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# ACUPRESSURE THERAPY TO DECREASE BLOOD PRESSURE FOR MRS. MT WITH CORONARY ARTERY DISEASE

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**ABSTRACT**

Background: The incidents Coronary Artery Disease (CAD) has increased significantly compared to other cardiovascular diseases. Symptoms of CAD cause chest pain, increased heart rate, and increased blood pressure. Pharmacological therapy is sometimes resistant which ultimately fails to decrease blood pressure, thus introducing various non-pharmacological therapies, one of which is acupressure. The purpose of this study was to provide nursing care to CAD patients by applying acupressure to decrease blood pressure. The research method used was a case study on Mrs. MT with a descriptive approach based on caring for CAD patients. The application for acupressure was given on August 1-5 2024. The results showed significant changes in systolic and diastolic values. Acupressure is provided at points PC6, LI4, and LR3 once a day on average decrease systolic values while stabilizing diastolic values. Conclusion: Acupressure therapy contributed to the reduction of blood pressure in a CAD patient followig post-Percutaneous Coronary Intervention (PCI), indicating its potential as an effective complementary intervention in nursing care for cardiovascular patients

**Keywords**

**Coronary Artery Disease, Acupressure, Blood Pressure**

## INTRODUCTION

Coronary Artery Disease (CAD) is one of the heart diseases that has shown a notable increase among young adults, this condition is characterized by blockage in the coronary vessels either due to cholesterol deposits or inflammation. Most CAD occur due to the rupture of atherosclerotic plaque to the formation of blood clots in the coronary vessels. An unhealthy lifestyle is still the most common cause of coronary heart disease (Ministry of Health of the Republic of Indonesia, 2022). In 2022, CAD recorded 315 million cases in worldwide. Central Europe, Eastern Europe, and Central Asia recorded the highest prevalence with 8019 per 100.000 individuals affected by CAD (Sark, Johnson, and Roth, 2024). According to the Behavioral Risk Factor Surveillance System (BRFSS) survey The

highest prevalence adjusted for age was in West Virginia (5.6%) and the lowest was in Colorado (2.4%). In the Multi-Ethnic Study of Atherosclerosis (MESA) of 3116 participants who did not have detectable coronary artery calcification at baseline followed for 10 years and found that 53% of individuals were identified with coronary artery calcification in the first year (American Heart Association, 2024).

The rise in coronary heart disease surpasses the average increase observed in other cardiovascular diseases, primarily due to lifestyle habits adopted at a young age such as smoking, obesity, and increased cholesterol. Moreover, this disease represents one of the largest contributions financially of health insurance that must be shouldered by the government (Ministry of Health, 2023).

Patients diagnosed with coronary artery disease often require in hospitalized to receive comprehensive medical care. Patients can experience various psychological symptoms of the disease such as anxiety and depression to changes in physiological indices such as increased heart rate, increased respiratory rate, increased blood pressure, and decreased oxygen saturation. CAD sufferers will experience activation of the adrenergic system which can affect hemodynamic values such as increased heart rate and cardiac output contributing to blood pressure (Richalet, Hermand, and Lhuissier, 2024).

Patients with high blood pressure experience resistance to pharmacological therapy even though they have taken several different types of drugs. This can occur due to the complexity of the causes of the disease (American Heart Association, 2024). In addition, the fact that pharmacological methods have unwanted side effects such as tachycardia, constipation, nausea, and vomiting has led to an increase in non-pharmacological methods to control symptoms of the disease such as hemodynamic instability (Düzel, Çam Yanik, Kanat, and Altun Uğraş, 2023).

Xu, Wu, Jiang, and Fan (2021) emphasized the urgency of basic human needs based on Maslow's theory in CAD patients, the strongest are physiological needs, safety, attribution, and love during treatment, while respect and realization are at the next level. Unstable hemodynamics will affect basic physiological needs which will systematically impact other basic needs. Restawan, Sjattar, and Irwan (2023) Acupressure as a complementary therapy was introduced as a simple therapy and carries minimal side effects, thereby enhancing patients quality of life.

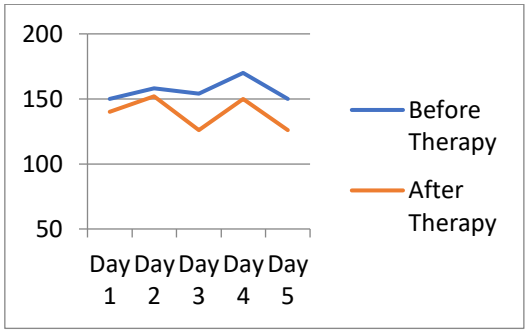
The aim of this study is to provide nursing care to Mrs. MT and to analyze the application of acupressure to blood pressure regulation.

