

Effect of Classical Music Therapy on Respiratory Distress Status in Preterm Neonates

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Abstract

Introduction: Respiratory distress constitutes the commonest cause of morbidity in newborn babies and also it is the leading cause of nursery admissions as well as death. The primary purpose of this study is to assess the effect of classical music therapy on respiratory distress status among preterm neonates. *Methods:* The research approach of the study was Quasi experimental with time series design. Classical music (Instrumental Flute) was played for preterm neonates with MP3 player for a total duration of 30 minutes at 20 to 30dB-SPL. Respiratory distress were assessed by Downe's Score, recorded at 5 minute intervals during the therapy period and for the pre music and after music therapy period, the time intervals were 2.5 minutes. The study duration was 60 minutes, 15 minutes before music therapy (BMT), 30 minutes of music therapy (DMT) and 15 minutes after music therapy (AMT). 50 preterm neonates admitted in newborn nursery were selected by convenient sampling and studied for 4 consecutive days. Day 1 and 3 for music therapy (experimental group) and day 2 and 4 as control group when no music was played through headphone. Here the subjects act as control group on alternate days. *Results:* On experimental day 1 and day 3, the respiratory distress were reduced from moderate to mild state during therapy and was maintained for a short period after music therapy (U= 5.41 (DMT), U= 5.27 (AMT) P= <0.001 and on control group no statistical significance were found (P= >0.05). *Conclusion:* Listening to classical music therapy was associated with a significant (P<0.001) reductions of respiratory distress in preterm neonates. These effects appear to persist beyond the music therapy for a short period and may play a useful role to achieve relaxation for babies in NICU.

Keywords: Classical music therapy; Preterm neonate and Respiratory distress.

Introduction

The popularity and credibility of alternative treatment modalities such as music therapy also have increased over the past decade. Support for the use of music with infants is not limited to music therapy

literature; in fact, authors in several other fields of study have written about the benefits of using music to create a nurturing environment for infants [1]. Respiratory distress constitutes the commonest cause of morbidity in newborn babies and also it is the leading cause of nursery admissions as well as death [2]. Singing for preterm neonates with a gestation period between 23 and 36 weeks in Neonatal Intensive Care Unit showed reduced level of stress as indicated by the babies' increasingly relaxed demeanour and induced a measurable increase on the level of oxygen saturation and a reduction of heart rate [3]. Significant increase in oxygen

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saturation was found with the use of classical music therapy in neonates [4]. Premature babies with health problems exposed to music have been shown to help them stabilize their breathing. The intensity is between 30 to 50 dB which can be compared with the sound of normal footsteps or the opening of a door [5].

Statement of the Problem

Effect of Classical music therapy on respiratory distress status in preterm neonates admitted in Newborn nursery of SAT hospital, Trivandrum.

Objectives

To assess the effect of classical music therapy on the respiratory distress status in preterm neonates.

Materials and Methods

The present study was a quasi-experimental study with time series design which had conducted at SAT-New Born Nursery, with a sample size of 50 preterm neonates selected by convenient sampling with study duration of six weeks. In this study, the data were collected from each sample for four consecutive days, and the same subjects act as their control group on alternate days. The respiratory distress was assessed by Downe's score at specific time intervals. Six observations were collected 15 minutes prior to administration of music therapy at an interval of 2.5 minutes and then introduced classical music therapy for 30 minutes with the help of MP 3 player with head phone at 20 to 30 dB and series of same observations are documented at 5 minutes intervals during music therapy. After music therapy series of same observations are also documented for about 15 minutes at an interval of 2.5 minutes. In Downe's score (Clinical respiratory distress scoring system)

consists of 5 aspects like Respiratory rate, Cyanosis, Grunting, Retraction and Air entry and the maximum score is 15 and minimum is 0. Total score is calculated by adding up the individual score. A score of 1 to 4 is interpreted as mild, 5 to 7 as moderate and more than 7 as severe respiratory distress.

Criteria for Selection of Samples

Inclusion Criteria

- Preterm neonates between the gestational age of 30 to 36 weeks.
- Preterm neonates with a birth weight of 1.5 kg and above.
- Preterm neonates with mild to moderate respiratory distress.

Exclusion Criteria

- Preterm neonates with congenital anomalies.
- Parents or caregivers not willing to provide the consent.

Ethics and Consent

After getting Human ethical committee clearance and permission from institution and respective units, informed consent has taken from parents of neonates and the confidentiality has maintained. Followed the ethical principles and data collection were started.

Results

Table 1 reveals that the classical music therapy reduces the respiratory distress during and after the therapy period and it is statistically significant at 0.01 levels.

Table 1: Downe's score and level of significance of Classical music therapy on Experimental and Control groups

Stage	Respiratory Status	Experimental	Control
Before	Nil	50	59
	Mild	46	41
	Moderate	4	0
During	Nil	50	59
	Mild	50	41
	Moderate	0	0
After	Nil	50	59
	Mild	50	41
	Moderate	0	0
Wilcoxon Signed Ranks Test	Before & During	5.41**	-
	Before & After	5.27**	-

** Highly Significant at 0.01 level

Discussion

The study findings disseminate that the classical music therapy has statistically significant effect on respiratory distress in preterm neonates and it increases the oxygen saturation.

Classical music therapy reduces the respiratory distress in preemies. During the classical music period the moderate respiratory distress were reduced to mild respiratory distress and it was maintained after the classical music therapy for about 15 minutes and it showed statistical significance at 0.01 level. In 2008, similar study by Desquiotz, suggest that singing for preterm infants music therapy in neonatology found a positive impact on oxygen saturation, heart beat and on the general level of relaxation experienced by premature infants³. Due to aversive environmental auditory stimuli in the NICU, the preterm neonates were overloaded with unwanted sensory stimulation and resulted in significant changes in both the behavioural and physiological responses of neonates. So it is evident that giving classical music therapy as a developmental care for preterm neonates when performing any nursing interventions may enhance not only the quality of nursing care, but also the quality of neonate's life.

Conclusion

Listening to classical music therapy was associated with a significant ($P < 0.001$) reductions of respiratory distress in preterm neonates. These effects appear to persist beyond the music therapy for a short period and may play a useful role to achieve relaxation for babies in NICU.

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