PHYSIOTHERAPY MANAGEMENT OF *BELL'S PALSY SYNSISTRA* USING *ELECTRICAL STIMULATION MODALITY AND EXERCISE THERAPY* AT CAHYA KAWALUYAN HOSPITAL

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Abstract

Background: Bell's palsy is a disorder of the facial nerve that causes sudden weakness or paralysis of the muscles on one side of the face. In cases of Bell's palsy, physiotherapy plays a role in preventing further complications. Physiotherapy intervention technologies that can be used in Bell's palsy cases vary, some of which are electrical stimulation and exercise therapy.

Objective: To determine the benefits of providing electrical stimulation and exercise therapy in increasing facial muscle strength and improving the functional ability of facial muscles in Bell's palsy patients.

Results: Physiotherapy management of Sinistra Bell's Palsy using electrical stimulation modalities and exercise therapy has been carried out in accordance with the SOP and the results obtained. The forehead wrinkles start to appear, the eyes close tightly, the lips become more symmetrical when smiling, the strength of the facial muscles increases, the tenderness behind the ears decreases.

Conclusion: Providing *electrical stimulation and exercise therapy interventions* can increase facial muscle strength and the ability of functional activity of facial muscles in Bell's pasly patients

Kata kunci: *Bell's Pasly, Electrical Stimulation, Terapi Latihan.*

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Key words: *Bell's Pasly, Electrical Stimulation, Exercise Therapy.*

1. PENDAHULUAN

1.1 Latar Belakang

Bell's palsy is paralysis on one side of the face, which causes the inability to close the eyes or mouth on the paralyzed side. In other words, Bell's palsy is a disorder of the facial nerve that causes sudden weakness or paralysis of the muscles on one side of the face. The term Bell's palsy is usually used for peripheral type VII nerve paralysis that occurs acutely. Sir Charles Bell, a scientist from Scotland, first discovered this disease in the 19th century (Fanani, 2011).

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1.2 Problem Formulation

The problem formulation in writing this scientific paper is:

a. Can providing Infra Red (IR), Electrical Stimulation (ES), massage, and mirror exercise increase the strength of facial muscles in Bell's palsy?

b. Can the provision of Infra Red (IR), Electrical Stimulation (ES), massage, and mirror exercise improve the functional ability of facial muscles in Bell's palsy?

1.3 Objectives

The purpose of writing this Scientific Paper is:

a. To find out the benefits of Infra Red (IR), Electrical Stimulation (ES), massage, and mirror exercise in increasing the strength of facial muscles in Bell's palsy.

b. To determine the benefits of providing Infra Red (IR), Electrical Stimulation (ES), massage, and mirror exercise in improving the functional ability of facial muscles in Bell's palsy patients.

1.4 Benefits

1. For writers

a. To determine the benefits of providing Infra Red (IR), Electrical Stimulation (ES), massage, and mirror exercise in increasing facial muscle strength and functional ability of facial muscles in Bell's palsy patients.
b. To broaden your insight and explore the knowledge you have gained during lectures and as a means of increasing your experience of interacting directly with patients.

2. For physiotherapists and institutions

To provide information about the condition of Bell's palsy which often occurs in the community and as teaching material in selecting interventions to increase the strength of facial muscles and the functional ability of facial muscles in Bell's palsy patients.

3. For the community

Helping the public in providing correct information about problems arising from Bell's palsy and how to treat them.

2. LITERATURE REVIEW

2.1 Bell's Palsy

The term Bell 's palsy is usually used for peripheral facial nerve paralysis that occurs acutely, the cause of which is unknown, without any other neurological abnormalities. In most Bell's Palsy sufferers the paralysis will heal, but in some of them the paralysis heals leaving residual symptoms. The facial nerve or seventh nerve is a motor nerve that innervates the muscles of facial expression and carries parasympathetic fibers to the salivary and tear glands and to the mucous membranes of the oral and nasal cavities. This nerve also functions to transmit various types of sensation, including exteroceptive sensation from the eardrum, taste sensation in the front 2/3 of the tongue, and general visceral sensation from

the salivary glands, nasal mucosa and pharynx, and proprioceptive sensation from the muscles it supplies (Lumbantobing, 2012). The cell bodies of the sensory neurons of the facial nerve are in the geniculate ganglion and the motor nuclei are in the pons. The sensory and motor branches combine to form a large nerve that passes along the internal acoustic meatus of the temporal bone. Then it passes through the facial canal to the face through the stylomastoid foramen (Bahrudin, 2012).

