

Section: General Nursing

Acupressure for reducing mobility disorder in patient with ischaemic stroke

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Abstract

56% of people who experience a stroke will experience loss of motor and sensory function, resulting in hemiparesis, hemiplegia, and ataxia. Hemiparesis occurs in 38% of stroke survivors after 5 years, with increased motor function/muscle weakness experienced by 12% in the extremities if they do not receive proper treatment to prevent physical and mental disability. To overcome the impact of impaired physical mobility due to muscle weakness in non-haemorrhagic stroke patients, one non-pharmacological intervention is to apply acupressure techniques at points LR 3, ST 36, and BL 60. The results of providing acupressure intervention at these points show an increase in muscle strength and range of motion (ROM) in non-haemorrhagic stroke patients with impaired physical mobility. With implementing this intervention in Dahlia Room 1, Tidar Regional Hospital, Magelang City, it is hoped that nurses can increase their knowledge and insight in providing nursing care.

Keywords: Acupressure, complementary therapy, ischaemic stroke, mobility disorder, nursing care

Introduction

Ischemic stroke, also known as a non-haemorrhagic stroke, remains a leading cause of long-term adult disability worldwide (Majumder, 2024). It occurs when an obstruction, such as a thrombus or embolus, occludes a cerebral artery, leading to an immediate cessation of oxygenated blood flow to brain tissue (Salaudeen et al., 2024). This sudden neurological deficit often results in hemiparesis or hemiplegia—weakness or paralysis on one side of the body—affecting approximately 56% of stroke survivors. Without intensive and early rehabilitative intervention, these motor deficits can lead to permanent muscle atrophy, joint contractures, and a significant decline in the patient's quality of life (Herpich & Rincon, 2020). While the medical "golden period" focuses on thrombolytic reperfusion within the first few hours, the nursing "rehabilitative window" begins as soon as the patient is hemodynamically stable, aiming to restore neuroplasticity and motor function. To optimize recovery, contemporary nursing care is increasingly integrating evidence-based complementary therapies alongside standard pharmacological treatments (Mortada, 2024). A non-haemorrhagic Stroke (NHS) occurs when an obstruction in the blood vessels disrupts the cerebral blood supply, leading to a cessation of oxygenated blood flow to the brain tissues (Murphy & Werring, 2020). Clinical manifestations typically appear suddenly, characterized by hemiparesis (unilateral weakness), altered consciousness, dysarthria (slurred speech), visual disturbances, and impaired coordination or balance. Statistics indicate that stroke survivors experience significant deficits in motor and sensory functions, resulting in hemiplegia or ataxia (Alawieh et al., 2018). Without timely and effective intervention, these motor impairments can lead to permanent physical and mental disabilities.

Acupressure therapy is a non-invasive, low-cost intervention that involves applying manual pressure to specific meridian points to stimulate the body's self-healing mechanisms. In post-stroke rehabilitation, points such as LR 3 (Taichong), ST 36 (Zusanli), and BL 60 (Kunlun) are strategically selected for their proximity to major nerve pathways and their ability to enhance local blood circulation. Bio-chemically, this stimulation triggers the release of mediators like nitric oxide and bradykinin, which facilitate vasodilation and improve tissue perfusion in the affected extremities. By stimulating these points, nurses can actively promote the restoration of the "Qi" or bio-electrical flow, potentially accelerating the recovery of muscle strength and Range of Motion (ROM). The motivation for this case study arises from the clinical observation of Mrs. R at Tidar Regional Hospital, who presented with acute right-sided hemiparesis and a muscle strength grade of 1. Despite the proven benefits of complementary therapies, many clinical settings still rely solely on passive range-of-motion exercises, often due to a lack of specialized training among ward staff. This study aims to evaluate the effectiveness of a targeted 10-minute acupressure protocol in improving physical mobility. By documenting the transition of muscle strength and functional independence through a systematic nursing process, this paper seeks to provide a practical framework for integrating acupressure into standardized stroke recovery protocols, ultimately empowering both nurses and families in the rehabilitative journey. However, evidence