## METHOD

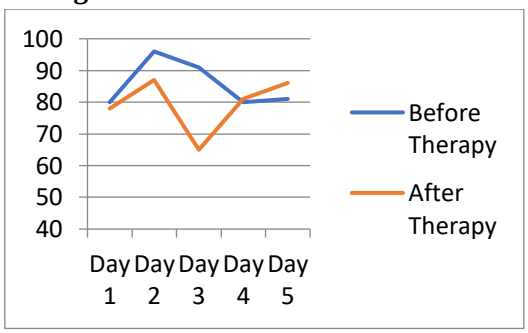
This study utilized a qualitative study design with a descriptive case study approach. The case study was conducted focusing on nursing care for Mrs. MT for 5 days and the implementation of acupressure to assess changes or targetting in Mrs. MT's blood pressure regulation. Acupressure was applied daily between 10:00 AM and 12:00 AM on 3 points: PC6, LI4, and LR3. The nursing care process covered stages from assessment through evaluation. The case study was carried out in the cardio-vascular and brain center (CVBC) treatment room, 3rd floor, Prof. Dr. dr. R. D. Kandou Manado General Hospital. The subject was a single female, Mrs. MT, a 70-year-old with a medical diagnosed CAD.

## RESULTS

**Picture 1. Systolic Blood Pressure Changes**




**Picture 2. Diastolic Blood Pressure Changes**




On the first day of treatment, a blood pressure decreased after acupressure to 140/78 mmHg. On the second day, there was a small decrease after acupressure with blood pressure of 152/87 mmHg. On the third day, there was a significant change to 126/65 mmHg. On the fourth day treatment, the patient's blood pressure dropped to 150/81 mmHg after acupressure. On the last day, the patient's blood pressure was in the normal range of 126/86 mmHg until the patient went home for further outpatient care.

## DISCUSSION

Mrs. MT underwent acupressure therapy during treatment and notable reduction in blood pressure. The patient was given acupressure once a day for approximately 15 minutes while monitoring vital signs. According to Huang et al (2021) Acupressure is a complementary therapy that works by stimulating sensory nerve cells in the acupoint area which are forwarded to the spinal cord and then to the midbrain and hypothalamic-pituitary complex, all of which are released in channeling endorphins producing a sense of comfort and peace. Acupressure also stimulates histamine which affects the dilation of blood vessels, all of the uses of acupressure can reduce blood pressure. The application of acupressure is given 5-6 hours after the administration of pharmacological antihypertensive therapy by captopril with a mechanism of action that inhibits the formation of angiotensin II so that there is no narrowing of the blood vessels with a peak phase 1 hour after consumption.

Consequently, the application of acupressure that has been carried out can support changes in blood pressure results after acupressure without pharmacological influence. This supports the statement of Marte, Sankar, and Partel (2024) that captopril with oral drug consumption has absorption with peak plasma concentrations reaching one hour after administration. The evaluation on the patient's last day showed changes in normal blood pressure after acupressure at three acupressure points temporarily with monitoring half an hour after acupressure.

Ister and Altinbas (2022) reported significant but short-lived improvements in systolic and diastolic pressure within an hour post-treatment, raises questions about the sustainability and clinical relevance of acupressure as a standalone therapy. Suryawan, Arneliwati, and Jumaini (2022) explained acupressure to hypertensive patients would affect blood pressure by reducing systolic and diastolic regulation. Acupressure points stimulates sensory nerve cells in the acupressure area which affects blood pressure. Bal and Gun (2024) the application of acupressure therapy in CAD patients following coronary angiography

also can effectively reduce anxiety, stabilize mean blood pressure, heart rate, and respiration.

Changes occur temporarily with a duration of less than one hour after acupressure is given. Acupressure therapy can be a complementary therapy with pharmacological administration. This statement is based on research by Düzel, Çam Yanik, Kanat, and Altun Uğraş (2023) that CAD patients undergoing angiography showed changes in pain scale, oxygen saturation, and vital signs after acupressure due to the emergence of feelings of relaxation and completion of procedures such as coronary angiography. However, over time the body will limit the neuroendocrine response which will affect hemodynamic parameters.

Nevertheless, other studies have also revealed that effects of accupressure therapy are likely to vary. This variability may results from differences in procedures, individuals, or other factors. The characteristics of patients would also influence the overall outcomes of accupressure treatment. It is also invites exploration into combining acupressure with other lifestyle or pharmacologic interventions to optimize patient outcomes (Ister, Akyüz, Yıldırım, & Çelik, 2023).

Acupressure therapy is similar to acupuncture therapy in its treatment concept, the meridians. Acupressure does not injure the body, and non-invasive actions. Massaging or pressing on meridian points, the acupuncture points, will facilitate the flow of Chi (Qi) energy to balance Yin and Yang energy in the body by stimulating the release of endorphins, which cause effects the relaxation, happiness and blood pressure dynamics (Restawan, Sjattar, and Irwan, 2023).

