



Case Report: Changes in Cognitive Function in Post Ischemic Stroke Patient Who Received Occupational Therapy at the Neurology Clinic of Sultan Agung Islamic Hospital Semarang

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Abstract

There is blockage of blood vessels in ischemic stroke which causes a lack of blood supply and nutrients to the tissue, resulting in nerve cell death. In post-stroke patients, there is a decline in cognitive function. This report evaluates the improvement in cognitive function of post-ischemic stroke patients

following occupational therapy. A 70-year-old man presented with post-stroke communication difficulties. The patient has a history of hypertension and stroke. The patient underwent occupational therapy for 1 month and measured MMSE and MoCA-INA before and after the administration of occupational therapy. The results showed changes in MMSE and MoCA-INA pre and post-occupational therapy with the difference of each score being one. Changes in the results of the MMSE and MoCA-INA examinations showed a slight improvement in the pre and post-occupational therapy examinations. Rehabilitation efforts of ischemic stroke patients in cognitive improvement with occupational therapy can be considered to improve the quality of life of a patient with ischemic stroke.

Keywords: Cognitive function, stroke, occupational therapy

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Introduction

Stroke is included in neuroinflammatory diseases of the brain. In ischemic strokes, a decrease in the supply of oxygen and nutrients to the tissues can lead to the death of nerve cells. The death of nerve cells at specific neuroanatomical sites can lead to impaired cognitive function (Foreman and Classen, 2012). Cognitive function is the intellectual ability to obtain, process, and apply information related to academic values. Several neuropsychological assessments are validated to assess the cognitive domain, one of which is the Montreal Cognitive Assessment Indonesian Version (MoCA-INA) and the Mini-Mental State Examination (MMSE).

Neurobehaviour care is a service that has great opportunities. Patients have the right to service and maintenance as well as prevention against risk factors for the decline of cognitive function (Pendlebury et al., 2012). Occupational therapy is a directed medical application for a physical and mental patient by using activity as a therapeutic medium, to restore a person's function so that he can be as independent as possible. The challenge of establishing neurobehaviour services can provide benefits, especially for patients with neurological disorders (Prawiharjo et al., 2014). The incidence of post-stroke cognitive function decline in previous studies showed that there was a decrease from 11% to 31% 1 year after the onset of stroke (Al-Qazzaz et al., 2014). Research at Denpasar Bali Hospital showed that out of 26 patients, 21 patients (80.8%) experienced impaired cognitive function after stroke (Laksono et al., 2019). The importance of medical rehabilitation to maximize cognitive function in post-ischemic stroke patients to improve long-term quality of life.

Case Illustration

A 70-year-old man came to the neurology clinic of Sultan Agung Islamic Hospital with complaints of difficulty communicating. The patient had a history of strokes since 2017. History of hypertensive disease. Physical examination obtained body weight: 70 kg, height: 165 cm, BMI: 25.71 (impression: obesity). Patient status was composmentis, blood pressure obtained hypertension 150/90, pulse, respiratory rate, and temperature impressions within normal limits. Examination of neurological status obtained paresis of right facialis nerve central type, motor



impairment of right spastic hemiparesis. On the CT scan examination of the head, a result of infarct stroke was obtained on the left parietal lobe to the left semiovale centrum, both sides of the internal capsule, and the left thalamus. Occupational therapy was carried out in as many as 8 sessions of meetings at the medical rehabilitation clinic in 1 month. The results of the examination of the MMSE score pre-21 and post-occupational therapy 22. MoCA-INA examination pre 18 and post occupational therapy 19. Improvements were made in the MMSE and MoCA-INA score examinations in post-occupational therapy in a patient with ischemic stroke.

Discussion

The patient's main complaint was difficulty communicating. A person's communication ability is influenced by his cognitive function. Cognitive functions consist of attentional abilities, language, memory, and visuospatial and executive functions, which are complex processes. In a patient with an ischemic stroke, the presence of nerve cell damage to the brain at specific neuroanatomy sites can affect the patient's symptom output. In the results of the MMSE and MoCA-INA assessments in pre-occupational therapy, the effect of cognitive impairment was obtained. Domain disorders in patient's cognitive function from worst to best are visuospatial, executive, memory, language, and attention.

For patients aged 70 years, stroke symptoms increase with aging, at the age of over 55 years the incidence of stroke increases doubly every decade. Other risk factors in these patient are the male sex and the comorbid disease hypertension. Occupational therapy in post-stroke cognitive impairment is one of the efforts to improve the patient's quality of life by improving the patient's cognitive function. Previous research has shown that occupational performance may slightly improve cognitive performance in general after the intervention, possibly slightly improve sustained visual attention, and may slightly improve working memory and flexible thinking after the intervention (Hoffmann et al., 2010).



Conclusion

Occupational therapy is one of the methods in the rehabilitation of post-stroke patients to improve cognitive function. In a patient with an ischemic stroke, there is a decrease in cognitive function caused due to the death of nerve cells. In this patient, an infarct was obtained in the left parietal lobe to the left semiovale centrum, the internal capsule of both sides, and the left thalamus, where the location limited cognitive processes. In this study, occupational therapy was carried out 8 times in 1 month in a medical rehabilitation clinic, and the result was a slight improvement. It is hoped that occupational therapy in a post-stroke patient can maximize the patient's quality of life by maximizing the remaining cognitive functions.



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