Prospective Observational Study Of Bell's Palsy

Dr.Viral Parjapati*, Dr.Mitesh Modi, Dr.Priti Modi***, Dr.Vishal Dave******

*Assistant Professor,B J Medical College, Ahmedabad., **Sr. In ENT Dept, .***Sr.In Pediatric Dept..-GMERS Medical College, Valsad, ****Prof.GCS Medical College, Ahmedabad

Abstract : Bell's palsy is mot common type of facial weakness. Sex of patients and side of diseases do not alter the prognosis. Method: Most of the patients present with complaint of facial weakness or asymmetry followed by dribbling of saliva and improper eye closure. Fewer patients present with altered taste sensation. Recurrence of disease is poor prognostic factor. Results: Partial paralysis, short duration and early starting treatment within 24 hours are associated with good prognosis. Flacid face, which means complete facial weakness has poor prognosis Topodiagnostic tests such as lacrimation test, salivary flow test, and taste sensation are not much valuable because many other factors take considerable part in the positive or negative result of this test. Steroids has definitely role in management. Conclusion: Bell's palsy can be best treated by a combination of steroids with other agents, like vasodilators, neurotonics, antiviral, although steroid alone may be satisfactory effective in treatment. [Prajapati V et al NJIRM 2013; 4(2) : 162-168]

Key Words: Bell's palsy, Facialn Nerve, Treatment

Author for correspondence: Dr. Viral Prajapati, 3/1 Atma apartment, Nagjibhudar pole, Mandulpole, Manekchowk, Ahmedabad, E mail: viral.prajapati@rediffmail.com

Introduction: Bell's palsy is a form of facial paralysis resulting from a dysfunction of the cranial nerve VII (the facial nerve) causing an inability to control facial muscles on the affected side. Several conditions can cause facial paralysis, e.g., brain tumor, stroke, and Lyme disease. However, if no specific cause can be identified, the condition is known as Bell's palsy. Named after Scottish anatomist Charles Bell, who first described it, Bell's palsy is the most common acute mononeuropathy (disease involving only one nerve) and is the most common cause of acute facial nerve paralysis (>80%).

Bell's palsy is defined as an idiopathic unilateral facial nerve paralysis, usually self-limiting. The hallmark of this condition is a rapid onset of partial or complete paralysis that often occurs overnight. In rare cases (<1%), it can occur bilaterally resulting in total facial paralysis.[1,2]

It is thought that an inflammatory condition leads to swelling of the facial nerve. The nerve travels through the skull in a narrow bone canal beneath the ear. Nerve swelling and compression in the narrow bone canal are thought to lead to nerve inhibition, damage or death.

Corticosteroids have been found to improve outcomes, when used early, while anti-viral drugs have not[3]. Most people recover spontaneously and achieve near-normal to normal functions. Many show signs of improvement as early as 10 days after the onset, even without treatment.

Material And Methods: This prospective observational study enrolls 60 cases of bell's palsy presented at Guru Govindsinh General Hospital, Jamnagar . The clinical profile of 60 cases of Bell's palsy has been studied with aims to ascertain the socio-dermographics, etiopathogenesis, relation of facial weakness staging at presentation to recovery from disease, incidence of recurrence, the topographical site of lesion in Bell's Palsy, the effect of various conservative modalities of treatment.

The first group was given placebo and occasional paracetamol tables for pain, the second group was given steroid alone and the third group was given steriods, vasodilators, anti-viral agents and neurotonics . Physiotherapy and eye care were given to all treatment category patients. The patients were followed up on first week, second week and after one monh, Age and sex, side of palsy, time of onset of paralysis to presentation in clinic (duration) recurrence, clinical assessment of extent of paralysis topographical tests, and results of the various treatment modalities were analyzed.

Results & Discussion: Most of the patients presenting were from Saurashtra region of Gujarat, living in or around Jamnagar.

Age Incidence : Varies from 6 to 70 years in present series, but maximum number (50%) of patients were between 21 to 40 years with an average age of 32.82 years.

