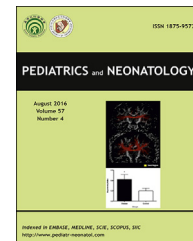


Available online at www.sciencedirect.com

ScienceDirect

journal homepage: <http://www.pediatr-neonatol.com>

Original Article

The effect of nesting positions on pain, stress and comfort during heel lance in premature infants

Ayşe Kahraman ^{a,*}, Zümrüt Başbakkal ^a, Mehmet Yalaz ^b, Eser Y. Sözmen ^c

^a Ege University Faculty of Nursing, Bornova, İzmir, Turkey

^b Ege University Faculty of Medicine, Department of Pediatrics, Division of Neonatology, Bornova, İzmir, Turkey

^c Ege University Faculty of Medicine, Department of Medical Biochemistry, Bornova, İzmir, Turkey

Received Oct 6, 2016; received in revised form Aug 21, 2017; accepted Nov 10, 2017

Available online ■ ■ ■

Key Words

nesting positions;
pain;
comfort;
stress;
cortisol level

Abstract *Background:* Nesting positions are commonly used in procedural analgesic administration in premature neonates. The effectiveness of nesting positions is questioned. The aim of this study was to assess the pain, stress, comfort and salivary cortisol and melatonin values in nesting positions during the heel lance procedure in premature infants at the NICU.

Methods: Experimental research; repeated measurement design. The sample comprised 33 premature neonates with gestational age of 31–35 weeks who had been hospitalized in the NICU. Nesting positions were given using linen or towels. The procedure of heel lance was recorded on camera. The camera recordings were evaluated according to the NIPS and the COMFORTneo scale. Saliva samples were obtained five minutes prior to and 30 min after the heel lance procedure. Salivary Cortisol and Melatonin were measured using the Salimetrics Cortisol Elisa Kit and the Salimetrics Melatonin Elisa Kit.

Results: The crying time, the mean NIPS score, the COMFORTneo score, the COMFORTneo NRS-pain scores and the COMFORTneo NRS-distress scores for premature neonates who were in the prone position during the procedure were significantly lower than the scores in the supine position ($p < 0.000$). Furthermore, the level of salivary cortisol five minutes prior to and 30 min after the heel lance procedure had significantly decreased in the prone position; however, there were insignificant differences in the mean levels of salivary melatonin between the positions.

* Corresponding author. Ege University Faculty of Nursing, 35100, Bornova, İzmir, Turkey. Fax: +90 232 388 63 74.

E-mail addresses: ayse.ersun@gmail.com, ayse.kahraman@ege.edu.tr (A. Kahraman), zumrut.basbakkal@gmail.com (Z. Başbakkal), mehmetyalaz35@gmail.com (M. Yalaz), eser.sozmen@ege.edu.tr (E.Y. Sözmen).

<https://doi.org/10.1016/j.pedneo.2017.11.010>

1875-9572/ Copyright © 2017, Taiwan Pediatric Association. Published by Elsevier Taiwan LLC. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Please cite this article in press as: Kahraman A, et al., The effect of nesting positions on pain, stress and comfort during heel lance in premature infants, Pediatrics and Neonatology (2017), <https://doi.org/10.1016/j.pedneo.2017.11.010>

Conclusions: Nesting in the prone position has a pain reducing effect, enhancing comfort and reducing stress in premature infants.

Copyright © 2017, Taiwan Pediatric Association. Published by Elsevier Taiwan LLC. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

The survival rates of premature babies have increased with technological developments and the duration of stay at the Neonatal Intensive Care Unit (NICU) has increased.¹ During their stay at the NICU, premature infants are repeatedly exposed to painful procedures as a result of routine care.² In the long term, painful and stressful procedures may lead to physiological, psychological and behavioral sequelae in premature infants.³ Within the scope of developmental supportive care attempts, some of the applications performed during painful and stressful procedures include positioning and swaddling,^{4–6} massage,⁷ kangaroo care,^{8,9} oral glucose and sucrose solutions,^{10,11} non-nutritive sucking,^{12,13} breastfeeding^{10,14} and topical anesthetics.¹⁵

