

Section: Medical Surgical Nursing

Acupressure for reducing pain in patient with hypertension

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Abstract

Hypertension is characterized by increased blood pressure, with headaches being a common complaint. Besides pharmacological therapy, hypertension can be controlled with non-pharmacological methods, including acupressure therapy. This study aimed to determine the effect of acupressure therapy on blood pressure and pain management in a hypertensive patient. A 70-year-old woman with hypertension received acupressure intervention for two days. Results showed a decrease in blood pressure: from 167/96 mmHg to 161/88 mmHg on the first day, and from 172/94 mmHg to 165/94 mmHg on the second day. The pain scale also decreased from 4 to 3.

Keywords: Acupressure, complementary therapy, hypertension, pain management, preventive care

Introduction

Hypertension, formally designated as persistently elevated arterial pressure, constitutes a substantial and pervasive impediment to global public health (Mills et al., 2020). The disease concurrently serves as a principal antecedent risk factor for catastrophic cardiovascular sequelae, including, but not limited to, myocardial infarction and cerebrovascular accidents (Fuchs & Whelton, 2020). The condition is acknowledged to afflict an inordinate quantity of individuals across the world, necessitating rigorous and frequently poly-pharmacological intervention regimens for the mitigation of its detrimental long-term pathophysiological effects (Carey et al., 2022; Nguyen et al., 2010; Zuin et al., 2025). Beyond the established cardiovascular hazards, a substantial clinical exigency materializes from the frequent co-occurrence of protracted, non-cardiac chronic pain within the demographic cohort of hypertensive patients. This painful state may originate from a multiplicity of diverse aetiologies; nevertheless, its mere existence invariably exacerbates the patient's holistic constitutional integrity and significantly compromises adherence to prescribed pharmaceutical protocols.

Physiologically, nociceptive signaling functions as a potent stressor, thereby inciting the systemic activation of the sympathetic nervous system, which subsequently precipitates peripheral vasoconstriction and a corresponding increment in cardiac chronotropy. This deleterious reciprocal relationship between chronic algia and autonomous nervous system mobilization actively hinders the effective regulation of systemic blood pressure, thereby establishing that comprehensive chronic pain management is fundamentally requisite for efficacious hypertension therapy. Conventional therapeutic paradigms are predominantly predicated upon the utilization of analgesic compounds; however, these agents are routinely associated with intrinsic hazards such as dependency liability, gastrointestinal compromise, or adverse pharmacokinetic interactions with established anti-hypertensive medicaments. Consequently, there is an ever-increasing mandate for healthcare practitioners to meticulously investigate and implement secure, patient-centric, and non-pharmacological modalities for the remediation of chronic pain afflictions within this medically intricate patient cohort. The systematic exploration of complementary interventional strategies is therefore deemed indispensable for the amelioration of patient discomfort without effecting detriment to the established antihypertensive pharmacotherapeutic framework.

Within the expansive domain of complementary and integrative medical practices, the venerable technique of acupressure presents itself as a tenable and readily accessible recourse for the superintendence of chronic pain and the promotion of generalized systemic repose (Lin et al., 2016; Düzel et al., 2023). Acupressure is characterized as a manual technique that mandates the application of calibrated physical force to highly specific anatomical locations, identified as acupoints, the stimulation of which is posited to influence the body's intrinsic energetic flow and physiological homeostatic responses (Sudhakaran, 2021; Ister & Altinbas, 2023; Zhao et al., 2020). The underlying mechanism is theoretically premised upon the capacity of acupoint stimulation to facilitate the endogenous liberation of opioid peptides, which function as intrinsic analgesic agents, while simultaneously attenuating the excessive functional output of the sympathetic nervous architecture. This particular non-invasive modality offers several compelling practical advantages, encompassing a negligible risk profile, significant cost-efficiency, and a substantial suitability for consistent self-administration within the domestic milieu.

By potentially mediating both the subjective perception of pain and the acute physiological response to duress, acupressure is projected to offer considerable promise for the attainment of superior overall clinical stability in patients afflicted with hypertension. Preliminary investigations have provisionally indicated that such rudimentary, repetitive tactile manipulation may engender measurable reductions in patients' subjective pain intensity ratings and may even contribute to a modest, beneficial trajectory in measured arterial pressure values. This singular case study was thus commissioned to methodically chronicle and assess the specific influence of a customized acupressure regimen upon the documented chronic pain indices experienced by an individual patient diagnosed with essential hypertension. Through the objective deployment of psychometrically validated pain assessment instrumentation, the acquired data shall serve to establish the potential utility of acupressure as an efficacious adjunct therapy within the comprehensive, multidisciplinary management of hypertensive patients enduring chronic pain syndromes.