suggests that 30% to 40% of patients can achieve a complete recovery if treated within the critical six-hour "golden period" following the onset of symptoms. To mitigate long-term disability and enhance motor recovery, non-pharmacological interventions are increasingly utilized. Research demonstrated that acupressure significantly improves the Range of Motion (ROM) in both upper and lower extremities by the fourth day of intervention (Puspita & Kristiyawati, 2025). Based on the positive outcomes reported in multiple clinical journals, the author has selected a specialized acupressure protocol focusing on points LR 3 (Taichong), ST 36 (Zusanli), and BL 60 (Kunlun) for patients experiencing impaired physical mobility. Consequently, the primary research problem for this study is formulated as follows: "How is the acupressure technique at points LR 3, ST 36, and BL 60 effectively implemented to address impaired physical mobility in patients with ischaemic stroke?"

Case Description

The nursing assessment serves as the foundational stage of the nursing process, providing a systematic framework for data collection to identify a client's health status and formulate individual-based care. In this case, Mrs. R, a patient with a medical diagnosis of Non-Haemorrhagic Stroke (NHS), was admitted to Tidar Regional Hospital, Magelang, on March 2, 2025. Upon admission, the patient presented with severe headache, vomiting, and acute weakness in the right extremities. Although the patient's family reported no prior history of hypertension or diabetes mellitus, clinical assessment revealed a hypertensive crisis with a blood pressure of 225/126 mmHg, a pulse of 112 beats/minute, and a respiratory rate of 22 breaths/minute. Her initial neurological status was recorded as *compos mentis* with a GCS of 15 (E4 M6 V5). Diagnostic imaging via a CT scan on March 2 confirmed a lacunar infarction of the lateral periventricular dextra cornu anterior. The patient's current pharmacological regimen included intravenous Nicardipine (titration), Amlodipine (10 mg), Candesartan (16 mg), and Atorvastatin (20 mg). Physical assessment further revealed significant impairment; the patient required total assistance from nurses and family for all Activities of Daily Living (ADLs). Initial muscle strength and Range of Motion (ROM) in the right extremities were graded as 1 (trace contraction only), while the left extremities remained at 5 (normal strength).

Based on the clinical data analysed on March 3 and 4, 2025, the prioritized nursing diagnosis was Impaired Physical Mobility (D.0054) related to neuromuscular impairment. This was characterized by unilateral weakness, limited ROM, and a significant decrease in muscle strength in the right arm and leg. Following the Indonesian Nursing Intervention Standards (SIKI), the care plan focused on Mobilization Support. As a specialized non-pharmacological intervention, the author integrated acupressure therapy at three specific meridian points: LR 3 (Taichong), ST 36 (Zusanli), and BL 60 (Kunlun). These points were selected to stimulate neurological pathways and improve blood flow to the affected extremities. The intervention was implemented systematically over three days. On the first day (March 3), despite the application of acupressure, the muscle strength and ROM remained at grade 1, though the patient reported increased relaxation. With March 4, the patient reported a reduction in the "heaviness" of the affected limbs, although the objective strength value remained unchanged. On the final day of the intervention (March 5), significant clinical progress was observed. The patient gained the ability to move the right arm and leg upward against gravity, with both muscle strength and ROM values increasing from grade 1 to grade 2. This progress indicates that consistent acupressure therapy at the LR 3, ST 36, and BL 60 points effectively supports the recovery of motor function in post-stroke patients.

Discussion

Nursing care for Mrs. R, a patient diagnosed with a non-hemorrhagic stroke and resultant physical mobility impairment, focused on the systematic application of acupressure at points LR 3 (Taichong), ST 36 (Zusanli), and BL 60 (Kunlun). The author initiated the care process by conducting a comprehensive assessment using the 13 NANDA domains, the PQRST pain scale, and the Oxford scale for muscle strength. Baseline data collected on March 3, 2025, revealed significant functional deficits; subjectively, the patient reported that her right extremities felt heavy and difficult to move, while objective findings confirmed limited range of motion (ROM) and a profound decrease in muscle strength. These clinical manifestations align with the Indonesian Nursing Diagnosis Standards (SDKI, 2017) for Impaired Physical Mobility (D.0054) related to neuromuscular disorders, a diagnosis further validated by CT scan results showing a lacunar infarction in the lateral periventricular region. Following the Indonesian Nursing Intervention Standards (SIKI, 2018), the author implemented a 10-minute acupressure protocol as a complementary mobilization support. The physiological efficacy of this technique lies in its ability to stimulate nerve endings and blood vessels, triggering the release of biochemical mediators such as histamine, heparin, and bradykinin. These substances promote vasodilation and enhance tissue perfusion, while the release of nitric oxide and serotonin further modulates cardiovascular and neurological responses. By improving the flow of Qi and increasing vascular permeability, this intervention facilitates the restoration of motor function in the affected limbs. The evaluation showed progressive recovery: while the first two days were characterized by increased relaxation and a reduced sensation of heaviness, by the third day (March 5, 2025), the patient's muscle strength and ROM increased from Grade 1 to Grade 2, allowing her to perform upward movements and assist in side-to-side mobilization using bed restraints.

