



A clinical study of etiology and management of Bell's palsy in a Tertiary Care Hospital

Authors

Yelma Bhooma Reddy^{1*}, M Hemanth Rao²

¹Department of ENT, Rajiv Gandhi Institute of Medical Sciences [RIMS], Adilabad, Telangana State, India

²Assistant Professor, Department of ENT, Rajiv Gandhi Institute of Medical Sciences [RIMS], Adilabad, Telangana State, India

*Corresponding Author

Dr Yelma Bhooma Reddy

Sri Laxmi Residency, Flat No 102, Opp Govt Girls high school, Vidyanagar, Adilabad-504001, India

Abstract

Bell's palsy is a common presentation in Otolaryngology practice. The aim of the present study to find the etiology and management of patients with Bell's palsy presenting to the Department of Otolaryngology in a tertiary care hospital. Methods: This prospective cross-sectional study was carried out in the Department of ENT, Rajiv Gandhi Institute of Medical Sciences [RIMS], Adilabad from September 2017 to Jan 2019. A total of n=67 patients n=26 male and n=41 females were included in the study. After complete history and clinical evaluation an initial dose of oral prednisolone 60mg/day in three divided doses for 7 days followed by tapering off within the next five days by 10mg/day reduction in a single-dose regimen. Advised serial follow up at the end of 1st, 2nd, 3rd and 6th week followed by 3 months and 6 months. Results: The grading of facial paresis was carried as per House-Brackmann scale most of the patients n=33(49.25%) were detected with Grade II mild dysfunctions. Followed by moderate dysfunction grade III in n=15(22.39%). Grades IV and V having n=7(10.45%) each and grade VI in n=5(7.46%). The majority patients were given steroids n=36(53.73%) and steroids along with physiotherapy n=15(22.39%), NSAID n=21(31.34%), vitamin B12 n=22(32.84%) and antiviral were for n=10 (14.92%). Conclusion: The present study concludes that females are more commonly affected by Bell's palsy and the age group more affected is 30 - 40 years. Recurrence of Bell's palsy was also noted in some cases. Most of our patients responded to prednisolone and antiviral treatment, some were prescribed only steroids with physiotherapy. From our experience, we can assume that the treatment of Bell's palsy should be based on the etiology and needs of the patients and most of the cases will recover within acceptable limits.

Keywords: *Bell's palsy, Etiology, Management, Tertiary care hospital.*

Introduction

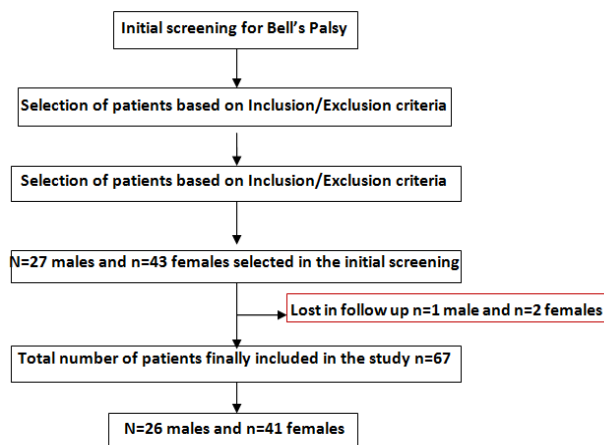
Bell's palsy is also known as acute idiopathic facial paralysis; it is an idiopathic neuropathy of the facial nerve. In some cases is considered to be acute immune demyelination of facial nerve

triggered by some viral infection^[1]. It is usually rapid in onset and usually, self-limiting and recovery is spontaneous within 6 months of onset, however, 20% of patients develop some type of sequelae, which may vary from a light degree of

residual paralysis to complete unilateral or bilateral paralysis^[2]. The annual incidence of facial palsy is reported between 15-30 per 100,000 populations^[3, 4]. The incidence increases with age, familial inheritance is noted in 4-14% of the cases^[5]. The maximum incidence of Bell's palsy is between 15-45 years, usually affecting both sexes equally^[6]. Pietersen found that both sides are affected equally some studies have shown left side predominance^[7]. Studies have shown that no seasonal pattern exists, however, De Diego et al; have shown the incidence appears to be more in winter season as compared to summer^[8]. Jabor et al; have reported that 84% of patients with Bell's palsy recovered without any treatment and only 16% had residual paralysis. The prognosis depends on the degree of paresis, age of the patient, time lag between appearances of symptoms and reporting to the hospital^[9]. The other important factors affecting the outcome of treatment include severe post-auricular pain, age older than 60 years, hypertension or diabetes mellitus, hyperacusia, decreased lacrimation, psychological stress, and severe facial pain predicts a poor outcome^[10]. Treatment modalities for Bell's palsy are not clearly defined. It involves conservative approaches like physiotherapy which include facial exercises, muscle relaxation; medical treatments include cortisone, anti-viral agents, and Botox. Grogan et al; stated in the American Academy of Neurology practice that for patients with Bell's palsy a definitive benefit can be derived from treatment with steroids, acyclovir, facial nerve decompression^[11]. Some pieces of evidence have suggested that steroids with acyclovir are most effective in improving facial nerve functions. With this background, we in the present study tried to evaluate the etiology of Bell's palsy and treatment in this tertiary care and teaching hospital located in Adilabad District which caters the needs of the predominantly tribal people.

