



Acupressure Therapy for Chronic Pain in Elderly Patient with Hypertension Stage II: A Case Study

Afifatul Mukaromah^{1*}, Fahrudin Kurdi²

¹ Faculty of Nursing, University of Jember, Indonesia

¹ Department of Community, Family & Gerontic Nursing, Faculty of Nursing, University of Jember, Indonesia


ARTICLE INFO

Article History:

Submitted: 28-07-2023

Revised: 20-02-2024

Accepted: 21-02-2024

 doi.org/10.58545/jkmi.v3i1.147

Copyright (c) 2024 Afifatul Mukaromah

This is an open-access article under the CC BY-SA license.



ABSTRACT

In the aging process, various changes occur regarding biology, cognition, and psychosocial life. The elderly are easily affected by diseases such as non-communicable (degenerative) diseases such as hypertension. As a result of aging, it can reduce the elasticity of the blood vessel walls and cause stiffness in the blood vessels; as a result, blood pressure in the elderly tends to increase. This study aims to determine the impact of applying acupressure therapy to chronic pain problems in the elderly. The research method used in this study was a descriptive case study. The research was conducted for five days on one patient with hypertension and chronic pain at an Elderly Residential Home. Acupressure therapy was carried out once a day for 20 minutes. Evaluation of the implementation is given using the NRS pain scale. The result of Acupressure therapy showed that the level of chronic pain was decreased from the NRS scale 5 to the NRS scale 2, blood pressure 140/80 mmHg, pulse rate 85 x/minutes, respiration rate 18 times per minute, and SpO₂ 96. This study recommends that acupressure therapy can be applied to treat chronic pain in hypertension patients as a complementary therapy.

Keywords: Acupressure, Chronic pain, Blood pressure, Elderly, Hypertension

Corresponding Author:

Afifatul Mukaromah

Faculty of Nursing, Universitas Jember, Indonesia

Jl. Kalimantan No.37, Kec. Sumbersari, Kabupaten Jember, Jawa Timur 68121.

Email: afifamukaromah@gmail.com

How to cite:

Mukaromah, A., & Kurdi, F. (2024). Acupressure Therapy for Chronic Pain in Elderly Patient with Hypertension Stage II: A Case Study. *Jurnal Kegawatdaruratan Medis Indonesia*, 3(1), 24–34. <https://doi.org/10.58545/jkmi.v3i1.147>

I. INTRODUCTION

The aging process is defined as a decrease in the ability of tissues to regenerate or repair themselves and maintain their functions so that when an infection occurs, the body finds it difficult to survive and it is difficult to repair the damage that has occurred in the body

(Constaninides in Rosita, 2017). In old age, various changes occur regarding biology, cognitive, and psychosocial life (Rohmah et al., 2017) due to decreased biological function in the elderly. The elderly are susceptible to non-communicable (degenerative) diseases (Rohmah et al., 2017). One of the non-communicable

diseases that often occurs in the elderly is hypertension.

Hypertension is one of the asymptomatic cardiovascular diseases commonly called the silent killer, which is one of the contributors to mortality from non-communicable diseases (PTM). Hypertension is increased blood pressure above the normal range (Rohmah et al., 2017). Hypertension is defined as an increase in systolic blood pressure with a range of ≥ 140 mmHg and diastolic pressure ≥ 90 mmHg ((Aminuddin et al., 2020). The causes of high hypertension rates are influenced by genetics, use of birth control pills, age, gender, stress, geography, lifestyle, and consumption of salt and cigarettes (Haryana & Misniarti, 2020). PTM control is included in one of the National Priority Programs (PPN). PPN is a program that aims to improve service quality by integrating UKM (Public Health Efforts) and UKP (Individual Health Efforts) services according to the five-level prevention principle. Government programs in controlling PTM include the elderly Posbindu PTM (Non-Communicable Diseases), Healthy Living Community Movement (GERMAS), Clean and Healthy Living Behavior (PHBS), dan CERDIK (Kurdi et al., 2022).

