

Effect Of Tens In The Management Of Bell's Palsy- Case Study

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Abstract: Bell's palsy is regarded as temporary paresis of one side of the face and resulting in loss of facial function especially facial expressions. The aim of this case report is to share the evidence based plan of care of a Bell's palsy patient based on International Classification of Functioning, Disability and Health (ICF). A 35-year-old male diagnosed as unilateral Bell's palsy. Patient complained of deviation of face towards the left side, unable to drink water and chewing difficulties. In addition, patient also complained of pain in the mastoid region and neck stiffness. Patient received a six weeks of dose based physiotherapy service including proprioceptive exercise, trophic stimulator, transcutaneous electrical nerve stimulation, facial neuromuscular rehabilitation and home exercise programs. Physiotherapy was performed at PSMCC two sessions per week. Each session consists of 15 minutes. During discharge, patient showed improvement in pain reduction at numerical pain rating scale by 4 cm and improvement of facial expression by 55% in accordance to Synkinesis Assessment Questionnaire (SAQ). Conversely, patient also showed improvement in ADL's, recreational activities and social gatherings. The case report showed that evidence based plan of care incorporating ICF helps in rehabilitation with full of potentials for a patient with Bell's palsy.

Key Words: Facial palsy, TENS, Rehabilitation

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I. Introduction

Facial palsy occurs from nervous input interruption at any of the facial nerve segments¹. Bell's palsy is an acute facial paralysis of unknown etiology. Bell palsy most commonly occurs between the ages of 15 and 60 years, with 15- to 44-year-olds experiencing the highest incidence². Bell's palsy commonly affecting the motor neurones of facial muscles receiving their neurological innervations from the seventh cranial nerve (the facial nerve) (Van Swearingen and Brach, 1998). Most patients' symptoms spontaneously resolve; however some patients continue to suffer in the long-term. Indicators for poor prognosis include complete facial palsy, no recovery of symptoms by three weeks, age over 60 years, severe pain, herpes zoster virus, co-morbid status e.g. hypertension, diabetes, pregnancy and severe degeneration of the facial nerve shown by electrophysiological testing³.

Most patients' symptoms spontaneously resolve however some patients continue to suffer in the long-term. The second cause is trauma. Among others, high blood pressure, diabetes mellitus, viruses, pregnancy are deemed conditions. The degree of facial nerve recovery depends on patient's age, lesion type, nerve nurturing, neuromuscular involvement and therapy installed. Facial nerve injury recovery may take weeks or up to four years. Facial palsy requires medical, physiotherapeutic, speech and hearing therapeutic approaches⁴.

The prognosis depends to a great extent on the time at which recovery begins. Early recovery gives a good prognosis and late recovery a bad prognosis. Recovery is less likely to be satisfactory with complete rather than incomplete paralysis, with pain behind the ear and in older people⁵.

II. Case Description

The patient was a 35-year-old Man who was, diagnosed with Unilateral Bell palsy of the left facial nerve and complete left facial paralysis. The initial physiotherapy evaluation was conducted 6 weeks following the onset of symptoms of left facial paralysis. At the time of the initial physiotherapy evaluation, the patient did not report any other active medical problems. The patient reported that his facial paralysis came on suddenly and was accompanied by pain in his left ear. He was initially examined by physician who prescribed a course of anti-viral, oral steroids . Electrodiagnostic testing was not performed. He advised to continued to take oral steroid at the time of the initial physiotherapy evaluation but the anti-viral medication was discontinued due to lack of response in relation to his facial symptoms. There were no reports of an acute change for his left sided hearing loss accompanying his facial

