ORIGINAL RESEARCH

Impact of music therapy on amount of breast milk secretion among mothers of premature newborns

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ABSTRACT

Background: Milk production may refer to the volume of milk removed from the breast at a breastfeeding session or expression; it may also refer to the average volume of milk removed per unit of time such as milliliters in a 24-hour period.The present study was conducted to evaluate the impact of music therapy on amount of breast milk secretion among mothers of premature newborns. **Materials & Methods:** 60 mothers of premature babies were selected. Over the course of four days, each subject underwent four sessions of music therapy (MT) (Group I) and four sessions of no music therapy (NMT) (Group II). Mil secretion, psychological stress and the salivary cortisol level was assessed. **Results:** The mean milk secreted on day 1 in group I was 6.3 ml and in group II was7.3 ml. On day 2 was 6.5 ml and 6.8 ml, on day 3 was 6.9 ml and 7.2 ml and on day 4 was 7.2 ml and 7.9 ml respectively. The difference was significant ($P< 0.05$). The mean PSS on day 1 was 41.5 and 32.1 and on day 4 was 32.6 and 24.8 in group I and II respectively. Salivary cortisol level on day 1 was 3.42 and 3.01 and on day 4 was 2.91 and 2.14 in group I and II respectively. The difference was significant ($P< 0.05$). **Conclusion:** Mothers of hospitalized premature newborns benefit from music therapy because it lowers stress levels, which increases the amount of breast milk produced.

Keywords: milk, psychological stress, salivary cortisol

INTRODUCTION

In the literature, milk production refers to the volume of milk removed from the breast either by the infant or by mechanical expression. Milk production may refer to the volume of milk removed from the breast at a breastfeeding session or expression; it may also refer to the average volume of milk removed per unit of time such as milliliters in a 24-hour period.[1,2]

Over the last ten years, the number of premature newborns has been gradually rising.

The Neonatal Intensive Care Unit (NICU) will handle any difficulties from a premature baby, which causes the mother even more worry.[3] Premature newborns sometimes leave their mothers feeling anxious and afraid.[4] Furthermore, for a variety of reasons, including illness, stress, and other preterm birth-related problems, the majority of moms of extremely preterm infants are unable to produce enough milk to feed their babies solely.Use of mother's own breast milk compared to infant formula has a positive impact in reducing potential serious neonatal morbidities and also contributes to improvements in neuro developmental outcomes.[5]

The delay in initiation, immaturity of the mammary gland, and inhibition of milk ejection caused by stress may result in poor milk yield and declining milk production.[6] Music therapy has been used in several areas, such as mental health, special education, rehabilitation and social development. Many studies have found various physiological effects of music in the listeners.[7]The present study was conducted to evaluate the impact of music therapy on amount of breast milk secretion among mothers of premature newborns.

MATERIALS & METHODS

The study was carried out on 60 mothers of premature babies. All gave their written consent to participate in the study.

Data such as name, age, etc. was recorded. Over the course of four days, each subject underwent four sessions of music therapy (MT) (Group I) and four sessions of no music therapy (NMT)(Group II). Using a breast milk pump, breast milk was expressed, and

the amount was measured twice a day at 11:00 am and 4:00 pm. For music therapy, raga malkauns and flute yaman were utilized. Over the course of the 30-minute trial period, MT was given in four randomized sessions (15 minutes before and 15 minutes during breast milk quantity).On days 1 and 4 of MT, the PSS questionnaire was used to gauge psychological stress. On the final day of the trial, during the sessions with MT and NMT, the mother's saliva was taken in order to determine the salivary cortisol level.Results thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Comparison of amount of breast milk expressed

Days	Group I	Group II	P value
Day 1	6.3	7.3	0.02
Day2	6.5	6.8	0.01
Day3	6.9	7.2	0.03
Day4	7.2	7.9	0.05

Table I, graph I shows that mean milk secreted on day 1 in group I was 6.3 ml and in group II was7.3 ml. On day 2 was 6.5 ml and 6.8 ml, on day 3 was 6.9 ml and 7.2 ml and on day 4 was 7.2 ml and 7.9 ml respectively. The difference was significant (P< 0.05).

