

CASE REPORT

Effect of Classical Music on Blood Pressure in Elderly With Hypertension in Bina Bhakti Werdha Elderly Nursing Home, Indonesia

Dewi Fitriani¹, Rita Dwi Pratiwi¹, Putri Cahyaningtyas¹, Sandeep Poddar²

¹ Department of Nursing, Widya Dharma Husada Tangerang School of Health Science, 15417 Tangerang, Banten, Indonesia

² Lincoln University College, Wisma Lincoln, No. 12-18, Off Jalan Perbandaran, S6/12, Kelana Jaya, 47301 Petaling Jaya, Selangor D. E., Malaysia

ABSTRACT

One of the vascular disorders that occurs in the elderly is hypertension. The most severe consequence of this complications is stroke. Prevention of hypertension with non-pharmacological therapy like listening to classical music (eg. Mozart). Classical music can stimulate alpha waves in the brain, releasing a peptide called beta-endorphin. This causes a sense of tranquility so that the heart rhythm decreases, and blood pressure drops. The sample in this study were 17 respondents, aged over 60 years. The result of this case report showed an average systolic reduction of 21 mmHg. Before intervention, 53% suffered from stage 2 hypertension (mean systolic 162 mmHg) and after the intervention with classical music therapy for 12 days, 65% recovered with stage 1 hypertension (average systolic 141 mmHg). So, the interventions of listening to classical music, can maintain balance in blood pressure among hypertension patient.

Keywords: Classical Music, Elderly, Hypertension

Corresponding Author:

Dewi Fitriani, PhD

Email: dewifitriani@wdh.ac.id

Tel: + 6281213646017

INTRODUCTION

Aging is an unavoidable process. At this elderly stageself-awareness is very necessary to maintain the highest level of health to avoid disease or health problems. This should be done, so that the elderly can still fulfill their needs independently. As individuals become older, physiological changes in them are always accompanied by various health problems that cause degenerative diseases. Degenerative diseases have consequences on changes and disorders of the cardiovascular system, such as hypertension abnormalities for example, blood vessel, heart (cardiovascular) and kidney disorders, even rupture of capillaries in the brain causing stroke resulting in death (1,2)

Around 1.13 billion people suffered from hypertension. This means that 1 in 3 people in the world were diagnosed with hypertension, only 36.8% of them take medication. In Indonesia, based on the 2013 Riskesdas data, the prevalence of hypertension in Indonesia was 25.8%. For the prevention of hypertension, non-pharmacological treatment is done by changing lifestyles such as weight reduction in obese people, regulating food diets, regular

exercise and reducing stress. Dietary control and regular exercise have generally been shown to reduce blood pressure. But there are other non-pharmacological methods that can reduce blood pressure like by the intervention of classical music. But the use of classical music as a non-pharmacological treatment in terms of lowering blood pressure is still in developmental stage (3).

Music has power to improve the people's feeling ability and to treat illness. Besides music also can improve, restore, maintain emotional and mental, physical, social and spiritual health. Classical music is the essence of calmness and conveying things that are good, fair and beautiful. Based on the understanding of music in general can be interpreted as something creative, tasteful and beautiful brought about by human initiative and poured in the form of melodic sounds, rhythm and harmony that can arouse emotions, and can make the mood happy, relieve stress, accompany in the process of learning and can also used to reduce pain. Classical music such as the works of Mozart, Bach, Beethoven, and Vivaldi can improve the ability to remember, reduce stress, relieve tension, increase energy and improve memory (4)

CASE REPORT

The sample in this study was 17 respondents, with inclusion criteria in this study included patients over the

age of 60 years, patients with hypertension from grade 1 to grade 4 (> 140/90 mmHg) (Table I).