The facial muscles of the upper face receive innervation from two sides, so there is a difference between the symptoms of central and peripheral types of facial nerve paralysis. In central disorders, around the eyes and forehead which receive innervation from two sides are not paralyzed, what is paralyzed is the lower part of the face on the nerve branch that regulates taste and saliva secretion which runs along with the facial nerve (Lumbantobing , 2012).

2.2 Etiology

There are five theories that might cause Bell's palsy, namely vascular ischemia, virus, bacteria, hereditary, and immunology (Lowis and Gaharu, 2012).

2.3 Pathophysiology and pathogenesis

Bell's paralysis is considered with multiple stress paralysis. Inflammation and edema of the nerve at the point of damage, or its nutrient vessels are blocked at the point causing ischemic necrosis in a very narrow canal. There are facial abnormalities in the form of facial muscle paralysis, increased lacrimation (tears), painful sensations in the face, behind the ear, and there is difficulty speaking on the affected side due to weakness of the facial muscles. For most clients, the first person to learn about facial paresis is their work

colleague or closest friend/family. After peripheral facial paralysis heals, there are often residual symptoms. In general, these symptoms are a faulty regeneration process, resulting in facial movements that are associated with muscle movements of other groups. (Muttaqin, 2008).

2.3 Clinical manifestations

Based on the location of the lesion, the clinical manifestations of Bell's palsy can differ. If the lesion is in the stylomastoid foramen, complete disorders can occur causing paralysis of all facial expression muscles. When closing the eyelids, both eyes rotate upwards (bell's phenomenon). In addition, the eyes can feel watery because the flow of tears to the lacrimal sac, assisted by the orbicularis oculi muscle, is disrupted. Other complete manifestations are indicated by food stored between the teeth and cheeks due to impaired facial movements and saliva coming out of the corners of the mouth. A lesion in the facial canal (above the junction with the chorda tympani but below the geniculate ganglion) will show all the symptoms of a lesion in the stylomastoid foramen plus loss of taste in the anterior 2/3 of the tongue on the same side. If the lesion is on the nerve that goes to the stapedius muscle, hyperacusis (pain sensitivity to loud sounds) can occur. In addition, lesions in the geniculate ganglion will cause lacrimation and reduced salivation and can involve the eighth nerve (Lowis and Gaharu, 2012).

2.4 Complications

a. Facial muscle contractures

b. Synkinetic (associated movement)

c. Spontaneous spasm

d. Crocodile tear phenomenon (Lowis and Gaharu, 2012).

2.5 Prognosis

Bell's palsy usually develops within a few hours or overnight. Anyone suffering should seek medical treatment without delay. Bell's palsy is temporary and has a good recovery rate. Approximately 70% of patients will recover within a few weeks or months after onset (Kiviluoma, 2013).

3. PHYSIOTHERAPY PROCESS

3.1 History

a . Patient identity

From the results of the anamnesis, the patient's identity was obtained by the name Mr. A, 58 years old , male, Muslim and a teacher. The patient lives in Padalarang.

b . Main complaint

The patient came to the hospital with complaints of his face drooping to the right, unable to close his left eye, unable to raise his left eyebrow , lips drooping to the right, when eating food gathered on the left side of his mouth and difficulty rinsing his mouth.

c . History of Current Illness

1 month ago, when he woke up, the patient suddenly realized that his face was drooping, accompanied by a thick feeling on the left side of his face and swelling behind his ear. Then the patient went to a neurologist and was given medical treatment and referred to the medical rehabilitation department for physiotherapy.

d . Past medical history

The patient had never had Bell's palsy before.

e . History of Concomitant Diseases

The patient has no history of comorbidities

f . Family History

No family members suffer from the same disease .

g . Personal History

Patients often travel without wearing face coverings and helmets, and patients often lie on mats on the floor of their house. Neither of the patient's families had ever suffered from the same disease as the patient.

3.2 Physical Examination

The physical examination includes vital sign examination, inspection (static and dynamic), and palpation.

3.3 Basic movement examination

In the patient Mr. A, the results of the active movement examination are that the patient has not been able to raise his left eyebrow , closed his left eye, has not been able to smile symmetrically, has not been able to whistle, and has not been able to expand his nostrils.

