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Original Research Article.

Study of Effect of Music on Blood Pressure

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ABSTRACT

Background: Anxiety can lead to acute rise of blood pressure which can be seen with patients in a variety of medical settings and this maybe a result of concern in these settings. Controlling blood pressure (BP) reduces the cardiovascular outcomes as well as the quality of life. Studies show positive effects of music as an adjuvant in the treatment of several diseases. Present study was conducted to evaluate the effect of music on the BP of normo-tensive individuals.

Methods: This was an experimental study that evaluated patients of both genders, aged between the age groups of 30-50 years, without the history of hypertension or on treatment of hypertension. They were divided into a study group and a control group. The study group participated in the music therapy for 30 minutes whereas the control group didn't. Before and after the music, the BP of each patient was measured in study group. BP of second group was measured two times with a gap of 30 minutes.

Results: There was a significant difference in the blood pressure both systolic and diastolic was observed in the study group who were asked to listen music for 30 minutes. There were no significant changes observed into the control group who were not considered for music therapy.

Conclusions: Music therapy has contributed to a significant change in the blood pressure of individuals in persons without any history of hypertension. This suggests that the music therapy may be a part of a therapeutic approach to help strengthen the programs of multidisciplinary care of hypertensive patients.

Key words: Blood Pressure, Music Therapy, Anxiety.

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INTRODUCTION

Music has an effect on human beings for centuries.[1,2] Music was used to improve performance in athletes during the Olympic Games.[3] Studies have investigated the influence of music in the setting of different clinical symptoms, surgical procedures or in pain management and palliative medicine.[4-6] Music is a powerful stimulus for evoking and modulating emotions as well as moods and is associated with activity changes in structures of brain known to modulate heart activity. Music can reduce blood pressure depending on the tempo. Various studies reported that listening to slow music lowers the blood pressure whereas listening to fast music increases blood pressure. People with musical training show a marked reduction of blood pressure when listening to slow music. Slow, quiet classical music can have a beneficial effect on our physiological functions like lowering our blood pressure, slowing the heart rate and decreasing the levels of stress hormones. A lot of studies have been done on the effect of music on blood pressure in the western countries in comparison to our country. Hence this study has been taken. This study suggests that if music therapy is promoted along with medication it might have a beneficial effect. Lowering blood pressure by even 5-6mm Hg can lower cardio-vascular disease. Michigan University studies revealed that some types of music have effect on heart rate, respiratory rate and also endorphin release.[4] Music therapy is a non-invasive method to reduce the anxiety.

MATERIALS & METHODS

The present Experimental study was conducted involving 100 asymptomatic individuals of age group 30-50 yrs without any history of hypertension. These study subjects who came to the hospital for their routine check-up or treatment of other ailments. The study subjects were waiting for their que in the waiting space. Those who were voluntarily agreed for the study were considered and selected. Those who had not taken coffee/tea on the day were included into the study. They were divided into two groups. All the individuals were screened for blood pressure and heart sounds.

1. The Study Group (50)
2. The Control Group (50)

The blood pressures of individuals of both the groups were measured with the help of sphygmomanometer. The study group of 50 individuals listened to slow Indian classical music on flute in a quiet and calm room for 30 minutes of their choice. The control group was kept in another room in a calm and quite setting but not listening to any music. Blood pressure of both the groups was measured after 30 minutes.

RESULTS

The data was analyzed on SPSS 16.0. A significant reduction of both systolic blood pressure and diastolic blood pressure was found in the study group as compared to the control group. Lowering of systolic blood pressure was more than diastolic blood pressure. The total numbers of study subjects were 50 each among both the groups. Male vs female proportion was 52% males among the group with music whereas among the other group the male proportion was 54%. The mean age of study group was 37.60 years. The Systolic blood pressure of study group before music was 125.12 mm of Hg and after 30 minutes of music, it was recorded 119.24 mm of Hg. Similarly the mean diastolic blood pressure of study group before music was 80.36 mm of Hg and after 30 minutes of music, it was recorded 76.88 mm of Hg. The mean arterial pressure of study group before music was 95.28 mm of Hg and after 30 minutes of music, it was recorded 91.00 mm of Hg. There was a significant difference ($p<0.0001$) in both systolic and diastolic blood pressure in the study group as well as also in mean arterial pressure.

The mean age of control group was 38.04 years. The baseline Systolic blood pressure of control group was 124.68 mm of Hg and after 30 minutes, it was recorded 125.60 mm of Hg. Similarly, the Diastolic blood pressure of control group was 81.32 mm of Hg and after 30 minutes, it was recorded 82.12 mm of Hg. The baseline mean arterial pressure was 95.77 mm of Hg and after 30 minutes it was recorded of 96.61 mm of Hg.

Table 1: Showing the various variables of group with music

	Minimum	Maximum	Mean±Std Dev
Age	30	50	37.60±5.721
Systolic Blood pressure before music	120	132	125.12±3.384
Systolic Blood pressure after 30 minutes of light music	114	126	119.24±2.584
Diastolic Blood pressure before music	74	86	80.36±3.199
Diastolic Blood pressure after 30 minutes of light music	74	82	76.88±2.106
Mean Arterial Blood pressure before music	91	101	95.28±2.508
Mean Arterial pressure after 30 minutes of light music	87	91	91.00±1.694

Table 2: Showing the various variables of group without music

	Minimum	Maximum	Mean±Std Dev
Age	30	50	38.04±5.291
Systolic Blood pressure (baseline)	112	138	124.68±5.445
Systolic Blood pressure after 30 minutes	114	138	125.60±5.421
Diastolic Blood pressure (baseline)	74	86	81.32±3.120
Diastolic Blood pressure after 30 minutes	76	88	82.12±3.391
Mean Arterial Blood pressure (baseline)	91	102	95.77±2.900
Mean Arterial pressure after 30 minutes	91	103	96.61±29.71

DISCUSSION

Various studies revealed that music therapy reduces the anxiety of individuals and ultimately shows a decrease of BP and heart rate reduction due to various mechanisms.[7] A study on 45 myocardial infarction patients showed that music therapy decreased the heart and respiratory rate and also anxiety of the patients.[8] Music has the ability to stimulate certain hormones in the brain and body, and promotes either an increased or decreased heart rate or blood pressure, depending on the genre and tempo.

CONCLUSION

Music affects human beings and influences them in very different ways. Although several studies have shown the effect of music on cardiovascular parameters, no musical influencing variable with a direct effect on the cardio-circulatory system is known. Listening to slow music for 30 minutes reduced blood pressure significantly. Music therapy might have a potential benefit in a variety of clinical settings such as pre-operative setting, in ICU, in haemodialysis. Music therapy is easy to practice, safe and inexpensive. Hence music may have potential benefit in cardiovascular disease preventive programmes. The above study was concerned about the immediate effect of music on blood pressure. Future studies to find out the effect of long term listening to music maybe on a daily basis for 25-30 minutes on the prevalence and the prognosis of cardiovascular disease will be of immense help.

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