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Application of Range of Motion (ROM) to Overcome Physical Mobility Disorders in Non-Hemorrhagic Stroke Patients

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ABSTRACT

Background & Objective : Ischemic stroke, also known as non-hemorrhagic stroke, is a condition in which blockage of blood vessels leads to partial or complete interruption of blood flow to the brain. This scientific paper aims to analyze nursing care with the intervention of Range of Motion (ROM) exercises in patients with non-hemorrhagic stroke who experience impaired physical mobility. **Method :** This paper was developed using a case study method. The subject was one patient diagnosed with non-hemorrhagic stroke who had impaired physical mobility at RSD Gunung Jati Cirebon. Data were collected through anamnesis, physical assessment, direct observation, and documentation. The nursing care process was carried out for three days. **Result:** On admission, the patient complained of pain and difficulty moving the left extremities. The intervention provided was mobilization support through the implementation of Evidence-Based Nursing (EBN) Range of Motion (ROM) exercises. These exercises were implemented for three consecutive days, each session lasting 20 minutes and repeated for each subject. After three days of intervention, evaluation showed improvement in the patient's physical mobility status, increasing from a score of 3 to 4, indicating that ROM was effective for patients with impaired physical mobility. **Conclusion:** The application of ROM exercises proved effective in improving physical mobility in patients with non-hemorrhagic stroke. ROM can therefore be recommended as an intervention to support mobilization in stroke patients experiencing impaired mobility.

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Introduction

Non-hemorrhagic stroke, also known as ischemic stroke, is a pathological condition that occurs when blood flow to the brain is disrupted or stopped due to blockage or narrowing of blood vessels. The main causes can be blood clots or cholesterol plaques that block arteries in the brain. This type of stroke is the most common, accounting for approximately 87% of all stroke cases (Wahyudi, I. 2019).

According to data from the World Health Organization (WHO), approximately 15 million people worldwide suffer from stroke each year. Of this number, 5 million die and 5 million others suffer permanent disabilities (Jauch et al., 2024). According to data from the Ministry of Health (Kemenkes), the prevalence of stroke in Indonesia has significantly increased. The prevalence of stroke reached 10.9 per 1,000 people in 2018 (Kemenkes RI, 2018), compared to 7.0 per 1,000 people in 2013. The latest data from the 2023 Indonesian Health Survey (SKI) shows that Indonesia has a stroke prevalence of 8.3 per 1,000 people over the age of 15 (Kemenkes RI, 2023).

In the West Java province, the prevalence of stroke increased from 6.6% in 2013 to 11.4% in 2018. Stroke in West Java is estimated to have the highest number of stroke patients based on healthcare professional diagnoses, totaling 238,001 people (7.4%) and 533,895 people (16.6%) (Permatasari, 2020). According to the 2013 Riskesdas survey, the prevalence of stroke among those aged ≥ 15 years and based on diagnosis was 4.8% in Cirebon City and 3.9% in Cirebon Regency (Mahayani & Putra, 2019).

Stroke patients will experience mobility limitations, meaning they are unable to perform a full range of motion on their own. This limitation can be identified in clients whose one extremity has limited movement or is even completely immobilized. Range of motion exercises consist of two parts: active range of motion (the client can move all their joints through their full range of motion without assistance) and passive range of motion (the client cannot move all their joints independently, so the nurse assists with the movement) (Daulay, Hidayah, and Santoso 2021). The provision of integrated therapy as early as possible can prevent the loss of function due to immobilization and avoid disability, thereby reducing dependence on others (Maulina Putri Harahap 2019). One such rehabilitation method is range of motion (ROM) exercises.

Range of Motion (ROM) is an exercise performed to maintain or improve the ability to move joints normally and completely, thereby enhancing muscle strength and muscle tone. Several factors influence muscle strength improvement during ROM exercises, including age, gender, and frequency of attacks. ROM exercises are considered an effective form of rehabilitation to prevent disability in stroke patients. This exercise is also one of the fundamental nursing interventions that can be performed to determine the success of therapeutic regimens in preventing permanent disabilities in stroke patients after hospital care, thereby helping to reduce patients' dependence on their families and improving their self-esteem and coping mechanisms (Daulay, Hidayah, and Santoso 2021). Research shows that ROM exercises can improve joint flexibility and range of motion. ROM exercises can be performed for 1

week and 2 weeks, twice daily in the morning and evening for 10–15 minutes, thereby providing an opportunity for optimal recovery (Kusuma and Sara 2020).

Objective

Based on the above description, the researcher is interested in compiling a scientific report on "The Application of Range of Motion (ROM) to Overcome Physical Mobility Disorders in Non-Hemorrhagic Stroke (SNH) Patients."

