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Research Article

Case Report: The Role of Rehabilitation Program for Patients with Right Hemiparesis and Aphasia

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Abstract.

The neurological condition aphasia is brought on by injury to the area of the brain involved in language. The primary indicators of this disease include trouble understanding speech, having trouble expressing oneself verbally, and having trouble reading and writing. By assisting the patient in making the most of their residual language skills, recovering as much language as possible, compensating for language deficits, and learning other forms of communication, aphasia therapy aims to enhance each patient's capacity for communication. We reported a 49-year-old male with main complaint of weakness on the right extremity and communication disorders, such as right hemiparesis, hypesthesia, and spasticity. There were perceptual and cognitive dysfunction with MMSE score = 6 accompanied by apraxia, no gross visual deficits, and no agnosia. Communication was not fluent, comprehension was good, and repetition was poor. Intensive language therapy should be initiated as soon as possible and adapted to the patient's individual needs, medically and neurologically stable even with a delay of up to 6 months post onset. Rehabilitative programs may involve speech therapy to relearn speech and swallowing, occupational therapy to regain arm and hand dexterity, and physical therapy to improve strength, endurance, and mobilization. Speech rehabilitation involves extensive practice reading, writing, following directions, and repeating what they hear. Computer-assisted therapy can complement standard language therapy. The goal of aphasia treatment is to enhance a person's capacity for communication by assisting them in making the most of their residual talents, regaining as much language as they can, compensating for language deficits, and learning other forms of expression.

Keywords: rehabilitation program, right hemiparesis, aphasia

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1. Introduction

After a stroke, communication disorders are not unusual. For most right-handed people, the likelihood of experiencing difficulties with language and/or speaking is rather high when a stroke occurs in the language zone of the left hemisphere. According Ali et al., one-third of stroke patients were diagnosed as having aphasia, and the incidence of post-stroke aphasia has ranged from 17% to 38% [1]. The greatest improvement was observed during the first 3 months after the stroke. The present patients with severe

aphasia had more severe impairment and handicap and were more dependent in ADL-functions than the patients without aphasia or with mild or moderate aphasia.

2. Case Report and Result

Mr.S,male,49 y.o ,right handed with chief complaint weakness on the right extremities and communication disorder. From anamnesis, the patient had weakness on his right extremities when he was a rest. He also had some difficulty in communication, he cannot even speak at all, but he still could understand what other people speak by signs, symbols, gestures and also commands. His lips were shifted to the right. No history of visual and distrubances. No history of difficulty in swallowing, or getting choked while eating. No history of urine and alvi incontinency. He had operated his heart valve disease twice. No history of hypertension, diabetic and lipid profil. He stayed conscious. His family took him to the Cipto Mangunkusumo Hospital. He was hospitalized for 3 weeks.

From examination on august 4^{th} 2023, blood pressure was 90/50 mmHg, vital signs within normal limits. Control of postural was poor involve neck control and trunk control. Sitting balance was still inadequate but for transfer he used wheel-chair. Chest expansion was poor with the right shoulder suffered subluxation which identacy $\pm$ 2 cm. The musculoskeletal examination findings show right hemiparesis, hypestesi, spasticity with the UMN signs are positive but clonus and primitive reflexes were negative. There were perceptual and cognitive dysfunction by MMSE score = 6 , with apraxia, no deficits gross visual skills and no agnosia. His communication suffered nonfluent, good comprehension, and poor repetition. Receptive problems showed no alexia and no asymbolia, and expressive problems involved anomia, agrammatica, agraphia and acalculia. There was parese N.VII and XII dextra central.

He had main problem such as Post CVD Stroke Ischemic with Right hemiparesis, parese N.VII, XII dextra sentral and Aphasia Broca's. Etiology of this problem was thrombosis occlusion in medical cerebral artery branch on the left cortex cerebral. Some rehabilitation program have done. Physical therapy for improving strength and range of motion upper and lower extremities dextra by passively extercise. Balance training and training for transfer of the body gradually. Giving patient deep breathing exercise with chest expansion exercise by doing the upper extermities range of motion exercise especially after doing the exercise. Speech therapy to relearn talking by other methods of communicating by symbols or signs. Visual stimulates by gesture and color. Auditory

stimulates by listening classical music. Extensive exercises in which patients read, write, follow directions, and repeat what they heard.