Table I: Frequency Distribution of Age and Gender in Bina Bhakti Nursing Home, South Tangerang City (n = 17)

Age	n	%
60 – 74 Thn	10	59
75 – 90 Thn	7	41
Total	17	100
Gender	n	%
Male	6	35
Female	11	65
Total	17	100

On the first day before the intervention as many as 53% of respondents suffer from grade 2 hypertension (160–179 mmHg) with a systolic mean of 162 mmHg. During 12 days of classical music therapy interventions every morning for 15 minutes, after 12 days from 17 respondents obtained the highest data experiencing grade 1 hypertension (140-159 mmHg) as much as 65%, with an average systolic 141 mmHg, with an average systolic reduction of 21 mmHg. It was identified that respondents who were given classical music intervention experienced a gradual decrease in blood pressure, after the Wilcoxon Test, it was obtained the significance value of $P = 0.000 < \alpha = 0.05$. So, it can be concluded that there is an effect of classical music on decreasing blood pressure in the elderly (Table II and Table III).

Table II: Systolic Blood Pressure before and after intervention in Bina Bhakti Nursing Home, South Tangerang City (n = 17)

Blood Pressure	Systolic Blood Pressure before intervention		Systolic Blood Pressure after intervention	
	N	%	N	%
Pre Hypertention	-	-	1	6
Hypertension Degree 1 140 - 159 mmHg	5	29	11	65
Hypertension Degree 2 160 – 179 mmHg	9	53	3	18
Hypertension Degree 3 180 – 210 mmHg	3	18	2	11
Total	17	100	17	100

Table III: The average decrease in blood pressure after ontervention in Bina Bhakti Nursing Home, South Tangerang (n=17)

Variable	Mean	Mean Blood Pressure Decrease
BP systolic <i>pre</i>	162	21
BP systolic <i>Post</i>	141	

DISCUSSION

On entering 45 years and over most elderly people hypertension. This is due to the reduction in elasticity of the arteries due to aging associated with atherosclerosis (hardening of the arterial walls) and the inability of tissues to repair themselves or replace tissue damage. The organs of the body can no longer maintain their normal functioning. The body cannot survive infection and repair the damage suffered. In the elderly, kidney function and blood flow to the kidney are reduced so that there is a decrease in glomerular filtration rate of about 35% compared to people who are younger. Kidney function in controlling blood pressure will be disrupted as a result blood pressure becomes uncontrolled. Besides the arterial wall in the elderly patients will thicken due to the accumulation of collagen in the muscle layers. Therefore the blood vessels will gradually narrow, then become stiff causing hypertension. Sensitivity to hypertension will increase with age above 60 years, 50-60% have blood pressure more than or equal to 140/90 mmHg. This is the effect of degeneration that occurs in people who get older. The aging process is a natural thing that we cannot avoid. However, growing old by staying healthy is something we can try early in life (2, 1, 5).

Based on gender, hypertension attacks women more than men. This is related to hormonal factors among women aged 40 years and with the beginning of menopause. Estrogen hormone has several metabolic effects, one of which is the normal structural maintenance of blood vessels, decreased estrogen production at menopause causes structural degeneration of the blood vessels so that blood vessels are more susceptible to hypertension (1,2)

Blood pressure will change according to activity, in an atmosphere of stress, blood pressure will increase, conversely in an atmosphere of rest and relaxation, blood pressure tends to fall. In this respect classical musical therapy (Mozart) has a positive effect that can calm the mind and the heartbeat slowly follows the rhythm of the music so that blood pressure drops. Classical music (Mozart) has a slow beat and matches the rhythm of an adult heart and can stimulate alpha waves in the brain. Alpha waves will stimulate the peptide releasing β endorphins. Special relaxation music leads to significant decrease of beta-endorphin concentration with a simultaneous reduction of blood pressures simultaneous and causing a sense of serenity. Classical music is used in music therapy which can reduce blood pressure because classical music makes one feel relaxed with its slow tempo or rhythm. In classical music, the resulting rhythm has a tempo of 60 beats per minute. When hypertensive patients are listening to classical music with regular and continuous rhythm, the patient's heart rate will follow the musical rhythm which is expected to control patient's heart rate. According to the researchers' assumptions,

there is a decreasing in systolic of blood pressure in respondents, it's because listening to classical music can reduce tension in physical, motor, emotional and mental aspects as well as music can clear the mind. Classical music therapy is an effort in the form of assistance from a planned process using music as a healing medium for the elderly with hypertension (3,4)