These findings are consistent with that consistent acupressure significantly improves extremity function in post-stroke patients (Liu et al., 2025; Yue et al., 2013). Despite the clear benefits and ease of application, observations

at Tidar Regional Hospital suggest that such complementary therapies are rarely integrated into standard care due to a lack of nursing knowledge regarding non-pharmacological interventions. This case study underscores the importance of the nurse's role in bridge-building between medical treatment and evidence-based complementary therapies. By incorporating acupressure into the daily care routine, nurses can provide more holistic and effective rehabilitation, ultimately improving the quality of life and functional independence of stroke survivors (van der Riet et al., 2012; Song et al., 2020; Sowmiya et al., 2025). In the context of this case study, the nurse functions as the primary clinical investigator and coordinator of care, bridging the gap between high-level medical diagnosis and hands-on rehabilitative intervention. The nurse's role begins with a sophisticated, evidence-based assessment using the 13 NANDA domains and the Oxford Scale to establish a baseline for the patient's neurological and musculoskeletal status. With identifying "impaired physical mobility" as the prioritized nursing diagnosis, the nurse moves beyond simply administering prescribed medications to implementing independent, non-pharmacological therapies—specifically acupressure at points LR 3, ST 36, and BL 60. In this capacity, the nurse acts as a therapist, applying precise physical pressure to stimulate biochemical pathways, such as the release of nitric oxide and bradykinin, which are essential for improving tissue perfusion and motor function in ischemic stroke survivors.

Furthermore, the nurse serves as a critical evaluator and educator within the interdisciplinary healthcare team (Hakami, 2024). Throughout the three-day intervention, the nurse meticulously documented the transition from a muscle strength of Grade 1 to Grade 2, providing objective proof of the treatment's efficacy. This role is vital because, as noted in the observation of the Mawar Ward at Tidar Regional Hospital, there is often a knowledge gap regarding complementary therapies among clinical staff. By successfully demonstrating that a 10-minute daily acupressure routine can decrease limb "heaviness" and facilitate upward movement, the nurse acts as a change agent. The nurse's final responsibility is to empower the family by teaching them these simple, low-cost techniques, ensuring that the patient's rehabilitation continues consistently even after they are transferred or discharged (Bhattad & Pacifico, 2022; Tanlaka et al., 2023).

Conclusion

Comprehensive nursing care spans from the moment of hospital admission through to post-discharge recovery. In this case study, the patient presented with a non-hemorrhagic stroke characterized by right-sided hemiparesis (extremity weakness). The nursing intervention focused on the application of non-pharmacological acupressure therapy at specific meridian points: LR 3 (Taichong), ST 36 (Zusanli), and BL 60 (Kunlun). Clinical evaluation following the intervention revealed a measurable increase in both the muscle strength scale and the patient's Range of Motion (ROM). These findings suggest that targeted pressure on these points can stimulate neurological pathways and enhance motor function in post-stroke rehabilitation. This research serves as a valuable resource for enhancing the clinical insights and technical skills of inpatient nurses. Given that the acupressure techniques at points LR 3, ST 36, and BL 60 are relatively simple to perform and require no specialized equipment, they are highly accessible for both healthcare providers and the patient's family members to implement as supportive care. Looking forward, it is recommended that future studies expand this scope beyond a single case. Implementing this protocol across a larger cohort of patients with similar stroke profiles would provide more robust data to validate the statistical effectiveness of these specific acupressure points in standardized stroke recovery protocols.

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