Side of Palsy : In present series all cases were of unilateral involvement, with 33 patients affected on right side and 27 patients affected on left side of the face. In C.A.J. Precott series 449 patients were affected on right side while 423 patients were affected on left side but it has not prognostic importance.

Time delay from onset to presentation :Time from onset of paralysis to resentation at clinic is as under in Table 1.

All the patients had received treatment as soon as they presented and recovery according to this is as show below Table 2. As from table we can say that recovery was much better in those who presented and received treatment earlier. The period between the onset of Bell's Palsy and the start of prednisolone appeared to be very important in determing the success of prednisolone in improving the prognosis of Bell's Palsy called as " critical period ". So, it is very likely that the possible contributing factor for the success of a high dose of prednisolone in improving the prognosis of Bell's palsy is its early administration within 24 hours from the onset of Bell's palsy.[1,4,5]

Table 1: Time Delay From Onset To Presentation

Time	No. of cases	Percentages
Within 24 hours	19	31.67
24-48 hours	14	23.33
2 - 3 days	14	23.33
3 – 5 days	13	21.67
Total	60	100 %

Table 2: Patient Presetnation and Recovery

Cases First seen in	No. of cases	%	Recovery					
			Complete	%	Partial	%	Nil	%
Within 24 hours	19	31.67	18	94.74	1	5.24	-	0
24-48 hours	14	23.33	11	78.57	2	14.29	1	7.14
2 - 3 days	14	23.33	10	71.42	3	21.43	1	7.15
3 – 5 days	13	21.67	8	61.54	3	23.07	2	15.39

Recurrence : Out of sixty patients of Bell's Palsy 5 patients had similar attack on same side in the past and presented as recurrence of the Bell's Palsy. Out of them one recovered completely while two patients had partial recovery and remaining two patients had no recovery at all.

Exposure to cold : Out of 60 patients 32 patients had history of exposure to cold just before attack of palsy and this point goes in favour of vasopasm theory. Symptoms generally present over 24-48 hours time period with 60% of patients experiencing viral prodrome characterized by stuffy nose, sore throat and generalized aches[6].

Clinical assessment : For clinical assessment extent of paralysis, May's score and tone were taken into account. Following table shows the extent of paralysis when first seen and recovery in relation to extent of paralysis.

Table V

Extent of paralysis at first seen	No. of cases	%	Recovery					
			Complete	%	Partial	%	Nil	%
Partial	38	63.33	35	92.10	2	5.23	1	2.67
Complete	22	36.67	12	54.54	7	31.81	3	13.65
Total	60	100	47	78.33	9	15.00	4	6.67

So it is claimed that recovery in patients with partial palsy are more than those with complete palsy. According to the May score of facial paralysis taking percentages in account patient were divided in four groups.

Table VI

Percentages	No. of cases	Recovery		
		complete	Partial	Nil
0	15	7	5	3
0 to 30	7	5	2	-
31 to 60	30	27	2	1
61 on wards	8	8	-	-

From the table more score means good muscle function and it carries good chances of recovery.Complete paralysis of nerve results in loss of motor, sensory and parasympathetic function shows less chances to recover[7].

Topodiagnostic Tests : Lacrimation: Examination for lacrimation was done by Schirmer's test, with Bell's strip Out of 60 patients 30 had normal lacrimation, 26 had diminished lacrimation and 4 had absent lacrimation.

Lacrimation	No. of cases	%	Recovery					
			Complete	%	Partial	%	Nil	%
Normal	30	50	27	90	2	6.67	1	3.33
Diminished	26	43.33	20	76.94	5	19.23	1	3.33
Absent	4	6.67	0	0.0	2	50.00	2	50.00

Taste Test : Out of 60 patients; 37 patinets were able to notice diminished sensation on affected side, and 23 had normal sensation.

Taste sensation	No. of cases	%	Recovery					
			Complete	%	Partial	%	Nil	%
Normal	37	61.67	34	91.89	3	8.11	-	-
Diminished	23	38.33	13	56.52	6	26.08	4	17.40

Submandibular Salivary Flow Test : Examination for salivation is done by cannulation of both the sides of submandibular duct and compared with other normal side. Out of 60 patients, 17 patients had decreased salivation and 33 patients had normal salivation and 10 patients, not able to do cannulation in uncooperative patient or in cases with technical difficulty like narrow lumen.

