International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2022): 7.942

Comparison of Efficacy of Kabat Rehabilitation and Facial Exercise in Patients with Bell's Palsy in Loni (Pravara Rural Hospital)

Asmita Kale[1], Dr. Tejas Suryvanshi[2]

[1]Email id: asmitakale1010[at]gmail.com

[2]Professor, Dr APJ Abdul Kalam College of Physiotherapy

Abstract: ***Objectives: The aim of this study is to compare the role of Kabat Rehabilitation and Facial Exercises along with Laser in patients with Bell's palsy and its effectiveness in improving physical and social function. Materials and Methods: The comparative intervention study conducted at DR. APJ Abdul Kalam College of Physiotherapy, Loni (PRH). Two equal groups (A and B) consist of 18 patients each. Patients were given Kabat rehabilitation technique in group A and facial exercises in group B. Patients in both treatment groups were followed until 3 weeks and improvement in House Brackmann Grading scale (HBS) and Facial disability index (FDI) scale were recorded at the end of treatment. Results: In this study, 36 patients were participated. At the end of 3 weeks, HBS and FDI shows highly statistical difference in experimental group than control group. Conclusion: Laser along with Kabat technique is more effective as compared to laser with facial exercise technique in improving physical and social function.***

Keywords: Bells palsy, Laser, Facial exercise, Kabat rehabilitation

1. Introduction

Bell's palsy is a sudden idiopathic peripheral palsy of the facial nerve. This condition is caused by some kind of damage to the VII cranial nerve that causes either complete or partial of the facial mimics. It may be associated or not to gustative disturbance, hypersalivation and of eye and ear disturbances.[2] The ultimate occurrence of the disease was between age 25-50 years. A study showed that above of age of 60 years occurrence of Bell's palsy was high in people having a history of diabetes and hypertension. The patient with complete paralysis had poorer recovery and only few of them regained normal mimic function. Facial muscle paralysis results in bell's palsy on affected side of face. The symptoms differ in every individual range from mild to severe. Symptoms include voluntary loss of facial movements unilaterally and bilaterally in rare cases, resting asymmetry due to muscle weakness, eyelid drooping, painful auricle area, hyperacusis and taste changes.[1] The longlasting bell's palsy has a damaging effect on individual physical and social lifestyle. Functionally, the ability of drinking eating, expressing oneself (verbally / nonverbally) gets highly disturbed. Usually, the symptoms resolve completely; however, some patients continue to suffer for a longer period. Poor prognosis was seen in case of complete facial palsy, in case of symptoms not recovered by 3 weeks, people with >60 years of age, worst pain. LASER (Light Amplification by Stimulated Emission of Radiation) laser light is monochromatic, bright, unidirectional and coherent. For bell's palsy treatment the LASER modality is used. It is considered a non-invasive and painless therapeutic modality that can be used for any type of patient including those who cannot use corticosteroids such as diabetic and hypertensive patients [3] Application of laser produces both local and systemic effects that can enhance the nerve regeneration process [3] For the treatment of bell's palsy Electrotherapy, Massage, Facial exercises, Kabat Rehabilitation and Biofeedback are different physical therapy modalities used. LASER therapy has a favourable prognosis in the regeneration of peripheral nerves. To utilize the basic procedures for facilitation and techniques of Proprioceptive Neuromuscular Facilitation (PNF) whenever and wherever possible while exercising the facial muscles. Utilization of stretch and resistance to promote activity on weaker side. Icing is also useful over paralysed /weak facial muscles before starting with PNF exercises. Icing the facial muscles improves the tone of the muscle spindle which makes it more sensitive to stretch and resistance. PNF exercises should always be done bilaterally, so that the therapist can resist the normal side so that more irradiation can occur on weaker or the paralysed side of the face. Emphasis of utilization of timing during PNF treatment by preventing full motion to occur on the normal side and thereby enforcing and promoting the muscle activity on the weaker side of the face .PNF exercises should be always performed in diagonal pattern to get best results. And finally, a mirror should always be there in front of the patient while performing PNF exercises for good visual feedback.

