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Research article

COMPARISON OF THE EFFECT OF MIME THERAPY VERSUS CONVENTIONAL THERAPY ON THE SUNNYBROOK FACIAL GRADING SYSTEM IN PATIENTS WITH ACUTE BELL'S PALSY

*Mistry Gopi S¹, Sheth Megha S², Vyas Neeta J³

¹Post graduate student, ²Lecturer, ³Principal, SBB College of physiotherapy, Ahmedabad, Gujarat, India

*Corresponding author email:gtgopi2007@gmail.com

ABSTRACT

Background: Facial resting symmetry and expressions are determinants of facial attractiveness & being a marker of good health. Mime therapy is a combination of mime and physiotherapy and aims to promote symmetry of the face at rest and during movement. The objective of this study is to compare the effect of Mime therapy and conventional therapy on the facial functions in patients with acute Bell's palsy. **Method:** The quasi-experimental study was conducted at SBB College of physiotherapy. A convenience sample was taken consisting of 30 participants, 10 in each group. Group A received Mime therapy. Group B, conventional therapy and Group C received home exercise program. Facial symmetry at rest and movement was assessed through Sunnybrook facial grading scale (FGS) after completion of 10 sessions to each group. At the end of treatment, response to treatment was assessed by the Patient's global impression of change scale (PGIC). Level of significance was kept at 5%. **Result:** Analysis of variance was used to compare all outcomes. At the end of 10 sessions, scores on Sunnybrook FGS ($p < 0.001$) and PGIC ($p < 0.001$) shows significant difference within and between groups. Post hoc Bonferroni test was used for multiple comparisons. FGS shows significant differences between groups A&B ($p < 0.001$) and groups A&C ($p < 0.001$). But no significant difference was seen between groups B&C ($p = 1.00$). PGIC scale shows significant differences between groups A&B ($p < 0.001$) and A&C ($p < 0.001$) but no significant difference was seen between groups B&C ($p = 1.00$). **Conclusion:** Mime therapy improves facial symmetry and functions more than conventional therapy and home exercises in people with acute Bells' Palsy. No difference was found between conventional therapy and home exercise program.

Key words: Bell's palsy, Mime therapy, Sunnybrook facial grading system, Patient's Global Impression of change scale, electrical stimulation.

INTRODUCTION

The term Bells' Palsy is defined as an idiopathic, acute and unilateral paresis or paralysis of the face which may be partial or complete occurring with equal frequencies on right and left sides of the face.¹ The major cause of Bell's Palsy is idiopathic, accounting for 50% of all cases. Other few suggested causes are exposure to cold, middle ear infections, dental and ENT surgeries and traumatic.² The problems faced in acute phase of Bell's palsy include difficulty in closing

the affected side eye, facial deviation to the unaffected side, difficulty in drinking, eating and speaking along with psychological problems and facial appearance is the main concern in any phase of Bell's palsy.^{2,4} Facial palsy is classified according to House and Brackmann score into 6 grades, where grade 1 is normal, grade 2 has slight dysfunction, grade 3 has moderate dysfunction, grade 4 has moderate to severe dysfunction, grade 5 has severe dysfunction and grade

6 has total paralysis.³ Mime therapy consists of auto massage, stretching with facilitation exercises, relaxation, inhibition of synkinesis and coordination and emotional expression exercises.⁴

A Cochrane review done by Teixeira LJ et al in February 2011 has concluded that there is only very low quality evidence that facial exercise reduces sequel in acute cases.⁵ Facial symmetry is a determinant of facial attractiveness, it is a marker of good health and it influences interpersonal attraction.⁶ ⁷ Bell's palsy can dramatically affect, patients general quality of life and expressions and interpersonal communications. Patient's with bell's palsy suffer not only the functional consequences of impaired facial motion but also the psychological appearance of skewed facial deviations.⁸ Less evidences are available for the effectiveness of mime therapy in improving facial symmetry in acute phase management in Bell's palsy, so arises the need of the student. The objective of this study is to assess and compare the effect of Mime therapy and conventional therapy on the facial symmetry and functions in patients with Bell's palsy in the early stage of paresis.

METHODOLOGY

A Quasi experimental study was conducted at SBB College of physiotherapy and convenience sampling was used. The study consisted of 30 participants, 10 in each group. The study was carried out from June 2013 to October 2013. **Inclusion criteria:** Males and females diagnosed with Bell's palsy in the age group of 18-70 years with acute onset (1-3wks) and no other neurological deficit involving the face were included. **Exclusion criteria:** Subjects with a history of surgical intervention for the ear and facial nerve palsy, pain of any other origin and non co-operative patients were excluded. Materials used were powder, mirror, standard electrical stimulator with accessories and infra red lamp. Outcome measures used were 13-item Sunnybrook facial grading system (SBFGS) ⁸ and the Patients' Global Impression of Change (PGIC) scale. ⁹ SBFGS includes 3 components resting symmetry, symmetry of voluntary movement and synkinesis. Resting symmetry of 3 components are checked eye, cheek (naso labial fold) and mouth. In symmetry of voluntary movements there are 4 components for standard expressions and grades are given according to the symmetry during movements; in synkinesis again

there are 4 grades according to the amount of synkinesis.

