Tehran University of Medical Sciences
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The effect of Music Therapy on Pain Responses of Blood Sampling in Premature Infants

A thesis submitted in partial fulfillment of the requirements for Master Degree of Pediatric Nursing

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Abstract

BACKGROUND AND OBJECTIVE: Premature infants undergo painful and stressful procedures during care and treatment and nurses can help to reduce the short term and long term effects of pain caused by diagnostic and therapeutic procedures by using various methods including music therapy. The aim of this study was to determine the effect of music therapy on pain responses of premature infants during and after blood sampling.

METHODS AND PARTICIPANTS: This is an experimental study with cross-over design which was conducted on 20 premature infants hospitalized in intensive care unit of a hospital affiliated to Tehran University of Medical Sciences. Infants were randomly studied once as experiment and once as control, so each infant was considered as its own control to eliminate the influence of individual characteristics. Researcher assessed the pain responses caused by blood sampling in preterm infants. Physiological and behavioral responses of pain were assessed. We assessed heart rate and oxygen saturation level as physiological responses and we assessed sleep wake state and facial expressions (which was measured by neonatal facial coding system) as behavioral responses. In experience group Transitions music was used from 5 minutes before blood sampling and continued until 10 minutes after blood sampling. At any time (experience or control) recording with two cameras was done from 10 minutes before sampling, during blood sampling and 10 minutes after sampling. One camera recorded facial expressions and body movements and at the same time another camera recorded the monitor of the infant. Then the films were reviewed by computer and physiological and behavioral changes were detected. Finally, data analysis was performed using SAS and SPSS software and using ANOVA and Chi-square tests.

RESULTS: Results showed significant difference in heart rate between experiment and control group during needle exit (P = 0.022) and also there was significant difference in heart rate between experiment and control group in the first 5 minutes after blood sampling (P = 0.005), there was significant difference in sleep wake state between experiment and control group in the second 5 minutes before blood sampling (P = 0.044) and also there was significant difference in sleep wake state during needle insertion (P = 0.045) and there was significant difference in the first 5 minutes after blood sampling (P = 0.002) and there was significant difference in sleep wake state between experiment and control group in the second 5 minutes after blood sampling (P = 0.005), there is significant difference in facial expressions score between experiment and control group in the first 5 minutes after blood sampling(p= 0.001).

CONCLUSIONS: Results of this study show that music therapy can reduce physiological and behavioral responses of pain during and after blood sampling and can be used as a beneficial intervention following painful procedures such as blood sampling in NICU.

KEYWORDS: premature infant, pain, physiological and behavioral responses of pain, music therapy