In essence, while this case study and supporting literature suggest promising adjunctive benefits of acupressure in blood pressure management for CAD patients, the current evidence base remains limited by small sample sizes, methodological heterogeneity, and short duration of effect. Future research should prioritize rigorous randomized controlled trials, mechanistic studies, and evaluations of long-term clinical outcomes to substantiate acupressure's role in integrative cardiovascular care.

## CONCLUSIONS

The demostrates of non-pharmaological acupressure therapy significantly reduces blood presure for Mrs. MT as a subject in this case study that providing valuable insights. The results that targeted acupresure stimulate to blood pressure regulation. While promising, these finding limited by the single-subject design, necessitating further research with larger, controlled samples and explore underlying mechanisms.

## REFERENCES

American Heart Association Council on Epidemiology and Prevention Statistics Committee and Stroke Statistics Subcommittee. (2024). Heart Disease and Stroke Statistics: A Report of US and Global Data From the American Heart Association. Circulation, 149(8), e347–e913.

Bal, S. K., & Gun, M. (2024). The effects of acupressure on pain, anxiety and vital signs in patients undergoing coronary angiography: a randomized and sham-controlled trial. Explore, 20(1), 101-109.

Huang, S., Li, L., Liu, J., Li, X., Shi, Q., Li, Y., ... & Sun, X. (2021). The Preventive Value of Acupoint Sensitization for Patients with Stable Angina Pectoris: A Randomized, Double-Blind, Positive-Controlled, Multicentre

Trial. Evidence-Based Complementary and Alternative Medicine, 2021(1), 7228033.

Ister, D., & Altinbas, Y. (2022). Effect of acupressure on the blood pressure, heart rate, and pain severity of patients who underwent coronary angiography: a randomized controlled trial. Altern Ther Health Med.

Ister, I., Akyüz, A., Yıldırım, E., & Çelik, H. (2023). The effect of acupressure on blood pressure and anxiety levels in patients after coronary angiography: A randomized controlled trial. *Journal of Cardiovascular Nursing*, 38(5), 549–553.

Kemenkes. (2022). Penyakit Jantung Penyebab Utama Kematian, Kemenkes Perkuat Layanan Primer. https://sehatnegeriku.kemkes.go.id/baca/rilis-media/20220929/0541166/penyakit-jantung-penyebab-utama-kematian-kemenkes-perkuat-layanan-primer/

Kemenkes. (2023). Penyakit Kardiovaskular sebabkan kematian terbanyak di RI. https://www.antaranews.com/berita/3742317/kemenkes-penyakit-kardiovaskular-sebabkan-kematian-terbanyak-di-ri

Nowrouzi-Sohrabi, P., Soroush, N., Tabrizi, R., Shabani-Borujeni, M., Rezaei, S., Jafari, F., Hosseini-Bensenjan, M., Stricker, B. H., van Hoek, M., & Ahmadizar, F. (2021). Effect of Liraglutide on Cardiometabolic Risk Profile in People with Coronary Artery Disease with or without Type 2 Diabetes: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. Frontiers in pharmacology, 12, 618208.

Marte, F., Sankar, P., dan Patel, P. (2024). Kaptopril. Di: StatPearls [Internet]. Pulau Harta Karun (FL): Penerbitan StatPearls; 2024 Januari-. Tersedia dari: https://www-ncbi-nlm-nih-

Meliyani dan Siregar. (2023). Atasi Kelelahan Kerja Perawat dengan Terapi Akupresur. Sukoharjo: Pradina Pustaka Grup

Restawan, I. G., Sjattar, E. L., & Irwan, A. M. (2023). Effectiveness of acupressure therapy in lowering blood pressure in patients with hypertension: A systematic review. Clinical Epidemiology and Global Health, 21, 101292.

Richalet, J. P., Hermand, E., & Lhuissier, F. J. (2024). Cardiovascular physiology and pathophysiology at high altitude. Nature reviews. Cardiology, 21(2), 75–88.

Shahjehan RD, Bhutta BS. Coronary Artery Disease. (2023). In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan.

Suryawan, P. A., Arneliwati, A., & Jumaini, J. (2022). Terapi Akupresur Terhadap Tekanan Darah pada Penderita Hipertensi: Literature Review. Jurnal Kesehatan Holistic, 6(2), 46-52.

Xu, J. X., Wu, L. X., Jiang, W., & Fan, G. H. (2021). Effect of nursing intervention based on Maslow's hierarchy of needs in patients with coronary heart disease interventional surgery. World journal of clinical cases, 9(33), 10189–10197. https://doi.org/10.12998/wjcc.v9.i33.10189