Positioning lies within the scope of developmental supportive care attempts, and it is one of the most important interventions used during painful and stressful procedures.^{4,6} There are some studies on developmental supportive positions in preterm infants. These studies have emphasized that developmental supportive positions help avoid energy expenditure caused by unnecessary movements of the infant^{16–19} and reduce unnecessary and excess sedation, and help wean from analgesia.²⁰

Positions that are given to premature infants should be comfortable, safe, should enhance physiological stability, and help keep all extremities at the midline, while maintaining the flexion posture and support optimal neuromotor development.^{3,20–23} To support infants keeping their hands together, to facilitate sleep and to support development of sensory systems, infants can be positioned by nesting.^{16,20} Nesting positions maintain the flexion posture while maintaining intrauterine position and postures.^{5,16,20} As a basic responsibility of the nurse and as one of the most important nursing strategies, positioning by nesting uses a non-pharmacological approach in order to reduce pain and stress and improve comfort. No study has examined the effect of the nesting positions on pain, stress and comfort, salivary cortisol and melatonin values. This study aims to examine the effects of nesting supine and prone positions on the infant's pain, stress and comfort during the heel lance procedure in premature infants hospitalized in the NICU.

2. Methods

This experimental study is a repeated measurement design research. The reason for carrying out the study in the same group is that pain is experimental (depending on experience) and every infant's response to pain is specific. The sample comprised 48 premature infants with gestational

ages of 31–35 weeks who had been hospitalized at the NICU. The data for the research were collected between September 2013 and October 2014. All premature infants had been born through cesarean section and had oral feeding. Infants who had received sedatives, muscle relaxants, corticosteroids or analgesics, those who had major congenital malformations, those with apgar scores of lower than 6 at the first minute and lower than 8 at the fifth minute after birth, those with severe respiratory distress requiring mechanical ventilation or NCAP, and those with neurological, gastro-intestinal, cardiac and metabolic diseases were excluded from the study. The inclusion and the exclusion from participation in the study are presented in Fig. 1.

To determine the sample size, a pilot study with 10 premature infants was performed and the sample size was calculated using the power analysis by G*power. Considering a confidence level of 95% and a power of 80%, we estimated that 33 infants were required to determine the effect of positions on pain, stress and comfort response during the heel lance procedure in premature infants. We included 48 infants in the study, taking into account the loss of sample. Fifteen infants were excluded from the study (Fig. 1). Thirty-three premature infants submitted for heel lance were evaluated.

Supine and prone positions by nesting were given to the infants in the study. A nest maintains the preterm infant with limits (similar to that in the womb); thus the preterm infant has a surface to touch. Nesting maintains the flexion posture, while maintaining intrauterine position and postures. The nesting positions were given using sheets or towels on the infants. The study was applied to the heel lance procedure that is performed routinely in order to determine bilirubin and hematocrit levels. After having waited for 30 min for gastric emptying and stabilization following feeding, the supine positioning was applied on the 3rd postnatal day and prone positioning was applied on the 4th postnatal day. Having monitored the infant in the given position for 30 min, the heel lance procedure was performed. Salivary samples were obtained 5 min before and 30 min after the procedure. Four salivary samples were obtained from each infant. The heel lance procedure was recorded on camera. Camera recording was begun prior to the procedure and continued until the infant's crying was over. After the end of the data collection process, the recordings were evaluated by two scientists (observers), independent from each other; the observers were experienced in premature infants, newborn nursing and pain assessment. The observers assessed the pain, distress, and the comfort levels of the infants according to the Neonatal Infant Pain Scale (NIPS) and the COMFORTneo scale. To evaluate the inter-observer agreement, intra-

Download English Version:

<https://daneshyari.com/en/article/8945730>

Download Persian Version:

<https://daneshyari.com/article/8945730>

[Daneshyari.com](https://daneshyari.com)