Paralysis. The physiotherapy evaluation further consisted of a qualitative analysis of his resting facial posture and neurological examination of the head and face, which revealed hypo-esthetic response to pinwheel testing in the three terminal branches of the left trigeminal nerve ((V1) ophthalmic, (V2) maxillary and (V3) mandibular. patient resting facial posture revealed severe asymmetry with a left sided droop. Voluntary movement of the left sided facial musculature was barely visible whereas the uninvolved right-sided facial musculature was clearly intact. The physiotherapist also performed active and passive cervical movement's with no significant findings in relation to the patient's facial symptoms or aberrant movements. To assess self-reported disability at baseline and to monitor treatment progress, the patient completed the Facial Disability Index (FDI)⁶. The FDI is designed to provide the clinician with information regarding the disability as well as related social and emotional well-being of the patient. The FDI consists of two subscales; Physical function (items 1-5) and social well-being (items 6-10). The scores range from 0 (complete paralysis) to 100 (normal facial function). The FDI has shown to be reliable and valid as a clinical instrument and has been shown to accurately demonstrate the relationship between impairments, disability, and psychosocial status⁶. Patient initial FDI score on initial evaluation was; Physical function subscale = 40/100; Social/Well-being subscale = 65/100. Patient was a Military Man. He lived along with his family reported significant difficulty with drinking, eating, speaking and closing his left eye. These functional impairments were consistent with examination findings of synkinesis (abnormal movement of the face during a desired motion) for his left and right-sided muscles of facial expression e.g. smiling, 'puckering' and frowning. He also remarked on the need to continually use eye drops as well as performing manual closure of his left eyelid in order to relieve the symptoms of a dry, irritated left eye. These symptoms were consistent with the clinical presence of a positive Bell reflex on the left side (eye rolling backward during active eye closure) which prevented complete eye closure⁷. He appeared motivated to improve his facial function with physiotherapy intervention.

It was initially decided that the patient would be seen two times per week for up to 6 weeks, with each session scheduled for one hour. Each session began with a brief re-evaluation of facial motor functioning e.g. active smiling, frowning, puckering' and eye closure.

III. Treatment

TENS, massage and exercises are used. Massage, which has frequently been prescribed for facial palsy⁸, improves circulation and may prevent contracture. Active exercises (in front of a mirror) prevent muscle atrophy and improve muscle function. However, active facial muscle exercises cannot be performed in complete palsy.

Lowest current intensity could be used. TENS aims at preserving muscle bulk especially in complete paralysis⁹; and it has also a psychological benefit as the patient observes muscle contraction in his face that gives him hope for recovery from facial paralysis^{9,10}.

From the physical medicine point of view, the type of ES should depend on the pathology of the facial nerve. Transcutaneous electric nerve stimulation, (TENS) may be given for 50-200 contractions/session, 2 sessions/week for 6 week.

IV. Discussion

Features of successful outcomes for patients suffering from Bell's palsy are likely to be reliant on accurate diagnoses and appropriate followup with a team-oriented approach. Delivery of conservative, categorical physiotherapy care has provided evidence for successful outcome in some cases of patients with Bell Palsy (Brach and VanSwearingen, 1999¹¹; Beurskens and Heyman, 2003)¹². In some cases, additional pre-testing may be of value in determining the aetiological features leading to the accurate diagnosis. For example electrophysiological nerve conduction study of the blink reflex in patients with Bell's palsy usually demonstrates prolonged latencies and/or absent early and late responses to stimulation (Kimura et al., 1976¹³; Leon-Sarmiento, 2002)¹⁴. Physical therapy for patients with facial paralysis traditionally has consisted of generic facial exercises or electrical stimulation¹⁵. Facial neuromuscular re-education techniques (ie, the use of facial exercises to address a patient's impairments and functional limitations) are different from the traditional intervention for facial paralysis. In our approach, the exercise program changes over time as the patient's impairments change with recovery. The facial neuromuscular re-education exercise program emphasizes accuracy of facial movement patterns and isolated muscle control, and it excludes exercises that promote mass contraction of muscles related to more than one facial expression.

V. Conclusion

Disorders of the facial nerve, including paralysis, are not rare and have a variety of potential causes. The appropriate diagnosis and treatment are very important to achieving the best possible recovery of facial nerve function. Patients suffering from Bell's palsy may benefit from specific categorical physiotherapy treatments designed to improve physical functioning as well as social well-being. The use of the FDI should be

advocated in determining the efficacy and progression of physiotherapy treatment of patients with Bell's palsy. It also provides objective evidence of

functional improvement; evidence that is often required by third party payers.

Many clinical presentations have different etiologies despite symptom similarities, and caution should be exercised regarding patients having similar clinical presentations. Further clinical investigation and research with a larger population of patients is necessary before a more specific diagnostic/treatment regimen of this type can be recommended. In this regard, however, because of the paucity of available similar documentation in the professional literature, any comments and experiences that other clinical providers have experienced with this type of patient would be welcomed.

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