According to the World Health Organization, it is estimated that 1.28

billion adults aged range of 30-79 years worldwide experience hypertension, and the majority two-thirds come from countries with low and middle income (WHO, 2023). Meanwhile, the prevalence in Indonesia, according to the results of Riset Kesehatan Dasar (Riskesdas), shows that the hypertension rate in 2018 was 34.1%, an increase from 25.8% in 2013 (Kementerian Kesehatan RI, 2018). The prevalence of hypertension is one of the global targets for non-communicable diseases, namely reducing the prevalence of hypertension by 25% by 2025 (Riskesdas, 2018). In Indonesia, in the elderly group, the highest prevalence of non-communicable diseases is hypertension at 32.5% (Kementerian Kesehatan RI, 2016). Based on the results of screening at UPT PSTW, Jember showed that the most health problems were in the elderly, namely hypertension as much as 21.7%, with the highest nursing problem, namely acute pain (28.3%) and chronic pain (22.6%).

Management of hypertension is divided into two, namely pharmacological and nonpharmacological therapy. Pharmacological therapy includes management with the use of drugs that function to lower and control blood pressure, such as diuretics, beta androgenic blockers or beta blockers, vasodilators,

calcium channel blockers, and angiotensin-converting enzyme inhibitors or ACE inhibitors (Kamelia et al., 2021). Nonpharmacological therapy is a supporting therapy carried out without drugs. Nonpharmacological therapy has a relaxing effect on the body so that it can control the blood pressure of people with hypertension. Examples of non-pharmacological therapies are limiting salt consumption and high-fat foods, not smoking, not drinking alcohol, reducing stress, and acupuncture (Ainurrafiq et al., 2019).

Acupressure is a nonpharmacological therapy using hand skill techniques to apply pressure through acupuncture points on the surface of the body (Wariin & Pranata, 2018). Acupressure is performed by pressing or vibrating for 15-30 seconds at each acupuncture point (Aminuddin et al., 2020). Acupressure therapy, known from China, uses the activation of acupoints in all the body's meridian points to correct Qi imbalances. Activating specific points on the meridians can reduce pain in local places (Haryana & Misniarti, 2020). Acupressure therapy will stimulate sensory nerve cells at the point of pressure, then continue to the spinal cord, and last to the mesencephalon and hypothalamus-pituitary complex. Acupressure stimulation also stimulates

the release of histamine as a mediator of blood vessel vasodilation. As a result, vasodilation occurs and decreases vascular resistance to reduce blood pressure and complaints of headaches. Therefore, acupressure therapy is also helpful in dealing with acute pain and chronic pain. Giving acupressure as a nursing intervention shows a decrease in the headache scale (Ratnasari et al., 2022). An emphasis on specific points can balance the energy flow to reduce feelings of pain (Kurniyawan, 2016). Acupressure therapy is recommended because it does not perform invasive treatment and is easy to do independently.

Therefore, researchers are interested in taking the title Acupressure Therapy for Chronic Pain in Elderly Patients with Hypertension Stage II.

2. METHODS

The research design used in this study is a case study approach to the nursing care process, including assessment, nursing diagnosis, intervention, implementation, and evaluation. Client criteria was composmentis, systole > 140 mmHg and diastole > 90 mmHg, no fractures, no burns, no wounds or lesions on the skin, and patients are willing to be respondents for the application of acupressure interventional therapy.

This research was conducted from 3 until 7 April 2023 at Elderly Resedential Home. Acupressure therapy was performed for five days and carried out once a day for 20 minutes. Blood pressure was checked using a sphygmomanometer before and after the acupressure therapy. Acupressure points used in this research include Fengchi (GB 20), Taiyang (EX-HN5), Jue Yin Meridian (PC 6), Sanyinjiao (SP 6), and Taichong (LR 3), each points given pressure for 4 minutes or 40 times pressure.