Graph I Comparison of amount of breast milk expressed

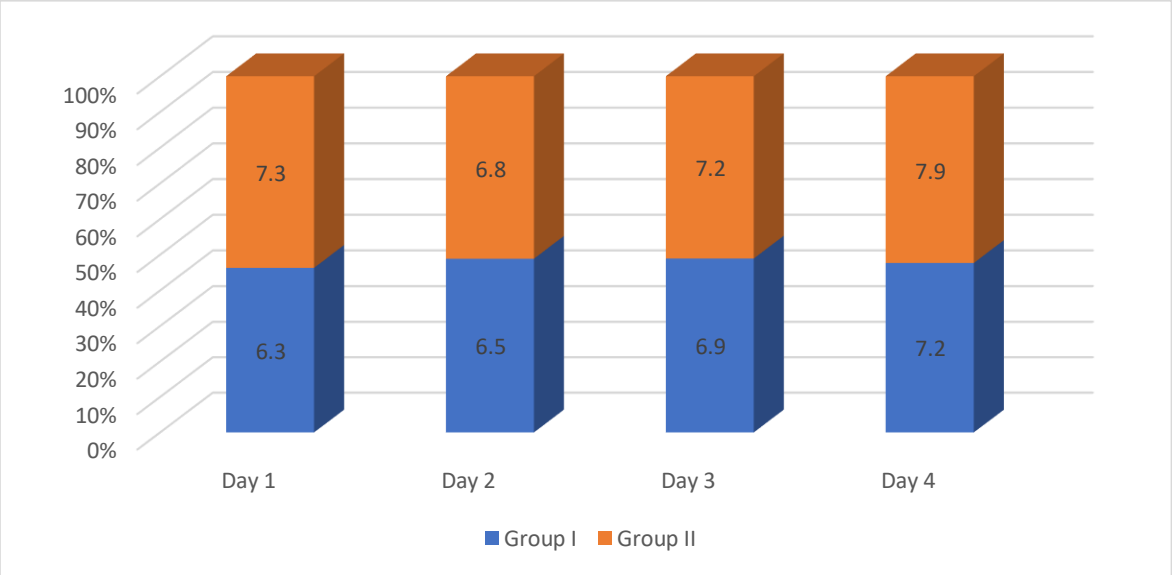
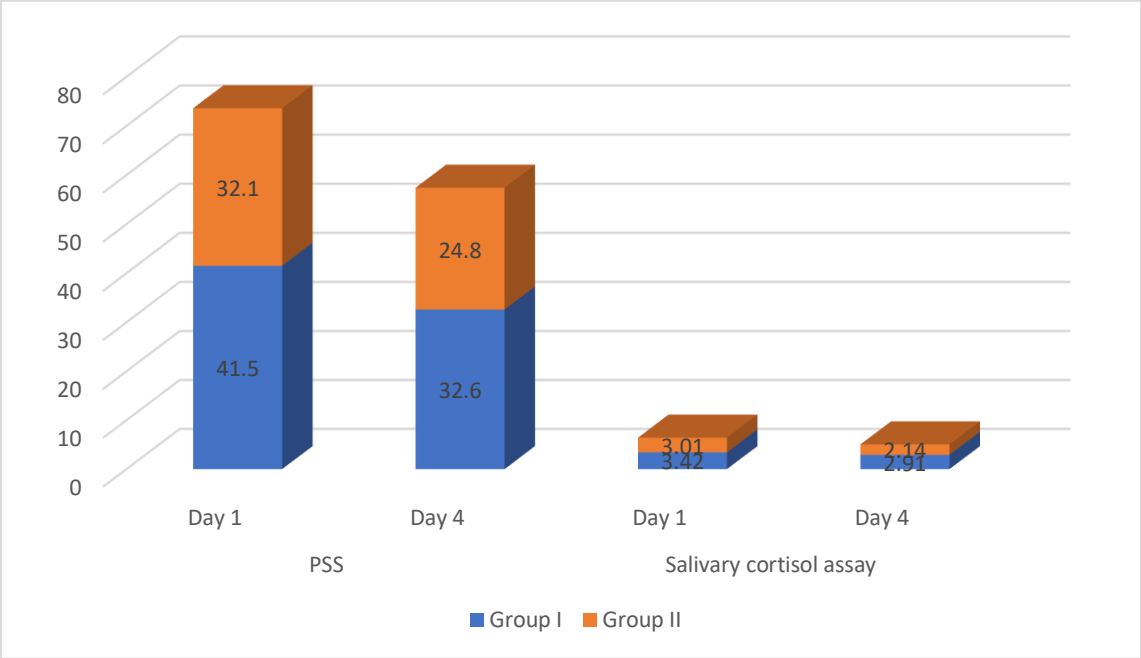