2. Material and Method

The study was introduced after screening of the subjects according to the inclusion and exclusion criteria. Inclusion criteria were Patient with unilateral acute Bell's palsy either on right or left side and absence of central nervous system lesion (CNS) disease, both genders will be included and the exclusion criteria werePatient who had central nervous system pathology, sensory loss over the face, recurrence of Bell's palsy, traumatic Bell's palsy, chronic Bell's palsy, the patient's who are not willing to participate in the study. The subjects who met inclusion criteria with unilateral acute Bell's palsy either on right or left side and absence of central nervous system lesion (CNS) disease, both genders were included within the age group of 25- 50 years in the study. The subjects who had central nervous system pathology, sensory loss over the face, recurrence of Bell's palsy,

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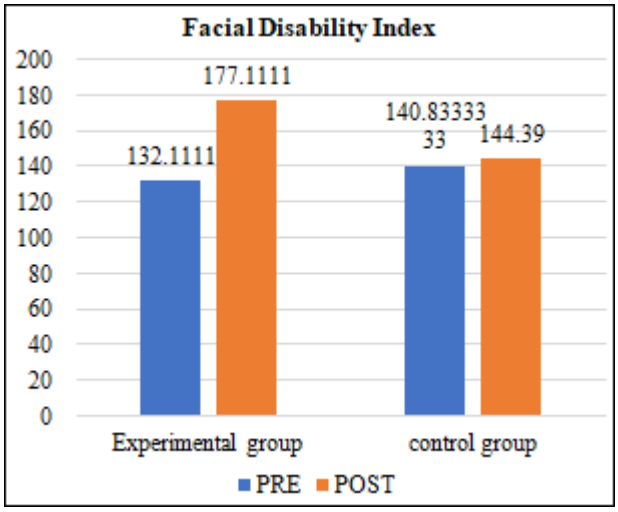
traumatic Bell's palsy, chronic Bell's palsy, subjects who were not willing to participate in the study were excluded. Written Consent from all the subjects were taken. 40 subjects were included in the study, out of which 4 were not willing to participate in the study so 36 participants were divided randomly into 2 groups respectively. Pre – treatment assessment and Post-treatment assessment were recorded. Group A included 18 subjects who were given Laser therapy along with facial exercises for 3 weeks. Group B included 18 subjects who were given Laser therapy along with Kabat rehabilitation for 3 weeks. Pre – treatment assessment and Post – treatment assessment were taken with the help of outcome measure of Bell's Palsy.

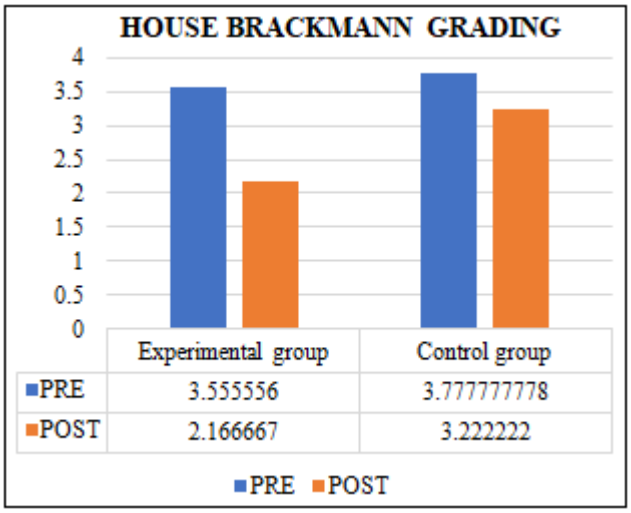
3. Result



Graph 1: Comparison of Pre-Intervention and Post - Intervention of FDI in Control and Experimental Group

Table 1

	Experimental Group				Control Group			
Outcome Measures	Pre	Post	t Value	p Value	Pre	Post	t Value	p Value and Significance
FDI	132.11± 9.987	177.11 ±10.295	16.273	0.001	143±7.112	144.39±7.171	4.931	0.001 ,significant



Graph 2: Comparison of Pre-Intervention and Post -Intervention of Hbs of Control and Experimental Group

Table 1

	Experimental Group				Control Group			
Outcome Measure	Pre	Post	t Value	p Value	Pre	Post	t Value	p Value and Significance
HBS Grade	3.555±0.511	2.166±0.785	7.578	0.001	3.777±0.4277	3.222±0.427	3.828	0.001 , significance

The data derived from both the groups at the end of 4 weeks were compared statistically using paired sample t-test. The change between the pre-treatment assessment and post treatment assessments of every subject for FDI and HBS was done using paired t-test.

A total number of 36 subjects was divided into two groups, one is the control group and the other is the experimental group to compare the effectiveness of Kabat rehabilitation on Bell's palsy.