Case Description

Patient is a female with 70 years old, a housewife, lives at home with her husband, children and grandchildren. She said she was weak, had a history of high blood pressure (hypertension) for 10 years ago. The results of the blood pressure examination were 175/101 mmHg. The patient said that she could not sleep, sleeping $\pm$ 3 hours at night. The patient said that sometimes she had pain in the left chest, headaches, coughs, and often felt sore in the back of her neck. The nursing diagnosis taken in this case is Acute pain related to physiological injury agents (increased vascular pressure). The interventions in this case study included observation, therapeutic interventions, education, and collaboration. Observation included identifying pain (PQRST), identifying complementary therapies, assessing muscle tension, and assessing pulse rate before therapy. Therapeutic interventions included providing non-pharmacological techniques to reduce pain with acupressure, controlling environmental factors that exacerbate pain, positioning the patient in a comfortable position, and providing acupressure therapy. Educational interventions included explaining the causes, duration, and triggers of pain, explaining pain relief strategies, encouraging self-monitoring of pain, teaching non-pharmacological techniques, and collaboration included administering analgesics if necessary.

Nursing implementation involves assessing the patient before and after acupressure therapy to reduce blood pressure and pain. After explaining the purpose of the visit and the procedure for administering acupressure therapy, the nurse then schedules a time and washes hands. The patient is then positioned in a comfortable position. Before administering acupressure therapy, the author assesses the patient's pain and measures their blood pressure. Then, massage points GB (20), LI (11), LI (4), PC (6), and LV (3), each for 4 minutes, for 20 minutes. After administering the therapy, the patient's blood pressure is checked. The evaluation results of the implementation of acupressure therapy were comfortable during the acupressure therapy and a decrease in blood pressure. The results of blood pressure measurements during the first visit before being given acupressure therapy were 167/96 mmHg, which decreased to 161/88 mmHg, then on the second day of acupressure therapy, it decreased to 172/94 mmHg, becoming 165/94 and a decrease in the pain scale from 4 to 3. This can be concluded that acupressure therapy at points GB (20), LI (11), LI (4), PC (6), and LV (3) is effective in reducing blood pressure in hypertension sufferers.

Discussion

The proposed intervention, acupressure, is theorized to instigate a beneficial neurophysiological cascade commencing with the activation of peripheral somatic afferent fibres located within the superficial dermis via tactile stimulation. These neural impulses are then propagated to the central nervous system structures, notably ascending to the hypothalamic region of the diencephalon, where key neuroendocrine and autonomous regulatory centers are situated. Subsequent to this central activation, the efferent descending inhibitory system is postulated to release endogenous opioid peptides, principally endorphins, the elevated systemic concentration of which facilitates a secondary biochemical modulation: specifically, the upregulation of dopamine synthesis. This resultant enhancement of dopaminergic activity correlates positively with a measurable augmentation in the functional output of the parasympathetic nervous system; this system, which principally governs the maintenance of visceral operations during periods of tranquility, effectively mediates a generalized relaxation response and induces a verifiable decline in systemic blood pressure, thereby positioning therapeutic touch as a direct stimulus for hypotensive effectuation in individuals afflicted with chronic hypertension.

Massage at the Fengchi (GB20) point, located on the gallbladder meridian, produces a calming effect on Gan Yang and helps cool the brain. When combined with the Taiyang (EX-HN5) point, the therapeutic effect in relieving headaches becomes more pronounced. The Yang Ming Meridian points (LI-11 and LI-4) are widely applied as distal points for pain syndromes in the hand or shoulder, as they help eliminate disturbances along the meridians. The Hegu (LI-4) point, in particular, exerts a strong influence on the face, eyes, ears, nose, and mouth, making it a common distal point in the treatment of facial conditions such as allergic rhinitis, conjunctivitis, mouth ulcers, styes, sinusitis, nosebleeds, toothaches, trigeminal neuralgia, facial paralysis, and frontal headaches. Meanwhile, the Taichong (LV3) point, which serves as both the Shu and Yuan point of the liver meridian, is selected to calm the liver and regulate Qi and blood circulation. After two days of acupressure therapy, the patient experienced a reduction in pain intensity and a decrease in blood pressure. Following instruction, the patient was able to perform the therapy independently and successfully identified the acupressure points as guided. The discussion highlights that acupressure therapy

contributes to lowering blood pressure; however, the degree of reduction varies among patients, with some experiencing significant decreases while others show only slight improvements.