Table II Assessment of Perceived stress scale&Salivary cortisol assay

Parameters	Variables	Group I	Group II	P value
PSS	Day 1	41.5	32.1	0.04
	Day 4	32.6	24.8	
Salivary cortisol assay	Day 1	3.42	3.01	0.02
	Day 4	2.91	2.14	

Table II, graph II shows that mean PSS on day 1 was 41.5 and 32.1 and on day 4 was 32.6 and 24.8 in group I and II respectively. Salivary cortisol level on day 1 was 3.42 and 3.01 and on day 4 was 2.91 and 2.14 in group I and II respectively. The difference was significant (P< 0.05).

Graph I Assessment of Perceived stress scale & Salivary cortisol assay



DISCUSSION

All newborns should be breastfed, but preterm babies especially need to be breastfed. The healthiest nutrition for a newborn is breast milk. Compared to preterm infants who are not breastfed, breastfed preterm infants have a 20% decreased chance of dying.[8,9] Antioxidants and enzymes found in human breast milk are known to lessen oxidative stress in infants.[10] The cholesterol in breast milk aids in the myelination of neurons and improves a newborn's cognitive function. Effective breastfeeding practices strengthen the mother-child relationship and lessen maternal stress.[11,12] When used scientifically, music has been demonstrated to alleviate human suffering. Spiritual, emotional, and physical health are all improved by music. among the operating room, music prevents or lessens irritation, lowers tension, and lessens anxiety among patients, staff, and users.[13,14]The present study was conducted to evaluate the impact of music therapy on amount of breast milk secretion among mothers of premature newborns.

We found that mean milk secreted on day 1 in group I was 6.3 ml and in group II was7.3 ml. On day 2 was 6.5 ml and 6.8 ml, on day 3 was 6.9 ml and 7.2 ml and on day 4 was 7.2 ml and 7.9 ml respectively. Jayamala et al[15]evaluated the impact of music therapy on amount of breast milk secretion among mothers of premature newborns by reducing maternal stress. To assess the psychological stress, PSS questionnaire was administered on day 1 and day 4 of MT. Mother's saliva was collected to estimate salivary cortisol level on the last day of study during the sessions with MT and NMT. Music therapy was associated with a significant reduction in stress level as shown by improved PSS score and reduced salivary cortisol. Subjects who received music therapy had significant increase (p-value- 0.033) in breast milk expression when compared to mothers who didn't

We found that mean PSS on day 1 was 41.5 and 32.1 and on day 4 was 32.6 and 24.8 in group I and II respectively. Salivary cortisol level on day 1 was 3.42 and 3.01 and on day 4 was 2.91 and 2.14 in group I and II respectively. Hill et al[16]reported the temporal pattern of milk output in 2 groups of lactating mothers during the first 6 weeks postpartum. A study aim was to examine if the average milk output for postpartum days 6 and 7 (baseline) predicts milk adequacy at week 6 postpartum. Mothers of preterm (≤ 31 weeks) infants (n = 95) used mechanical expression to initiate and maintain their milk supply; mothers of a singleton healthy term infant (n = 98) fed their infant at the breast. Baseline milk output was predictive of milk adequacy, defined as ≥ 500 mL/d at week 6 (P = .000). Preterm mothers were 2.81 times more at risk of not producing adequately than term mothers were. Study findings suggest that interventions that promote the initiation and maintenance of an adequate milk supply during the first week postbirth are critical

The shortcoming of the study is small sample size.

CONCLUSION

Authors found that mothers of hospitalized premature newborns benefit from music therapy because it lowers stress levels, which increases the amount of breast milk produced.

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