3. RESULTS

Based on the assessment of the client, it shows that the client is male, 70 years old, and experienced pain two years ago due to hypertension. The pain is located in the nape, or the base of the neck, and pain quality is similar to being hit by a heavyweight; the pain scale is 5 using NRS, and it is worse while doing activities. The results of the physical examination carried out on the client were included in grade 2 hypertension (systolic 170 mmHg, diastolic 100 mmHg) with chronic pain (> 3 months). During the examination, the client often felt nape pain and obtained a pain scale of 5 NRS; the client seemed to wince in pain and often held the nape when turning around.

The primary intervention in this study case is pain management, including observation, therapeutic, education, and collaboration with non-pharmacological therapy to reduce pain, namely acupressure therapy. The outcome criteria used were Pain Level (L.08066) with indicators of experience of pain, grimacing, protective attitude, sleeplessness, pulse frequency, and blood pressure. The formative evaluation of the achievement of the therapy used outcome criteria of pain level. In contrast, the summative evaluation used the final evaluation of the pain scale and blood pressure to analyze the impact of acupressure therapy and how far the study objectives were achieved.

The implementation of acupressure therapy is performed using five pressure points, namely Fengchi (GB 20), Taiyang (EX-HN5), Meridian Jue Yin (PC 6), Sanyinjiao (SP 6), and Taichong (LR 3). Therapy is carried out for five days with a duration of ± 30 minutes. Pressure on each point was performed 40 times. According to the schedule planned with the client, therapy is carried out every morning with a frequency of administration, namely once a day, with an estimated time of 30 minutes. This acupressure therapy is used to reduce pain levels and lower blood pressure. Acupressure therapy is easy and safe to use

because it does not require invasive procedures or using needles.

Evaluation was carried out every day while the therapy was given. Measurement of pain level and blood pressure was before and after therapy. The final evaluation of acupressure administration on April 7,

2023, showed a decrease in the patient's pain scale and blood pressure. Based on data on applying acupressure for five days to the client's pain scale, a significant decrease was obtained, as shown in the table 1.

Table 1. Evaluation of acupressure therapy

Day	Pain Level		Systolic Pressure		Diastolic Pressure	
	Pre	Post	Pre	Post	Pre	Post
Day 1	5 NRS	5 NRS	170 mmHg	170 mmHg	100 mmHg	90 mmHg
Day 2	5 NRS	4 NRS	160 mmHg	155 mmHg	90 mmHg	85 mmHg
Day 3	4 NRS	3 NRS	150 mmHg	140 mmHg	90 mmHg	80 mmHg
Day 4	4 NRS	3 NRS	155 mmHg	150 mmHg	90 mmHg	80 mmHg
Day 5	3 NRS	2 NRS	150 mmHg	140 mmHg	90 mmHg	80 mmHg
Average	4 NRS	3 NRS	157 mmHg	151 mmHg	92 mmHg	83 mmHg

NRS: Numeric rating scale 1-10. 0 meaning "no pain" and 10 meaning "the worst pain imaginable"

4. DISCUSSIONS

Based on the results of the study, it was found that the client had a history of hypertension and known since two years ago. The client has a history of hypertension and is an active smoker. Hypertension is a disease that involves many factors, both internal and external. Internal factors include gender, age, and genetics, while external factors include diet and exercise. The nonmodifiable risk factors for hypertension include age, gender, and family history. Factors that can be changed include a history of smoking, excessive salt consumption, eating fewer fruits and vegetables, excess body weight, lack of physical activity, alcohol consumption, stress, and dyslipidemia (Kementerian Kesehatan RI, 2019). The

client has a pain since two years ago, including chronic pain due to hypertension. The onset of complaints of pain is influenced by increased blood pressure with minor symptoms, namely grunting, anxiety, and being protective. At the same time, the primary symptoms are complaints of pain and increased blood pressure. Chronic pain is a sensory or emotional experience associated with actual or functional tissue damage with a sudden or slow onset of mild to severe intensity. It is constant and lasts over three months (PPNI, 2016).

