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Case Report

A Case Study on the Effectiveness of Kabat Rehabilitation in a Patient with Bell's Palsy

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Abstract

One of the most prevalent neurological illnesses affecting the VII cranial nerve is paralysis of facial nerve. The loss of sophisticated and multidimensional capabilities such as expression of emotions via facial mimicry, face identification, and communication is caused by nerve paralysis. Through stimulation of the proprioceptors, the Kabat rehabilitation therapy for facial paralysis can trigger or restore the neuromuscular circuit, restoring the normal functionality of nerve terminals in the muscles. This study aims to show how a patient can gain functional & aesthetic benefits through detailed clinical evaluation followed by kabat rehabilitation. Functionality evaluation of the facial nerve was based on the SFGS, FDI and H-B scales. Patients who were treated with kabat rehabilitation method restored motor capacities of the paralysed hemifacia.

Keywords: Kabat rehabilitation, facial nerve, facial palsy, proprioceptive facilitation, rehabilitation.

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Abbreviations: PNF= Proprioceptive Neuromuscular Facilitation; CN = cranial nerve; H-B = House Brackmann; SFGS = Sunnybrook Facial Grading System; FDI=facial disability index

INTRODUCTION

Bell's palsy is the most common form of peripheral palsy which affects the VII cranial nerve and affects only one side of the face. BP is characterized by symptoms that include facial dysesthesia, epiphora, pain hyperacusis, dysgeusia, numbness and decreased function of the lacrimal gland.¹

Facial paralysis results in cosmetic disruption with impaired speech, facial symmetry difficulty in eating closing eyes, and drooling.²

Kabat rehabilitation is a Practical method to enable physicians to analyze the motor activities of a patient and simultaneously identify the most effective strategies for functional movements.³

PNF is a therapeutic exercise technique that combines functionally based diagonal pattern of movement with neuromuscular facilitation techniques to elicit motor responses and improve neuromuscular control and performance.⁴

Bell's palsy has a 15-30 per 100,000 population annual incidence. The subject is guided into the movement and scheme by rhythmic stabilization. The agonist's reversal entails consecutive concentric and eccentric muscle contractions. Through the induction phenomenon, the antagonist- reinforce response is reversed. Repeated

contractions necessitate a response of repetitive stretching that allows movement for a brief period of time. Isometric contractions are used to stabilize and strengthen the body.⁵

Figure 1 Evaluation scales

The House Brackmann scale is one among the most widely used tools for assessing facial nerve function clinically. The scale is based upon functional impairments ranging between I movements and VI no movements.

CASE REPORT

A 15-year-old female with an acute onset of Bell's palsy diagnosed by clinical and neurological assessment. The treatment intervention was given for 5 days per week for a total of 2 weeks of treatment duration, each session of 30 minutes duration. During a Kabat rehabilitation maneuver, particular spiral and diagonal motion were performed with specific patterns. The spiral and diagonal motions engage muscles to train them in global patterns during facial nerve rehabilitation. There are three fulcrums that can be triggered in case of bell's palsy. The frontalis corrugators and orbicularis muscles of the eye make up the upper fulcrum. The common elevator muscle of the top lip and the dilator naris (nose wing) form the intermediate fulcrum. The orbicularis or Lip buccinators chin muscles which are triangular in shape, zygomaticus major, zygomaticus minor, and risorius are the lower fulcrum.⁵

The regional fulcrum took into consideration the upper, intermediate and lower fulcrum. the fulcrum of forehead and eyes are connected via a vertical axis to the intermediate one of nose while the lower mimic chewing articulatory fulcrum lies along a horizontal axis hence action on the upper fulcrum also involves the other two fulcrum. The manipulation of these three fulcrum is carried out by utilizing both contraction and the basis of proprioceptive stimulation includes stretching up to maximal resistance of closure improvement using manual contact and verbal input. In the upper fulcrum, the activation of the frontal corrugators and orbicularis muscles is carried out by means of the upward and downwards traction which is always in a vertical plane depending on the specific function that needs to activate the intermediate fulcrum. The activation of the common elevator muscles of the Anansi and the upper lip was also carried out using traction movements in this case which is contrary to the normal direction following a vertical line for the lower fulcrum. The maneuvers were carried out on the risorium and orbicularis orris muscle in a horizontal plane and on the mentalis muscle in a vertical plane.⁶

The ten sessions of kabat rehabilitation resulted in faster and better recovery. The patient had a good outcome of their treatment suggested by qualitative score from grade VII to grade III and the quantitative score from 1/8 -2/8 to 5/8-6/8. On first day of session, the patient physical and social function on FDI score was 49,5/53. Then the patient was treated with Kabat rehabilitation and her physical and social function score on FDI was improved to 77/48.