The study was reviewed & approved by the Institutional Ethics Committee, SBB College of Physiotherapy, V S General Hospital, Ahmedabad, Gujarat.

Subjects were explained the procedure and purpose of the study & written informed consent was taken.

After initial neurological examination the participants were assigned randomly into three groups, Group A: Mime therapy group, Group B: Conventional therapy group and Group C: Home exercise group. Then severity of the condition was measured by Sunnybrook Composite Score (SBC) pre treatment and post treatment.

Group A was given 10 sessions of Mime therapy which included auto massage- effleurage and kneading for 10 to 15minutes on both the sides of the face, stretching exercises of the muscles of the affected side followed by facilitation, specific low intensity exercises to co-ordinate both the halves of the face, active assisted exercises for affected side of the face, exercises of mouth and eye with simultaneous inhibition of synkinesis if present. A mirror was used for biofeedback. Exercises to increase participants awareness of lip movements such as a,e,i, o etc.

Group-B was given Electrotherapy (Conventional therapy) for 10 Sessions. It included Infrared radiations (up to 7 days from the date of onset) to affected side followed by electrical stimulation (Surged Faradic current) of affected muscles with 3 sets of 30 contractions for each nerve trunk. Exercise program to all facial muscles was given as below.

Group -C was a control group. They were given 10 Sessions of home exercise program including, massage, facial muscle exercise program in front of mirror, 5-6 times in a day and home advices.

Level of significance was kept at 5%.

RESULTS

Analysis of results was done with SPSS version 16.0. ANOVA (Post Hoc Bonferroni test) was used to analyze the difference in facial symmetry post intervention in 30 patients with acute Bell's palsy. The mean age of the participants was 44.1 years in group A, 46.2 years in group B and 41.9 years in group C. There were 6 females and 4 males in groups A and B and 5 males and 5 females in group C.

Post hoc analysis of SBFGS showed that there was statistically significant difference between group A and B ($p < 0.001$) and Group A and C ($p < 0.001$) but no significant difference between group B and C ($p = 1.00$). Post hoc analysis of PGIC showed there was statistically significant difference between group A &

B ($p < 0.001$) and group A & C ($p < 0.001$) but no significant difference between group B & C ($p = 1.00$). Table 1 show that differences in mean Sunnybrook Composite (SBC) scores in all three groups is statistically significant. ($p < 0.001$)

Table 1: Comparison of mean composite score of SBFGS (Mean \pm SD)

Variable	Group A	Group B	Group C	F value	p value
SBC(Pre)	38.5 \pm 14.5	33.6 \pm 15.79	38.5 \pm 12.31	11.935	<0.001**
SBC(Post)	86.2 \pm 6.81	53.8 \pm 12.79	60.9 \pm 19.5		
SBC(Diff)	48.2 \pm 15.31	23.0 \pm 10.88	23.4 \pm 13.06		

** - Very significance, SBC- Sunnybrook composite score

Table 2: Comparison of total score of PGIC (Mean \pm SD)

Groups	Mean \pm SD	F value	p value
A	6.60 \pm 0.699	33.498	<0.001**
B	3.70 \pm 0.675		
C	4.00 \pm 1.15		

** - very significance

DISCUSSION

The present clinical trial was conducted to study the effect of Mime therapy on facial symmetry in patients with acute Bell's palsy. The SBFGS used to evaluate severity of facial nerve paresis, included three components resting symmetry, voluntary movements and synkinesis.¹⁰

In the present study, asymmetry has reduced in all three groups but more in a Mime therapy group than others. This improvement may be because massage improves circulation and maintains muscle properties. Visual feedback has shown to control muscle activities in facial muscles.¹¹ Also miming demands highly refined sense of body and muscle control. A study done by Ryan J, 2009 has concluded that massage done in mime therapy has shown to create new growth and increase production of collagen and connective tissue in facial muscles and restore facial muscle action.¹² Study done on mime therapy efficacy in patients with long term facial nerve paresis shows that mime therapy improves facial symmetry¹³. In accordance with a study of Cronin and Steenerson (2003) biofeedback by surface electromyography results revealed improvement in facial symmetry.¹⁴

Ahmad SJ and Rather AH (2012) did a prospective study of physical therapy in facial nerve paralysis and found that physiotherapy in the form of electrotherapy

and facial exercises has an effective role in the early management of peripheral facial paralysis.¹⁵

Because the effectiveness of therapeutic changes differs greatly among patients, it is essential that effectiveness of trials directly measure patient related improvement and satisfaction with treatment.¹⁵ The PGIC is patient-reported, and asked the subject to "indicate how you feel now, compared to how you felt before receiving treatment in this study" on a 7-point scale.

The cost of the treatment is low as along with therapy at physiotherapy center, home program is an integral part of the treatment.⁹ So mime therapy is a good choice of treatment for people with bell's palsy.

Thus Mime therapy can be used in the treatment of people with acute Bell's palsy to get improvement in facial asymmetry within a shorter period of time.

Limitations of the study are that subjects were not followed up for a longer period of time. Randomization was not done. Home exercise protocol was not supervised.

CONCLUSION

Mime therapy improves facial symmetry and functions more than conventional therapy and home exercises in people with acute Bells' Palsy. No difference was

found between conventional therapy and home exercise program.

Conflict of interest: Nil

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