



Music Therapy the Traditional way of Pain Relief in Medical Framework -an Evidence Based Study Through Evaluation of Cortisol Level

KEYWORDS

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ABSTRACT Music has been used in traditional treatments to heal and fortify the soul. Music affects the sub cortical areas of the brain influencing various physiological and psychological states.

The study was conducted in 60 patients undergoing abdominal surgeries under general anaesthesia. They were divided into 2 sub-groups of 30 patients each. Group M were made to listen to the music using headphones at pre-selected volume whereas for Group C patients only headphones were put with no music played. Heart rate, Systolic blood pressure, Diastolic blood pressure, Mean arterial pressure, SpO₂, Serum cortisol levels, Pain scores: VAS and Numeric rating scale were compared among the groups. Music therapy is effective adjuvant in providing postoperative analgesia as shown by the cortisol levels.

Introduction

Music has been used in traditional treatments to heal and fortify the soul. Music affects the sub cortical areas of the brain influencing various physiological and psychological states.

Materials and methods

The study was conducted in 60 patients undergoing abdominal surgeries under general anaesthesia. They were divided into 2 sub-groups of 30 patients each. Group M were made to listen to the music using headphones at pre-selected volume whereas for Group C patients only headphones were put with no music played. Heart rate, Systolic blood pressure, Diastolic blood pressure, Mean arterial pressure, SpO₂, Serum cortisol levels, Pain scores: VAS and Numeric rating scale were compared among the groups.

Results and observations

The age distribution among the groups were comparable with a p value =0.365. Female were 25, 83.3% Male 5 cases 16.7 % The gender distribution were comparable between the groups with a p value=1.000 The duration of surgery in both the groups were comparable with p=0.161. It is observed that there was no much variation from the baseline in both the groups during preoperative and intraoperative period. However, there was significant statistical difference in the blood pressure among the group post operatively. There were statistical significant changes <0.001** observed during the intraoperative and postoperative period in both the groups. However the heart rate was stable throughout the study in both the groups.

There was no statistical difference observed in the cortisol levels in both the groups.

Table 1: Comparison of Pre and Post intervention cortisol in two groups studied

	Group C	Group M	P value
Pre intervention cortisol level	32.98±10.71	34.79±9.69	0.494
Post intervention cortisol level	32.12±10.57	32.76±9.12	0.803

Discussion

Music, especially through its emotional power, is bound to influence diverse brain chemistries and network activities, and we, along with many others, anticipate effects on such anti-stress systems such as endogenous opioids and other neuropeptides, such as oxytocin that also mediate various positive social processes. Epinephrine, norepinephrine, ACTH and cortisol are commonly used as markers of surgical stress, particularly abdominal surgery 1-3 . Rider⁴ has demonstrated that music and image therapy determine relaxation and maintain average levels of corticosteroids in subjects who are awake. Numerous studies have focused on the hormones ACTH and cortisol, to investigate the effects of music on the neurohormonal pathway. Listening to music or singing can reduce levels of cortisol released during stress. Higher levels of cortisol can lead to decreased immune response^{5,6}. It has been proven that listening to quiet; classical music can significantly reduce stress⁷

Escher et al⁸ in 1993 investigated a group of patients undergoing endoscopy, who listened to their favorite music during the procedure. A control group did not listen to music. The control group showed a large increase in cortisol and ACTH levels in their blood. However, the group that was listening to music presented a significantly lower level of release of these hormones.

Miluk-Kolasa⁹ and his collaborators in 1994 measured cortisol levels in patients after informing them that they would undergo surgery the next day. They found that information about impending surgery led to an increase of 50% of the cortisol level. Some patients were subjected to listening to music while others were the control group. An hour after the announcement the patients who did not listen to music had higher levels of cortisol compared to the group that had listened to music. Thus, music has greatly reduced the initial increase in cortisol levels, subsequent to stress.

In a randomized study performed by McKinney et al.¹⁰ in 1997 found significant decreases in cortisol levels and positive effects on depression, fatigue and mood. Decreased cortisol was significantly associated with decreased disturbance in the mood.

CONCLUSION

Music therapy is effective adjuvant in providing postoperative analgesia as shown by the cortisol levels. Further research needs to be done to implement the use of music therapy worldwide, as an adjuvant to conventional methods of postoperative analgesia.

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