DISCUSSION

The patient who was treated with Kabat rehabilitation therapy method recovered with functional motor loss. She had improvement in eyelids closure after the fourth session and there was a general uptick in performance of the buccinators and orbicularis muscles demonstrated by closure of lips. The patient progressively recovered from most of the functioning of entire facial muscles, the corrugators muscles, with the reappearance of forehead wrinkles, and the orbicularis muscles, with the reappearance of eye blinking. Treatment for facial nerve paralysis is challenging and time-consuming process. Kabat rehabilitation is effective in treating bell's palsy, SFGS and FDI scale showed higher improvement in patients treated with Kabat rehabilitation. The result of this study demonstrates beneficial effects of Kabat rehabilitation. Kabat rehabilitation exercise programs emphasized the accuracy of facial movement patterns and isolate muscle

control and it excludes exercises that promote mass contraction of the muscle-related to more than one facial expression. A score of HB showed significant improvement with Kabat rehabilitation. The FDI is a self-reporting instrument for the assessment of the disability of patient with facial nerve disorder. The scales take into account of patient's physical and social functional disability. The FDI physical ability functioning scale evaluates how bell's palsy physical limits activities of day to day living. For example eating, drinking, speaking, brushing teeth. The social functioning and wellbeing scale of the FDI assesses how the patient feels about this physical disability deformity. The social functioning and wellbeing scale analyses the patient mood how the individual respond to other people, how well they sleep during night and do they abstain from social activities as a result of bell's palsy.¹

In the facial disability index, two factors ie, physical and social function were analyzed and the result showed significant improvement in the physical component of FDI as well as in the social component of FDI.

CONCLUSIONS

Recuperation from facial paralysis is a challenging and long-lasting process and utilizing a grading system helps the physical therapist in planning the treatment. The effects of this type of therapy benefit the patient if the therapist is well trained and knows the neurological background. Facial paralysis is one of the dysfunctions that actively affect the desire of the patient to communicate in a social environment and from this idea it is of most importance for them to be treated for their functional disabilities for one part of the body that gives them the identity and their personality.

Conflict of interest: The authors have no competing interests to declare.

Ethical Consideration: Ethical approval was not required at the institution to publish an anonymous case report.

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REFERENCES

1. Patil GR, Kanase SB. Effect of Electrical Stimulation and Active Muscle Contractions in Bell's Palsy. Age.; 41(21.458):40-17..
2. Ghous M, Yaqoob I, Kanwal M, Malik AN. Effects of Kabat rehabilitation verses taping to reduce facial disability and synkinesis in Bell's palsy. Rawal Medical Journal. 2018 Jul 1; 43(3):543-6.
3. Monari G, Sinibaldi E, De Petris V, et al. Developing the Kabat concept: Progressive Modular Rebalancing System (RMP) with Neurokinetic Facilitations. 2016; 6(5):1000312. <https://doi.org/10.4172/2165-7025.1000312>
4. Kisner C, Colby LA, Borstad J. Therapeutic exercise: foundations and techniques. Fa Davis; 2017 Oct 18.
5. Giacalone A, Sciarillo T, Rocco G, et al. Kabat rehabilitation for facial nerve paralysis: Perspective on neurokinetic recovery and review of clinical evaluation tools. 2018; 6(1):38-46.
6. Barbara M, Antonini G, Vestri A, Volpini L, Monini S. Role of Kabat physical rehabilitation in Bell's palsy: a randomized trial. Acta oto-laryngologica. 2010 Jan 1; 130(1):167-72. <https://doi.org/10.3109/00016480902882469>