Material and Methods

This prospective cross-sectional study was carried out in the Department of ENT, Rajiv Gandhi Institute of Medical Sciences [RIMS], Adilabad a tertiary care hospital from September 2017 to January 2019. Institutional Ethical committee permission was obtained for the study. Written consent was obtained from all the participants of the study. The inclusion criteria were patients above the age of 15 years with acute unilateral lower motor neuron facial paralysis. Exclusion criteria were patients with a history of recent middle ear infection, malignancy, infections, HIV positive autoimmune disorders, and severe head injuries. Based on the inclusion and exclusion criteria a total of n=70 patients were initially selected out of which n=27 males and n=43 females. However, in the follow up n=1 male and n=2 females did not report hence finally n=26 male and n=41 females were finally included in the study. The complete history was obtained from the patients, the severity of facial weakness assessed clinically, duration between onset and presentation to the hospital was recorded, and pain at the mastoid, vertigo or dizziness, hypertension and diabetes mellitus and history of recurrence was recorded. Hearing defects were assessed and blood samples were obtained for complete blood count, BUN, creatinine, FBS, electrolytes, ESR were recorded. CXR was done to exclude pulmonary infections or neoplasms. A CT scan of the brain was performed to exclude intracranial abnormality. After complete evaluation an initial dose of oral prednisolone 60mg/day in three divided doses for 7 days followed by tapering off within the next five days by 10mg/day reduction in a single-dose regimen. Some of the patients were also prescribed NSAID's and vitamins; antiviral was used in one person suffering from Ramsay-Hunt Syndrome. All of the patients were advised serial follow up at the end of 1st, 2nd, 3rd and 6th week followed by 3 months and 6 months.



Results

During the period of the study, a total of n=67 patients were seen out of which n=26 were male and n=41 were females. The male to female ratio in this study was 1: 1.5. The most common age group involved was 31- 40 years with n=26(38.8%) of patients followed by age group 41 – 50 years n=12 (17.91%) of patients. The other age-wise and sex-wise distributions of patients in different age groups are shown in table 1.

Table 1: showing the distribution of Bell’s palsy in the study

Age Group	Male	Female	Total	Percentage
15 – 20	01	03	04	5.97
21 – 30	03	06	09	13.44
31 – 40	11	15	26	38.80
41 – 50	07	05	12	17.91
51 – 60	02	06	08	11.94
61 – 70	01	04	05	7.46
> 70	01	02	03	4.47
Total	26	41	67	100

The predominant side involved in Bell’s palsy in this group of patients was left side with n=38 (56.23%) of patients and the right side was involved in n=29 (43.28%). The first-time occurrence was seen in the majority of patients n=55(82.09%) and recurrent Bell's palsy was seen in n=12(17.91%) of patients the sex-wise distribution of the same is given in table 2.

Table 2: Showing the side involved for Bell’s palsy and occurrence

	Male	Female	Total	percentage
Side				
Left	14	24	38	56.72
Right	12	17	29	43.28
Total	26	41	67	100
Occurrence				
First time	21	34	55	82.09
Recurrent	05	07	12	17.91
Total	26	41	67	100

The grading of facial paresis was carried as per the House-Brackmann scale to determine the degree of facial dysfunction in the study [12]. Most of the patients n=33(49.25%) were detected with Grade II mild dysfunctions. Followed by moderate dysfunction grade III in n=15(22.39%). Grades IV and V having n=7(10.45%) each and grade VI in n=5 (7.46%) of patients the gender-wise distribution is given in table 3.

The symptoms recorded in the patients during the study showed that pain over mastoid was present in n=31(46.26%) of patients followed by preceding viral infection in n=12(29.85%) of patients, vertigo dizziness in n=12(17.91%), decreased lacrimation in n=7(14.45%), Headache in n=6 (8.95%), and hearing defect in n=5(7.46%) of patients. The most common etiology was idiopathic in n=58(86.57%) cases, stroke n=6(8.96%), traumatic etiology in n=2(2.98%), n=1(1.49%). The symptoms and etiology in this group of patients sex-wise are given in table 4.