3.4 Special inspection

The special examination carried out is in the form of assessing the functional activity ability of facial muscles using the Ugo Fisch scale and assessing facial muscle strength using Manual Muscle Testing (MMT).

3.5 Physiotherapy Problems

Physiotherapy problems as follows:

(a) Impairment: a decrease in the strength of the facial muscles on the left side, the potential for muscle spasms on the healthy side of the face due to continuous contractions on the healthy side, and the potential for atrophy and contracture of the facial muscles on the lesioned/left side

(b) Functional limitation: unable to close the left eye tightly, unable to raise the

eyebrows on the left side of the face, lips drooping to the healthy side, 7 when eating food collects in the left side of the mouth and difficulty gargling,

(c) Disability: the patient can still socialize with the surrounding environment even though he lacks self-confidence due to cosmetic disorders.

3.6 Physiotherapy Management

The therapy was carried out 4 times on 28 May, 5, 15, 22 June 2024 using electrical stimulation and exercise therapy modalities.

4. RESULTS AND DISCUSSION

4.1 Results

1. Measurement of facial muscle strength using MMT

Table 4.1 Evaluation with MMT T1 – T4

Muscle name	Motion function	Mark
M. Frontalis	Frowning	1
M. Orbicularis occuli	Close eyes	3
M. Zygomaticum	Smile	1
M. Orbicularis oris	Whistling or whistling	
M. Nasalis	Inflate and deflate the nostrils	
M. Bucinator	Close your lips	
M. Corrugator supercilli	Move both eye eyebrows	
M. Depressor labii inferior	Pull your lips upwards	

2. Measurement of facial functional activity abilities using the Ugo Fisch Scale Graph

Table 4.2 Evaluation with the Ugo Fisch Scale T1 – T4

Facial movements	Mark	Percentage
Shut up	20	0%
Frowning	10	30%
Close eyes	30	30%
Smile	30	30%
Whistle	10	30%
Amount		

4.2 Discussion

1. Results of measuring facial muscle strength using MMT

According to Sighn (2012), the physiological effects of faradic currents on sensory and motor nerves are:

a. Faradic effects in stimulating sensory nerves

When faradic current is used for therapy, a mild prickling sensation will occur caused by stimulation of the sensory nerves. This stimulation is not really felt by us because the duration of the stimulation is quite short. When the sensory nerves are stimulated either with faradic/galvanic currents, it will cause a superficial vasodilation effect on the blood vessels so that a slight erythema appears in the superficial areas of the skin.

b. Faradic influence in stimulating motor nerves

Faradic currents stimulate motor nerves, and with sufficient intensity these currents can stimulate muscles innervated by the facial nerve. Faradic currents cause tetanic contractions due to repetition of stimuli 50 times per second.

Apart from that, other modalities that play a role are: According to the Committee of Physical Therapy Protocols (2007), patient re-education is the most important aspect of the treatment process using EMG biofeedback or certain mirrors (mirror 9 exercise). Exercise will provide sensory feedback to increase sensory reeducation.

2. Results of measuring facial functional activity abilities using the Ugo Fisch Scale.

The results achieved by administering electrical stimulation and exercise therapy to left bell's palsy show an increase in the ability for functional activities of the left

side of the face, because muscle strength (motor) as a human's physical capacity increases.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion

After receiving the application of several modalities 4 times, Electrical Stimulation (ES) therapy and exercise therapy and education can increase the strength of the facial muscles and the functional ability of the facial muscles in this left Bell's palsy condition.

5.2 Suggestions

1. Advice for physiotherapists

As a physiotherapist, before carrying out therapy on a patient, you should start with a thorough examination, note down the patient's problems, establish a correct diagnosis, choose the appropriate modality, evaluate and educate the patient so that you will get optimal results.

2. Advice for patients

Patients should have high motivation to regularly go to physiotherapy, do the exercises given by the therapist, travel with a full face helmet that fits the size, protect the face from exposure to cold such as not using a fan on one side of the face, using a scarf as a warmer and Apply a warm compress to the affected side of the face so that treatment can get optimal results.

3. Advice for the patient's family

The patient's family should motivate the patient to be diligent in therapy and carry out the education provided by the physiotherapist to support the healing process.

4. For the community

People should continue to pay attention to their health and immediately take preventive measures and immediately seek treatment if they experience Bell's palsy.

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