFNC 1–3 days after birth and HHHFNC used on babies with chronic lung disease who had been on nCPAP or ventilated for some time.

Two regional neonatal intensive care units in which nurses had experience using both methods and were willing to participate in the study were chosen. Six in-depth interviews were conducted during September 2013. Experience with both nCPAP and HHHFNC and being employed for at least two years in the department were the inclusion criteria for participation. Three nurses in each department were interviewed; they had an average of 10.8 years' experience in the neonatal intensive care unit.

The interviews followed a semi-structured interview guide with four main themes: experiences with HHHFNC, experiences with nCPAP, experienced pros and cons, and experienced differences in use. The interviews lasted for about 45 min and were tape-recorded. The recorded interviews were transcribed into 50 pages of text. The text was analyzed by systemic text

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