Method

The research method used in this study is a qualitative method with a case study design. The population in this study consists of non-hemorrhagic stroke (NHS) patients in the Stroke Unit of RSD Gunung Jati Cirebon. The number of respondents is one non-hemorrhagic stroke patient experiencing physical mobility disorders. This study was conducted on February 19-21, 2025. Data collection was conducted using techniques such as anamnesis, physical assessment, direct observation, and documentation. Data analysis began at the start of the assessment and was documented daily to monitor the patient's progress. The findings were then compared with existing theories and presented in the discussion section.

Results

After conducting an assessment on February 19, 2025, the following data was obtained. The client, Mrs. M, is a 55-year-old woman with an elementary school education who works as a vegetable seller. She is being treated in the Stroke Unit. At the hospital, the client was accompanied by her husband, Mr. A, aged 64, who works as a farmer and only completed elementary school. The client and Mr. A have four children, one female and three males.

During the health history assessment, it was found that the client had no history of any illnesses, no allergies, and had never undergone any surgical procedures. The client was brought to the hospital due to vertigo, inability to walk because of pain in her left leg, and inability to move. The diagnosis was Non-Hemorrhagic Stroke (NHS), despite no family members having a history of the condition.

During the physical examination, the client was found to be weak, fully conscious (GCS 15), with vital signs as follows: BP: 117/69 mmHg, Pulse: 91 beats per minute, SpO2: 98%, Respiratory rate: 22 breaths per minute, Temperature: 36°C, and Weight: 70 kg. The respiratory system examination showed no issues, the cardiovascular system was normal, the nervous system (cranial nerves 1-12) was normal, muscle strength was rated as 3 for the left upper and lower extremities and 5 for the right upper and lower extremities, with weak muscle tone but no edema. The client's sleep and rest patterns changed while in the hospital, as they slept more due to lack of activity. The digestive system showed no issues in the abdomen, but the client's mouth had saliva residue, bad breath, and dry lips. The client's nutrition was

not impaired as they were not on an NGT. The urinary system had a catheter in place with urine output of 500-600 cc per 8-hour shift. In the musculoskeletal system, there are issues with the left upper and lower extremities being weak, and the client cannot perform activities as usual. In the integumentary system, there are no issues, and the client's hygiene appears clean and neat. In the sensory perception system, there are no issues.

Based on the data, the diagnosis for the patient is Physical Mobility Impairment related to Neuromuscular Impairment, with the following interventions:

No	Nursing Diagnosis	Outcome Criteria	Planning (Intervention)	Rationale
1	Impaired Physical Mobility	After 2x24 hours of nursing interventions, it is expected that physical mobility will improve with the following outcome criteria: 1. Extremity movement strengthens 2. Muscle strength increases to 5,5,5,5 3. Range of Motion (ROM) improves	**Mobilization Support (I.05173) Observation** 1. Identify any pain or other physical complaints **Therapeutic** 2. Involve the family to assist the patient in improving movement **Education** 3. Explain the objectives and procedures of mobilization 1. 4. Teach simple mobilization exercises that must be performed	1. To identify the source of pain 2. To help the patient perform mobilization 3. So that the patient and family understand the purpose of mobilization 4. To accelerate recovery

Discussion

Assessment is the initial stage of the nursing process, conducted systematically to collect data from various sources including the patient, family, ward nurses, patient's medical records, and direct observation of the patient. The author carried out an assessment of Mrs. M, a 55-year-old female patient with an elementary school education, who works as a vegetable seller. She was admitted to the Stroke Unit on February 19. At present, the patient was brought to the hospital due to vertigo, inability to walk because of pain in her left leg, and immobility. The results confirmed that she had suffered a Non-Hemorrhagic Stroke (NHS), although none of her family members had a history of such illness.

On physical examination, the patient was found to be weak, fully conscious (compos mentis), with a GCS of 15. Her vital signs were: BP 117/69 mmHg, HR 91 bpm, SpO_2 98%, RR 22 breaths/min, temperature 36°C, and body weight 70 kg. The respiratory system was normal, cranial nerves I–XII were intact, but muscle strength was recorded as 3 in the left upper and lower extremities and 5 in the right upper and lower extremities. Muscle tone was weak, with no edema observed. The patient's rest and sleep patterns changed while hospitalized, as she slept more often due to inactivity.

Based on the assessment data, the author established a priority nursing diagnosis for Mrs. M according to the Indonesian Nursing Diagnosis Standards (SDKI), namely:

Impaired Physical Mobility related to Neuromuscular Impairment. Physical mobility is the ability of a person to move freely, easily, and regularly to meet activity needs and maintain health (Hidayat & Uliyah, 2015). This diagnosis was determined based on SDKI data, with one related clinical condition being acute disease: stroke.