The acupressure therapy used refers to the concept of Traditional Chinese Medicine (TCM) treatment, which believes that the problem of hypertension is caused by an imbalance of energy (chi)

and fundamental substance (Shen). Shen is the matter of life, including spirit, desire, mind, soul, and awareness. Acupressure, based on the principle of activating acupoints in the meridians, is useful for improving energy balance or “Qi”; so that it can reduce aches and pains (Roza et al., 2019). Whereas in the elderly who experience emotional stress, lack of family attention, feel that their wishes are not achieved, it causes the brain to work harder resulting in disharmony of functional relationships between organs in the body such as the heart, kidneys, spleen, and results in disruption of shen in the body (Majid & Rini, 2016). When there is a disturbance in the function of the heart and spleen, it will hinder the channel of energy to other organs so that it is not maintained correctly.

Pressure on the first point, namely Meridian Shao GB (20) or Fengchi (20), which is the point of the meridian and gallbladder, will dampen Gan Yang and cool the brain. The second Taiyang point (EX-HN5) eliminates complaints of more real headaches (Al Amali et al., 2018). Meridian point Jue Yin (PC 6) affects the heart, pericardium, respiration, and webs of the feet (between the fingers) (Nompo, 2020). The Sanyinjiao point (SP 6) is the meeting point of three Yin meridians of the feet, which strengthens spleen function.

Pressure on the Taichong point (LR 3) can help reduce the symptoms of headaches, which are the shu points and yuan points of the liver meridians to calm the heart and regulate Qi and blood (Al Amali et al., 2018). When acupressure acts on points, it will give the elderly comfort and relaxation, but there is a slight tenderness. According to Hartono (2012), good massage techniques are not too hard and make patients feel pain intolerance.

Based on the theory, people with hypertension usually experience pain that is uncomfortable and can exacerbate the hypertension. The pain sensation will trigger the release of stress hormones and stimulate the sympathetic nervous system. This mechanism can trigger narrowing or vasoconstriction and aggravate the patient's hypertension (Wirakhmi et al., 2018). Chronic pain is slow and increases slowly over seconds or minutes. Chronic pain is usually associated with continuous tissue damage (Novitasari & Wirakhmi, 2018). Activation of acupressure points can reduce pain complaints that usually appear in hypertensive clients. Complaints of pain, when it gets worse, can trigger the release of stress hormones that stimulate the sympathetic nervous system, it can trigger vasoconstriction, and blood pressure can increase. Emphasis on acupressure points can increase body stamina, reduce stress

from its relaxing effect and improve blood circulation so that complaints of pain can decrease (Haryani & Misniarti, 2020). An imbalance in the body's "qi" energy flow can cause pain. Acupressure can balance the body's energy flow, reducing feelings of pain (Wirakhmi et al., 2018).

Acupressure has the same point principle as acupuncture, namely 14 meridian systems for bioenergy in the body, including yin, yang, and qi (chi). Each meridian has 400 to 500 energy channel points related to specific organ systems that function as valves that channel energy throughout the body. Therefore, acupressure, related to strengthening the spleen's function and adding blood to calm the Shen, has been selected as the intervention point in this study. Stimulation at that point will strengthen the kidneys' energy and yin elements and weaken the heart's yang elements so that energy balance occurs in the body (Majid & Rini, 2016). When the balance of the body is achieved, it optimizes the functions and organ systems in the body, including the heart, resulting in a decrease in blood pressure (Sukanta, 2009).

The results of the implementation evaluation, which was carried out for five days from April 3 – April 7, 2023, in the form of acupressure therapy, showed a significant change in the results of therapy

from the first day to the fifth day. Evaluation of the results from the table above shows a decrease in the client's pain scale and blood pressure. The decrease in the client's pain scale began to decrease significantly on the second day of implementation. The average pain level before therapy was 4 NRS, and after therapy, the average pain level decreased to 3 NRS. The client's pain scale decreased significantly after five days of implementation from 5 NRS to 3 NRS, obtained at the final evaluation.

