



Home-based Occupational Therapy to Improve Dressing Ability in Post Stroke Patient with Left Hemiparesis

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Abstract. Stroke is the leading cause for disability in Indonesia. Post stroke patients commonly experience significant impairment in their daily activities. This case study aims to describe the intervention to improve dressing ability in a post stroke patient. A home-based occupational therapy program was performed to a 75-year-old woman with severe dressing ability due to stroke 3 year ago. The program was part of a community-based occupational therapy program in Si-tusari village, West Java, Indonesia, during 5-18 May 2023. The patient experienced hemiparesis and spasticity on her left arm. She also could not stand or walk due to the pain in her hip and both knees. A rehabilitative frame of reference was used to improve her ability to dress. The program was started with passive stretching of the wrist and fingers, followed by dressing practice using pop light and rubber band. During each session, patient tried to feed a pop light or rubber band on her paralysed arm with the help of her normal hands, as to simulate the necessary movement for dressing. After 6 sessions of 45 minutes duration each, the patient started to show improvement in her endurance for dressing activity albeit she has not completed the task yet. She also showed progress in the passive range of movement (ROM) on her left arm. The intervention has shown its benefit for individual with impaired daily activities following stroke attack, particularly in elderly who frequently has ambulatory difficulties. It can help them to achieve independence in their daily living. Patient and her family should be encouraged to continue the home program in order to improve her dressing ability and her overall independence in the long term.

Keywords: Home-based occupational therapy, stroke, dressing

1 Introduction

Based on data from the Ministry of Health, as many as 2,120,362 people in Indonesia suffered from stroke [2]. Stroke is a sudden neurological impairment, likely due to a lack of blood flow or bleeding in the brain, lasting for at least 24 hours (Sacco et al., 2013). Based on the classification of causes, strokes are divided into three categories, ischemic, hemorrhagic, and transient ischaemic attack (TIA) [3]. Indonesia as a middle-income country is known to have a higher incidence of stroke, 70-87% experience death or permanent disability [2].

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D. V. Ferezagia et al. (eds.), *Proceedings of the International Conference on Vocational Education Applied Science and Technology (ICVEAST 2023)*, Advances in Social Science, Education and Humanities Research 783,

https://doi.org/10.2991/978-2-38476-132-6_3

In response to the cell damage, there is a self-healing mechanism called neuroplasticity [7]. Neuroplasticity is the mechanism by which the body's structures adapt and change their structural organization in response to intrinsic and extrinsic information [7]. This manipulation of information can directly affect changes in the structural organization of the nervous system. This allows a person with cerebrovascular disorders to relearn movements lost due to lesions [4]. Stroke can cause hemiparesis in the upper limbs in up to 85% of people, and few people (27%) can recover with agile movements within a year post-stroke [6]. The ability to perform daily activities independently depends heavily on the ability to operate the hand, which includes the ability to grasp and manipulate objects with coordinated and accurate finger movements. Although these skills are strongly related to each other, the ability to control the hand and fingers is often more affected and difficult to recover after having a stroke compared to the ability to control the upper part of the arm closer to the body [1]. This causes patients with stroke to experience interference in their daily activities, such as dressing. Rehabilitation, e.g. physiotherapy and occupational therapy, is required to increase the independence of post-stroke patients.

Occupational therapist is a client-centered health profession and aims to achieve health promotion and well-being through occupation. The main goal of an occupational therapist is to increase the likelihood of a person being able to participate in his daily activities [8]. In performing interventions, an occupational therapist should refer to evidence. One of the means of doing this is by using the existing terms of reference for occupational therapy for physical disabilities. One of them is the rehabilitative frame of reference, in this frame of reference there are environmental modification strategies and activity modifications with the application of energy conservation techniques and Joint Protection Technique (JPT) that are suitable to be applied to stroke conditions. The provision of education and the implementation of these strategies are expected to help post stroke patients to optimize their daily activities.

2 Case Study

2.1 Clinical Presentation

The patient was a local resident of Situsari village, a woman aged 75 years with a history of stroke attack affecting her left side three years ago. The patient did not receive any rehabilitation following the stroke, resulting in contractures in her left arm joint. During examination, the patient complained of spasm in her left shoulder, arm and hand. She also complained of pain when trying to move her left arm. Patient was fully aware (GCS score: 15), with blood pressure of 163/83 mmHg, and pulse of 93 beats/min. As for ambulation, the patient had to drag her body in sitting position.

Patient had difficulties in dressing due to spasticity in the left hand, limited muscle tone, range of motion (ROM), muscle strength, and endurance. She also had difficulties in using the toilet due to limitation in her upper limbs and lower limbs spasticity. Thus, she needed assistance for those activities. Furthermore, patient had difficulties in daily

mobility due to limitations in ROM and MMT.