On February 19, 2025, the subjective data obtained were as follows: the patient reported being unable to carry out activities independently, unable to walk, and weakness in the left extremities. The objective data showed that activities of daily living (ADL) were fully assisted by the family; the left extremities were weak; muscle strength was 3 on the left and 5 on the right; intravenous fluids were administered through both hands; and a urinary catheter was in place.

According to PPNI (2018), after conducting the assessment and formulating the nursing diagnosis, the next step is to establish a care plan to address the identified problems. In the planning stage, the author developed nursing actions in accordance with the priority diagnosis of impaired physical mobility. Goals were formulated based on the Indonesian Nursing Outcome Standards (SLKI), interventions were selected based on the Indonesian Nursing Intervention Standards (SIKI), and rationales were supported by various literature sources. In addition to using SIKI (2018), the author also referred to a systematic review by Rima Fitriani (2022), which stated that the application of Range of Motion (ROM) exercises once daily in the morning for seven days, each session lasting approximately 20 minutes with four repetitions for each subject, was effective in improving muscle strength and patient mobility.

Nursing interventions for the diagnosis of impaired physical mobility included: identifying pain or other physical complaints (the patient reported pain and weakness in the left leg); involving the family in assisting the patient to improve movement (the family agreed to help the nurse in practicing ROM); explaining the procedures and goals of mobilization; and teaching simple ROM exercises so that the patient and family could practice independently. According to the study by Cindita Bella et al. (2021), the application of ROM exercises to address impaired physical mobility in non-hemorrhagic stroke patients in Metro City was found to be effective in preventing disability. ROM exercises are considered fundamental nursing interventions that contribute to the success of therapeutic regimens and help prevent permanent disability post-hospitalization, thereby reducing dependency on family, improving self-esteem, and enhancing coping mechanisms.

On the third day of evaluation, the patient reported reduced weakness and less frequent pain. Although ADLs were still assisted by the family, the patient was able to sit up in bed. Physical mobility was partially restored, and care was continued at home through ROM exercises taught by the nurse. With early and integrated therapy, immobilization-related functional loss can be prevented, and disability can be avoided, allowing patients to regain independence (Maulina Putri Harahap, 2019). One such rehabilitation method is ROM exercises.

Based on the results of ROM implementation for impaired physical mobility, the author concludes that the application of Range of Motion (ROM) in patients with non-hemorrhagic stroke (NHS) at RSD Gunung Jati Cirebon improved physical mobility, with muscle strength increasing from 3 to 4, indicating that ROM is effective for patients experiencing impaired mobility.

Conclusion

Based on the case study of applying Range of Motion (ROM) in a patient with Non-Hemorrhagic Stroke (NHS) at RSD Gunung Jati Cirebon, the assessment revealed subjective and objective findings of left-sided weakness, bed rest, and impaired physical mobility with full dependence on family and nurses. The intervention, conducted for three consecutive days, involved evidence-based nursing therapy using ROM exercises. The evaluation showed partial improvement in physical mobility at level 4, with increased muscle strength and range of motion.

References

Anastasia Suci, Isrofah, Ni Luh Putu,Suryati, Kadek Agus, dkk (2023). Buku Ajar Pemenuhan Kebutuhan Dasar Manusia

Cindita Bela (2021). Penerapan *Range Of Moution* (ROM) Pasif Untuk Mengatasi Masalah Keperawatan Hambatan Mobilitas Fisik Pada Pasien Stroke Non Hemoragik Dikota Metro. Jurnal Cendikia Muda. Vol 1 (2) 216-222

Issa Alfatikah (2023). Asuhan Keperawatan Pasien Stroke Non Hemoragik Dengan Penerapan Latihan Rom Aktif Cylindrical Grif Terhadap Kelemahan Otot Ekstremitas Atas Dengan Masalah Gangguan Imobilitas Fisik Di Ruang Lantai 6 Rumah Sakit Husada Utama Surabaya. Jurnal Informasi Ilmu Kesehatan. Vol 7 (2) 70-79

Rima Fitriani (2022). Penerapan Latihan *Range Of Moution* (ROM) Untuk Meningkatkan Kekuatan Otot Pada Pasien Dengan Gangguan Mobilitas Fisik Akibat Stroke. JONAH (Journal of Nursing ang Homecare) Vol 1 (2) 88-95

Vera Yuni (2024). Penerapan Range Of Moution Pada Pasien Stroke Non Hemoragik Dengan Gangguan Mobilitas Fisik. Jurnal Manajemen Asuhan Keperawatan. Vol 8 (1) 18-24