Table 3: Grading of facial paresis at initial presentation as per the House-Brackmann scale [12]

House-Brackmann scale for grading of facial paresis	Male	Female	Total	Percentage
Grades				
I. Normal	00	00	00	00.00
II. Mild dysfunction	12	21	33	49.25
III. Moderate dysfunction	05	10	15	22.39
IV. Moderately severe dysfunction	03	04	07	10.45
V. Severe dysfunction	04	03	07	10.45
VI. Total paralysis	02	03	05	7.46

Table 4: The symptoms of patients in the study

	Male	Female	Total	Percentage
Symptoms				
Pain at mastoid	21	10	31	46.26
Vertigo dizziness	04	08	12	17.91
Preceding viral infection	12	08	20	29.85
Hearing defect	01	00	05	7.46
Decreased lacrimation	04	03	07	14.45
Headache	03	03	06	8.95

The presence of co-morbidities was noted in the study with n=25(37.31%) patients having hypertension and n=10(14.92%) and n=10(14.92%) were having diabetes mellitus shown in table 4.

Table 5: Showing the presence of co-morbidities in the patients of the study

Co-Morbidities	Male	Female	Total	percentage
Hypertension				
Yes	15	10	25	37.31
No	11	31	42	62.68
Total	26	41	67	100
Diabetes Mellitus				
Yes	04	06	10	14.92
No	22	35	57	85.07
Total	26	41	67	100

Majority of patients n=60 (89.55%) in the study reported to the hospital within 48 hours n=7 (10.44%) reported within 48 to 72 hours. The majority patients were given steroids n=36(53.73%) and steroids along with physiotherapy n=15(22.39%), NSAID n=21(31.34%), vitamin B12 n=22(32.84%) and antiviral were for n=10 (14.92%).

Table 6: showing the treatment given to the patients in the study

Treatment	Total	Percentage
Steriods	36	53.73
Steriods + Physiotherapy	15	22.39
Anti-inflammatory (NSAID)	21	31.34
Antiviral	10	14.92
Vitamin B12	22	32.84

Discussion

The study showed that the mean age of onset of Bell’s palsy was 43.5 years in male and 40.5 years in females. Stanley M et al; have shown that patients from age group 23 -32 were most commonly involved with facial palsy^[13]. A similar study has shown that the middle age group 20 - 34 years had the highest incidence of facial palsy and older age group had the least incidence of facial palsy^[14]. The male to female ratio was 1:1.5 with the predominance of females in this study. Batista KT ^[15] and Junior NA et al;^[16] have shown that facial palsy predominates in males. On the contrary study by Hohman MH et al;^[17] have shown 81% of females involved with facial palsy agreeing with the results of the present study. The left side was involved in n=38 (56.23%) of patients and right side in n=29(43.28%) of cases of the present study. The difference in this study based on the side is only minor hence it does not show any side predilection. Other similar studies from different regions of the world also did not demonstrate any particular side affected in Bell’s palsy^[7, 8, 18]. Assessment of acute facial paralysis is very important and physicians must find the specific cause in the individuals since the differential diagnosis may include critical conditions such as cerebrovascular accidents or malignancy which can lead to significant morbidity if they are untreated ^[19]. The House-Brackmann scale for grading of facial paresis is accepted as a standard to describe the facial functions^[12]. Assessing the functions in the patients helps the otolaryngologist to determine the prognosis and management of the patients. In the present study, the House-Brackmann scale was used to assess the function of the facial nerve at the initial presentation given in table 3. In this study, we found most of the patients belonging to grade II with mild dysfunctions. Most of them recovered with treatment. 2 patients with grade VI did not recover hence they were referred for super-specialty care. The classical clinical manifestations of the Bell's palsy will be seen as the flattening of the forehead and nasolabial fold,

eyebrow sagging, unable to close eyes, draw of the angle of the mouth to the non-affected side. Failure of eye closure can lead to corneal ulceration, scarring, and impairment of vision if not managed timely^[20]. In this study, we found n=25(37.31%) patients with hypertension and n=10(14.92%) patients with diabetes. Several studies have discussed the role of diabetes and hypertension as a risk factor for Bell's palsy. Some studies have shown that hypertension along with increased age has an association with Bell's palsy^[21-23]. There has been increasing attention for hypertension among children and pregnant women with Bell's palsy.^[24-26] Diabetes, in particular, is known to increase predisposition for Bell's palsy. Some investigators have noted that large randomized double-blind studies are needed to ascertain the effectiveness of glucocorticoids and antiviral agents^[27]. In a review of Bell's palsy using antiviral agents, Alberton et al;^[28] have stated that the use of acyclovir is controversial. Some authors are of the view that the combination of acyclovir and prednisone should be done if symptoms are less than 72 of onset. In the present study, we judiciously restricted the use of antiviral and corticosteroid combination when the patients were suspected the etiology of Bell's palsy to of viral origin. Most of the patients in our study have responded satisfactorily to treatment except 2 patients which required referral.

Conclusion

The present study concludes that females are more commonly affected by Bell's palsy and the age group more affected is 30 - 40 years. Recurrence of Bell's palsy was also noted in some cases. Most of our patients responded to prednisolone and antiviral treatment, some were prescribed only steroids with physiotherapy. From our experience, we can assume that the treatment of Bell's palsy should be based on the etiology and needs of the patients and most of the cases will recover within acceptable limits.

Conflict of Interest: None

Source of support: Nil

Ethical permission: Obtained

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