2.2 Occupational Therapy Program

A long-term goal was set that patient would be able to wear her home dress independently after 12 meetings. In order to achieve it, the program was divided into several short-term goal. First, patient was expected to be able to insert her left hand into the shirt hole precisely with the help of her right hand independently in 3 meetings. The exercise was done using pop light and aimed to improve the patient's fine motor ability to perform precise activities and increase ROM on the wrist, particularly in performing wrist flexion as well as radial and ulnar deviation. Secondly, patient was expected to be able to insert her right hand into the hole precisely in 3 meetings. The exercise was conducted using shoulder-sized rubber band with the help of her right hand. This aimed to increase her kinesthetic ability to improve the way the right hand moves as an active aid for the left hand. Thirdly, patient was able to insert the head into the home dress hole precisely in 3 meetings. Exercise was done using a rubber band of 50 cm diameter into the patient's head. The goal was to increase her kinesthetic ability to improve the way the right hand moves as an active aid to the left-hand side. Lastly, patient was expected to be able to pull clothes down and tidy up clothes in 3 meetings. The exercise was also done using a rubber band. It aimed to increase her kinesthetic ability to improve the way the right hand moves as an active aid to the left-hand side as well as increasing the ROM.

As for the home program, patient was instructed to get used to combing hair independently, wipe the floor with repetition, dry herself in the morning to increase endurance, rest if she feel physical pain and stiffness, do light stretching with shoulder extension-flexion movements with both hands, practice and get used to using home dress independently.

2.3 Result

At the first intervention, the patient is instructed to wear the home dress independently according to his knowledge. The patient first inserted the right hand (healthy) into the shirt hole, then inserted the left hand (pain), followed by inserting the head into the dress hole. Then, the therapist improved and educated patients about the stages of dressing in individuals with stroke conditions. The therapist then simulated how to dress correctly, and instructed the patient to dress again according to the stage. When the patient repeated the steps, she still had difficulties in inserting the left hand (pain) and head into the dress hole.

During the second intervention, patient was able to insert the left hand into the shirt hole precisely with the help of the right hand with maximum direction and assistance and the therapist gave the procedure of dressing the left side first with the help of the right hand. During the stretching activity, patient experienced pain and asked for intervention to be dismissed. In the end, the patient was asked to stop every round. After

that, another intervention was carried out. The therapist gave time for the patient to adapt to the pain she experienced as a form of tolerance for the activities she did. Then, after the pain started to disappear, the therapist asked the patient to continue the pop-light activity then pulled it out. In the pop-light pulling movement, patients could do it, but still with a pain value of 7 so that each activity must wait for the pain scale to decrease.

During the 3rd intervention, patient experienced an increase in the scope of motion of the joints in the phalanges. In the midst of activities, she showed no willingness to exercise and wear her own clothes because her son had put them on. However, the therapist motivated her to return to be more independent. Then, for endurance patients were able to do two repetitions then rest and complete the activity with 5 repetitions.

In the following intervention during which the short term goal 1-4 intervention were carried out, the patient demonstrated improvement in enabling activities before carrying out the main activity (dressing). The patient was able to take a rubber band that is on the floor, inserted the hole on the side of the left hand (pain) pulling it up to the shoulder. Then, it was also done on the right side by placing a rubber band on the left side (pain) and the right hand leads to take and raised up to the shoulder. Then the exercise of inserting a rubber band on the side of the head was also carried out. During the intervention, the patient complained of fatigue several times, then was given rest before resuming his activities. The activity was carried out five times. However, the intervention was not continued until dressing the home dress because the patient was exhausted.

3 Discussion

A 75-year-old woman had a stroke for 3 years caused by hypertension. As a result of her chronic stroke, she experienced passive ROM limitation in her left arm caused by spasticity with MAS sinistra arm. In addition, she mobilized by sitting while dragging her body because she was unable to stand due to pain in the hip joints and right and left knees, the impression of VAS value was 8. Based on the self-reliance examination using the barthel index, it was found that Mrs. N was heavily dependent on caregivers. That way the program given to Mrs. N is to dress using a home dress as she always uses home dress at home. In this program using the Rehabilitative frame of reference, with activity modification strategies.

The results of interventions that have been carried out for 6 times using rehabilitative terms of reference, using activity modification strategies are considered effective in handling patients with stroke cases. For endurance the patient has been able to maintain to be able to repeat the activity of wearing a daster shirt with 5 repetitions, the patient's passive ROM increases on sinistra, and also the patient has been able to know the stages of dressing. Patients responded to excessive pain as a sign to rest in doing activities and maintain muscle strength and scope of motion of the joints on the side of the right hand that does not hurt to maximize the activity of wearing a home dress independently.

Advice for patients and families is expected to work together between therapists so that the therapy program can run well so as to optimize the acceleration of patient re-covery.

4 Conclusion

Home-based occupational therapy may provide benefits for post-stroke patient, particularly elder individuals who might have difficulties to visit the health providers. Support from the family is very important for the optimal result of this approach.

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