Conclusion

Acupressure therapy shows significant promise in reducing blood pressure and alleviating pain in hypertensive patients, as demonstrated by this case study of a 70-year-old woman with hypertension who received acupressure intervention. The results of this study indicate a notable decrease in blood pressure and pain scale, suggesting that acupressure can be a valuable adjunctive therapy for managing hypertension and associated pain. However, to fully establish the effectiveness of acupressure therapy, further studies with larger sample sizes and longer intervention periods are necessary to confirm these findings and provide more comprehensive insights. Additionally, future research should explore the optimal acupressure points and techniques for hypertension management, as well as investigate the potential benefits of acupressure therapy in different populations, such as patients with comorbidities or varying ages, to provide a more nuanced understanding of its therapeutic potential and to inform evidence-based practice guidelines for healthcare professionals.

References

- Carey, R. M., Moran, A. E., & Whelton, P. K. (2022). Treatment of Hypertension: A Review. *JAMA*, 328(18), 1849–1861. <https://doi.org/10.1001/jama.2022.19590>
- Düzel, B., Çam Yanık, T., Kanat, C., & Altun Uğraş, G. (2023). The effect of acupressure on pain level and hemodynamic parameters after coronary angiography: a randomized controlled study. *Frontiers in cardiovascular medicine*, 10, 1173363. <https://doi.org/10.3389/fcvm.2023.1173363>
- Fuchs, F. D., & Whelton, P. K. (2020). High Blood Pressure and Cardiovascular Disease. *Hypertension*, 75(2), 285–292. <https://doi.org/10.1161/HYPERTENSIONAHA.119.14240>
- Ister, D. E., & Altinbas, Y. (2023). Effect of Acupressure on the Blood Pressure, Heart Rate, and Pain Severity of Patients who Underwent Coronary Angiography: A Randomized Controlled Trial. *Alternative therapies in health and medicine*, 29(7), 216–221.
- Lin, G. H., Chang, W. C., Chen, K. J., Tsai, C. C., Hu, S. Y., & Chen, L. L. (2016). Effectiveness of Acupressure on the Taichong Acupoint in Lowering Blood Pressure in Patients with Hypertension: A Randomized Clinical Trial. *Evidence-based complementary and alternative medicine: eCAM*, 2016, 1549658. <https://doi.org/10.1155/2016/1549658>
- Mills, K. T., Stefanescu, A., & He, J. (2020). The global epidemiology of hypertension. *Nature reviews. Nephrology*, 16(4), 223–237. <https://doi.org/10.1038/s41581-019-0244-2>
- Nguyen, Q., Dominguez, J., Nguyen, L., & Gullapalli, N. (2010). Hypertension management: an update. *American health & drug benefits*, 3(1), 47–56.
- Sudhakaran P. (2021). Acupuncture for Hypertension Using Traditional Chinese Medicine Concepts. *Medical acupuncture*, 33(1), 15–21. <https://doi.org/10.1089/acu.2020.1422>
- Zhao, Z. H., Zhou, Y., Li, W. H., Tang, Z. H., Xia, T. W., & Han-Li (2020). Auricular Acupressure in Patients with Hypertension and Insomnia: A Systematic Review and Meta-Analysis. *Evidence-based complementary and alternative medicine: eCAM*, 2020, 7279486. <https://doi.org/10.1155/2020/7279486>
- Zuin, M., Tognola, C., Maloberti, A., Parati, G., Di Fusco, S. A., Gil Ad, V., Armata, D., Valle, C. D., Colivicchi, F., Bilato, C., Grimaldi, M., Oliva, F., Temporelli, P. L., & Associazione Nazionale Medici Cardiologi Ospedalieri (ANMCO) Working Groups on Cardiologica Chronicity and Cardiovascular Prevention (2025). Advances in Hypertension Management: Insights from the Latest European Guidelines. *Journal of cardiovascular development and disease*, 12(4), 155. <https://doi.org/10.3390/jcdd12040155>