3. Discussion

Every two seconds, someone in the globe suffers a stroke, which affects around 17 million people annualiy [2]. One of the most frequent causes of impairment is a stroke [3]. Over the past 20 years, there has been a significant improvement in stroke care during the hyperacute and acute phases, but it is generally acknowledged that we now need to focus on therapies that actively encourage recovery [4]. After a stroke, the most effective treatments for fostering behavioral recovery in the motor, language, and cognitive domains are behavioral therapies themselves, which can be thought of as inputs (into the brain) and are broadly categorized under the headings of physiotherapy, occupational therapy, speech and language therapy, and neuropsychology. For instance, even in cases of chronic stroke, much greater dosages of high-quality upper-limb rehabilitation had substantial positive effects.

One definition of the early post-stroke phase is a time of spontaneous biological recovery [5]. A behavioral reaction to underlying biological changes that take place in the initial weeks and months following a stroke and are brought on by heightened post-stroke plasticity mechanisms is known as spontaneous biological recovery. Unlike the gains observed in the chronic phase of stroke, recovery is quick, happens at the level of injury, and is general beyond the tasks performed in post-stroke training [6]. A behavioral reaction to underlying biological changes that take place in the initial weeks and months following a stroke and are brought on by heightened post-stroke plasticity mechanisms is known as spontaneous biological recovery. Unlike the gains observed in the chronic phase of stroke, recovery is quick, happens at the level of injury, and is general beyond the tasks performed in post-stroke training.

A hemiparesis stroke occurs when there is an interruption in the blood flow to the brain, typically as a result of a blood clot or a blood vessel collapsing. This blockage prevents the brain from receiving oxygen and nutrients, which damages the brain's tissue. Hemorrhagic and non-hemorrhagic strokes are the two types of stroke, according to pathophysiology. Hemorrhagic strokes occur due to ruptured blood vessels, while ischemic or non-hemorrhagic strokes occur due to blood clots, narrowing of an artery or several arteries leading to the brain which are separated from the heart or arteries outside the skull which results in blockage in one or several arteries. is inside the

skull [7]. Both can cause hemiparesis. Hemiparesis is a condition when one side of the body experiences weakness so that movement is limited. Hemiparesis is contralateral, meaning the weakness occurs on the side of the body opposite to the side of the brain that is damaged [8].

The rehabilitation program is a form of integrated health service with a medical, psychosocial and vocational education approach which aims to achieve optimal functional abilities and prevent recurrent attacks [9]. According to WHO, rehabilitation is all actions aimed at reducing the impact of disability, to enable people with disabilities to integrate into society, namely medical rehabilitation, social rehabilitation and employment rehabilitation. Infrared therapy is given more to hemiparesis patients because this therapy can increase metabolic processes by increasing temperature. The metabolic process becomes better because vasodilation of blood vessels occurs, so that increases circulation. So, the delivery of nutrients and oxygen to the tissue will be increased, and antibodies in the tissue will increase [6].

In this way, tissue maintenance becomes better, and also affects muscle tissue because the increase in temperature, apart from helping to induce relaxation, will also increase the muscle's ability to contract [10]. This therapy can reduce pain, relax superficial muscle spasms, and increase blood flow in the area where the therapy is given [11]. Post-stroke medical rehabilitation is an integrated effort involving various medical disciplines and is a collection of programs that include training, use of modalities, equipment and also medicines [12].

The goal of treatment is to progress toward successful real-life communication, the aim turns to maximizing the patient's functional abilities. In order for family members to learn how to interact with their loved one most effectively, family involvement is frequently a critical part of aphasia treatment.

4. Conclusion

Rehabilitation for aphasia seeks to improve an individual's ability to communicated be helping the person to use their remaining abilities, restore as much language as possible, to compensate for language problems, and learn other methods of communication. Education about the underlying disease and the management must be given to prevent recurrent. Although patient is able doing activity daily livings independently, he won't achieve complete motor recovery.

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