In addition, there was a decrease in diastolic blood pressure in the client starting from the first day, and the decrease in systolic blood pressure in the client began to decrease significantly on the third day of implementation. The highest blood pressure before acupressure was performed, namely systolic 170 mmHg and diastolic 100 mmHg, where the client was included in stage II hypertension (≥ 160 mmHg). The average systolic blood pressure before acupressure was 157 mmHg, and diastolic blood pressure before acupressure was 92 mmHg. After acupressure, the client's average systolic blood pressure was 151 mmHg, and the client's average diastolic pressure was 83 mmHg, which shows a decrease in the average blood pressure before and after the acupressure action. In addition, there was a

decrease in the client's pain scale starting from the second day after implementation, which was in line with the decrease in blood pressure; this happens because acupressure has a relaxing effect so that the body feels comfortable and relaxed. In addition, when acupressure is given, it will stimulate the hormone dopamine, which stimulates parasympathetic nerve activity. As a result, metabolic activity decreases; in the cardiovascular system, there is vasodilation of blood vessels, which can improve the circulatory system and reduce blood pressure. This study aligns with the results of a study by Ni'am et al. (2022), where a decrease in blood pressure was followed by a decrease in the pain scale in patients. Based on the result of these data, the administration of acupressure therapy can reduce pain levels in chronic pain nursing problems and lower blood pressure.

5. CONCLUSION

Acupressure therapy can reduce the pain scale in hypertensive clients with chronic pain and also lower blood pressure. Acupressure therapy is recommended as a non-pharmacological therapy to treat hypertension patient sufferers from chronic pain or acute pain. Acupressure therapy is a non-invasive therapy and easy to use. Healthcare professionals can

educate families on using therapy to continue implementation and reach optimal results.

ACKNOWLEDGEMENT

Researchers would like to thank all parties who participated in this study, especially UPT PSTW Jember.

AUTHOR CONTRIBUTIONS

Substantial contributions to conception, data collection, and analysis: Afifatul Mukaromah and Fahrudin Kurdi. Writing manuscript and revisions: Afifatul Mukaromah.

CONFLICT OF INTEREST

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

DATA AVAILABILITY STATEMENT

The data are not publicly available due to privacy or ethical restrictions.

REFERENCES

Ainurrafiq, A., Risnah, R., & Ulfa Azhar, M. (2019). Terapi Non Farmakologi dalam Pengendalian Tekanan Darah Pada Pasien Hipertensi: Systematic Review. *Media Publikasi Promosi*

- Kesehatan Indonesia (MPPKI), 2(3), 192–199.
<https://doi.org/10.56338/mppki.v2i3.806>
- Aminuddin, A., Sudarman, Y., & Syakib, M. (2020). Penurunan Tekanan Darah Penderita Hipertensi Setelah Diberikan Terapi Akupresur. *Jurnal Kesehatan Manarang*, 6(1), 57.
<https://doi.org/10.33490/jkm.v6i1.119>
- Haryani, S., & Misniarti, M. (2020). Efektifitas Akupresure dalam Menurunkan Skala Nyeri Pasien Hipertensi Diwilayah Kerja Puskesmas Perumnas. *Jurnal Keperawatan Raflesia*, 2(1), 21–30.
<https://doi.org/10.33088/jkr.v2i1.491>
- Kementerian Kesehatan RI. (2016). Infodatin Lanjut Usia (lansia). In Pusat Data dan Informasi Kementerian Kesehatan RI (p. 12).
- Kementerian Kesehatan RI. (2018). Pencegahan dan Pengendalian Hipertensi.
<https://p2ptm.kemkes.go.id/infographic/pencegahan-dan-pengendalian-hipertensi-mengurangi-risiko-hipertensi>
- Kementerian Kesehatan RI. (2019). Apa Saja Faktor Resiko Hipertensi.
<https://p2ptm.kemkes.go.id/infographic-p2ptm/hipertensi-penyakit-jantung-dan-pembuluh-darah/apa-saja-faktor-risiko-hipertensi>
- Khayra Al Amali, M., Imandiri, A., & Sukadirman. (2018). Journal of Vocational Health Studies Acupressure And Aromatic Ginger Herb for Migraine. *Journal of Vocational Health Studies*, 02, 80–85.
<https://doi.org/10.20473/jvhs>.
- Kurdi, F., Sunaryo, M. M. F., Romadhonia, F., Amini, D. A., & Ramadhan, K. (2022). Perilaku “CERDIK” Pada Lansia Dengan Hipertensi Selama Pandemi COVID-19. *Jurnal Kesehatan Komunitas Indonesia*, 2(1), 42–56.
<https://ebsina.or.id/journals/index.php/jkki>
- Kurniyawan, E. H. (2016). Narrative Review: Terapi Komplementer Alternatif Akupresur Dalam Menurunkan Tingkat Nyeri. *NurseLine Journal*, 1(2), 246–256.
- Majid, Y. A., & Rini, P. S. (2016). Terapi Akupresur Memberikan Rasa Tenang dan Nyaman serta Mampu