The trigger factor for hypertension in women is menopause. Menopause causes normal ovarian function to gradually disappear and estrogen levels drop at post menopause. This causes an increase in cholesterol levels and Low-Density Lipoprotein (LDL), while LDL receptors decrease, causing blood pressure to increase (5)

The gender of individual influences the onset of hypertension. Among women experiencing menopause 50-60% have blood pressure greater than or equal to 140/90 mmHg. Each gender has a different organ structure and hormonal function. Related to hypertension, men have a greater risk of cardiovascular morbidity and mortality, whereas women are usually more susceptible to hypertension when they are above 50 years of age. But there is a lack of awareness of respondents to check themselves because of other activities of the respondents. So they are less motivated to exercise, dietary control, in addition to the hypertension of the respondents due to lack of knowledge to overcome or prevent complications and habits of the elderly who continue to consume excess salt (1). Some different therapy like, lavender (aroma) therapy etc also have found to reduce stress and pain among patients (6).

Prevention of hypertension by non-pharmacological treatment is done by changing lifestyles such as weight reduction in obese people, regulating food diets, regular exercise and reducing stress. Dietary control and regular exercise have generally been shown to reduce blood pressure. But there are other non-pharmacological methods that can reduce blood pressure like using classical music. But the use of classical music as a non-pharmacological treatment in terms of lowering blood pressure is still in developmental stage.

CONCLUSION

It was identified that respondents who were given classical music intervention experienced a gradual decrease in blood pressure, after the Wilcoxon Test, it was obtained the significance value of $P < 0.000 < \alpha = 0.05$. So, it can be concluded that there is an effect of classical music on decreasing blood pressure in the elderly.

ACKNOWLEDGMENTS

This work is supported by Chairman of Sasmita Jaya Group and Technical Help from Bina Bhakti Werdha Elderly Nursing Home.

REFERENCES

1. Darmojo, Boedhi, Hadi M. *Geriatik Ilmu Kesehatan Usia Lanjut* 3rd ed. Jakarta: Publisher FKUI; 2009.
2. Jasmalizal Dkk. 2011. *Pengaruh Terapi Musik Klasik (Mozart) Terhadap Penurunan Tekanan Darah Sistolik Pada Lansia Dengan Hipertensi Di Wilayah Kerja Puskesmas Air Dingin Kecamatan Koto Tangah Padang Tahun 2011*. Padang: Puskesmas Air Dingin; 2011.
3. Mahartidanar, Andhika. *Pengaruh Musik Klasik Terhadap Penurunan Tekanan Darah Pada Lansia Penderita Hipertensi*. *Jurnal Kesehatan dan Agromedicine UNILA*. 2017; 4(2): 264-268
4. Yanuarita FA. *Memaksimalkan Otak Melalui Senam Otak (Brain Gym)*. Yogyakarta: Teranova Books; 2012.
5. Sarayar, Christiane, Mulyadi, and Palandeng H. *Pengaruh Musik Kalsik Terhadap Penurunan Tekanan Darah Pada Pasien Pra-Hemodialisis Di Ruang Dahlia Blu RSUP*. Prof. DR. R. D. Kandou Manado. Manado – Sulawesi Utara. *ejournal keperawatan (e-Kp)*. 2013; 1(1): 1-7
6. Surya M, Zuriati Z, Poddar S. *Nursing aromatherapy using lavender with rose essence oil for post-surgery pain management*. *Enfermería Clínica*. 2020 Jun 1;30:171-4.