In the experimental group Laser therapy along with Kabat rehabilitation were given for 3 weeks and in control group Laser therapy along with Facial exercises were given for 3 weeks. The subjects were assessed by FDI and HBS scale before intervention and reassessed after 3 weeks. Following were the results obtained.

Graph-1 and table- 1

The comparison of the mean of pre and post – intervention scores of the experimental group and control group of FDI SCORE was found to be statistically significant which was calculated by using paired t-test shows that the study is statistically significant with the t-value of experimental group being 16.273 and p- value 0.001 and the t -value of control group being 4.931 and p-value is 0.001.
Graph-2 and table-2

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The comparison of the mean of pre and post- intervention scores of the experimental and control group of HBS grade was found to be statistically significant which was calculated by using paired t-test shows that the study is statistically significant with the t- value of the experimental group being 7.578 and p -value is 0.001 and the t-value of control group being 3.828 and p-value is 0.001.

4. Discussion

Bell's palsy is an acute condition which occurs due to damage in the course of facial nerve at the level distal to the pons. It is an idiopathic facial condition. Treatment option may include dose trial of anti-inflammatory, antibiotic, or antiviral agents and in severe cases, surgical decompressive procedures may be considered. In addition, this treatment option of Bell's palsy, physiotherapy has been reported to have a wide range of benefit in treating Bell's palsy. The purpose of the current study was to compare the role of Kabat rehabilitation and facial exercises techniques in the treatment of Bell's palsy and it's possible effect in improving physical and social function.

Barbara conducted a study on the effects of Kabat rehabilitation in patients affected by Bell's palsy, shows that the clinical outcomes of patients improved and they show better and faster recovery. A study was carried out on the effectiveness of neuro-proprioceptive facilitation on re-education facial muscles and functional problems in Bell's palsy. The results showed that recovery from facial paralysis could be difficult and long-lasting process and the utilization of a grading system may help the physical therapist. The effect of this type of therapy may help the patients if the therapist is well trained and familiar with the neuro-physiological background. A research was conducted to determine the effects of neuromuscular retraining in case of facial nerve paresis. This shows that it is an effective technique for optimal recovery due to paralysis. Facial neuromuscular retraining improves the facial muscular control using special movement training techniques is based on evidence and therapeutic practice.

Retraining techniques enhanced outcomes and develop patient satisfaction by treating the condition in a programmed way. It focuses on improving range, flaccidity, prevents synkinesis, and improves facial motor control. Facial neuromuscular retraining technique using both sensory and motor feedback. It utilizes sensory feedback along with coordinated activities are done to facilitate and return the correct facial movement patterns, and all the undesired, unwanted, and abnormal facial expressions are inhibited.

Facial exercises are also helpful in improving facial functions and are also evident from many studies. The brain-to-nerve-to-muscle routine is recreated during facial exercises. The exercises can be very beneficial; although, it is a slow process. Physiotherapy maintained the facial muscle tone and stimulated neural transmission of facial nerve and thus beneficial for Bell's palsy patients.

The study was conducted on determining the effectiveness of PNF training on the facial profile. We employed PNF, in which global stretching and resistance is applied one after the other to improve voluntary contraction of damaged muscles and then, its actions are enhanced by resistance applied through verbal input and manually, such as lifting upper lip and lowering lower lip move the tongue out, to adapt the perioral muscles to the new morphological circumstances. Although the training appeared to be effective as it improves facial profile by sharpening the mouth and submandibular region, the results showed that continued training is necessary to avoid relapse.

Khullar et al. (1996) suggested that Laser light might stimulate reinnerrvation of the tissues by either the penetration of the axons or on adjacent Schwann's cells inducing the compromised tissue to secrete proteins related to nerve growth or the releasing of mediator of nerve growth that will affect non-damaged adjacent nerves. These aspects were reflected on the treatment of the patient. Despite the positive result of the treatment, further studies are needed to elucidate the effect of the laser light on nerve as well as on the aetiology of Bell's palsy.

5. Conclusion

Kabat rehabilitation technique along with laser therapy is more effective in treating Bell's palsy as compared to facial exercises technique along with laser therapy. HBS grading and FDI scale showed higher improvement in patients who were treated with Kabat technique. However, both techniques showed significant improvement in both treatment groups. But patients with Kabat rehabilitation along with laser therapy showed more significant improvement

6. Future scope of the study

The study can be conducted on larger sample size, The study can be long -term study, The study can be conducted at larger community places

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