- Menurunkan Tekanan Darah Lansia. *Jurnal Aisyah: Jurnal Ilmu Kesehatan*, 1(1), 79–86. <https://doi.org/10.30604/jika.v1i1.11>
- Nompo, R. S. (2020). Pengaruh Aplikasi Akupuntur Pada Pasien Hipertensi di Puskesmas Sentani Kabupaten Jayapura. *Jurnal Keperawatan Muhammadiyah*, 5(2), 241–246. <https://doi.org/10.30651/jkm.v5i2.6608>
- Novitasari, D., & Wirakhmi, I. N. (2018). Penurunan Nyeri Kepala Pada Lansia Dengan Hipertensi Menggunakan Relaksasi Autogenik Di Kelurahan Mersi Purwokerto. *Media Ilmu Kesehatan*, 7(2), 104–113. <https://doi.org/10.30989/mik.v7i2.278>
- Nur Dina Kamelia, Anita Dwi Ariyani, & Rudiyanto, R. (2021). Terapi Akupresur pada Tekanan Darah Penderita Hipertensi: Studi Literatur. *Nursing Information Journal*, 1(1), 18–24. <https://doi.org/10.54832/nij.v1i1.162>
- PPNI. (2016). Standar Diagnosis Keperawatan Indonesia: Definisi dan Indikator Diagnostik (Edisi 1). DPP PPNI.
- Ratnasari, Y., Indaryani, Djusmalinar, & Kurniawan, Y. (2022). Asuhan keperawatan dengan pemberian terapi akupresur dalam mengurangi nyeri dan penurunan tekanan darah pasien hipertensi. *Ilmu Kesehatan Mandira Cendikia*, 1(2), 69–75. <http://journal-mandiracendikia.com/index.php/JI-K-MC/article/view/125>
- Rohmah, A. I. N., Purwaningsih, & Bariyah, K. (2017). Kualitas hidup lanjut usia. *Jurnal Keperawatan*, 3(2), 120–132.
- Roza, R., Mulyadi, B., Nurdin, Y., & Mahathir, M. (2019). Pengaruh Pemberian Akupresur oleh Anggota Keluarga terhadap Tingkat Nyeri Pasien Nyeri Kepala (Chephalgia) di Kota Padang Panjang. *Jurnal Ilmiah Universitas Batanghari Jambi*, 19(3), 714. <https://doi.org/10.33087/jiubj.v19i3.772>
- Wariin, S., & Pranata, A. E. (2018). Pengaruh Penekanan Titik Akupresur Taixi (Ki3), Sanyinjiao (Sp6) Terhadap Penurunan Tekanan Darah Pada Lansia Dengan Hipertensi Di Pstw Jember. *Jurnal*

Kesehatan Dr. Soebandi, 6(2), 1-8.

<https://journal.stikesdrsoebandi.ac.id>

WHO. (2023). Hypertension.

<https://www.who.int/news-room/fact-sheets/detail/hypertension>

Wirakhmi, I. N., Novitasari, D., Purnawan, I., & Kunci, K. (2018). Pengaruh Stimulasi Titik Akupresur Liv 3 (Taichong) Terhadap Nyeri Pada Pasien Hipertensi The Influence of Stimulation Point Acupressure Liv 3 (Taichong) on Pain in Hypertension Patients. *Stikespku.Ac.Id*, 16(1), 1-5. <http://ejournal.stikespku.ac.id/index.php/mpp/article/view/288>