Table IX

Salivation	No. of cases	%	Recovery					
			Complete	%	Partial	%	Nil	%
Normal	33	55	30	90.91	2	6.06	1	3.03
Decreased	17	28.33	11	64.71	5	29.41	2	11.76
Not able to do	10	16.67	7	70.00	2	20	1	10

Decreased lacrimation is suggestive of lesion at or medial to geniculate ganglion. A lesion of facial nerve lateral to geniculate ganglion produces, impaired submandibular salivary gland secretion and impaired taste in anterior two – third of the tongue[8].

In our study 50 % patients had diminished or absent lacrimation T. Schiassny[9] et al, show 61% of decrease lacrimation. In our study salivation diminished in 28.33 % and diminished taste, sensation 38.33 % Schirmer's[10] test can be used to decide the mode of surgical decompression if tear flow is reduced by more than 50 % on affected side, then a total decompression or middle fossa approach is indicated.

Gandolinium-enhanced MRI shows that multiple sites of demyelination can exist from the brainstem to the periphery. The inflammation and demyelinization occur horizontally and not perpendicular to facial canal. Also, mechanical error like failure to cannulation of ducts and exposure keratitis increase the lacrimation. So, this test is not so valid for diagnosis & prognosis of facial paralysis[11].

TREATMENT :

Table – X : Patients per treatment category :

Category	Treatment Regimen	N
I	Placebo drugs + Physiotherapy	20
II	Steroid alone + Physiotherapy	20
III	Steroid + Vasodialator + Acyclovir + Vitamin B Complex	20
Total		60

The patients were divided into different categories

Category – I : Control group, where out of 20 patients , 13 patients (65%) completely recovered without any steroids or antiviral agent or neurotonics or vasodilators. They were occasionally given Tab. Paracetamol when there was pain in the ear. Out of 20 patient of this category, 4 patients (20%) had partial recovery and 3 patients (15%) had no recovery.

Tarek S Shafshak[5] et al showed in a study of 160 patients, 60 patients from control group with no medication showed 31% of recovery, while Moore reported that most cases of Bell's Palsy recover spontaneously without treatment.

Peiterson[12] reported, however spontaneous complete recovery in only 71% of his Bell's Palsy patients without giving any treatment.

Brawn[13] observed complete recovery among his Bell's Palsy patients without use of cortiocosteriids, in 73% of patient with incomplete paralysis, and in only 40 %of patients with complete paralysis.

In category II : Only Steroid group : In this group steroid alone was given. Out of 20 patients of category II, 16 patients (80%) completely recoverd while only 3 patient (15%) had partially recovered and 1 patient (5%) had no recovery.

Brown[13] reported complete recovery in 70 percent of patients, who received corticosteroid. So it suggested there is definite role of steroid therapy in medical management of Bell's Palsy but with early administration and proper dose and depending upon the extent of paralysis.

Wolf et al[14] reported insignificant benefit of prednisolone in facial strength recovery among patients with Bell's Palsy. Their patients received 60 mg of prednisolone for 10 days, they reported this findings in one group of patient who started prednisolone intake within the first five days following the onset of Bell's palsy. There might been a long "critical period " majority of their patients.

May[15] et al reported in their prospective study insignificant benefit from prednisolone therapy in Bell's Palsy.

In Category III : Combination group : In this group , steroids with vasodilator – Arlidine with antiviral agent, Acyclovir with Vitamni B complex was given.

Out of 20 patients of this category, 18 patients 990%) had fully or complete recovered and there

were no any patient of this group that shows nil recovery.

This theory explain by that, the exact etiology of Bell's Palsy is obscure so the management of the Bell's Palsy is also not clear, so it was recommended that combined treatment should be as early as possible, Combination may consist of conrticosteroid, viro=static agents, hemo – rheologic substances and neurotonics and may definitely help in improving the prognosis of Bell's Palsy.

The study by Jalaudin MA[16], shows there was more improvement in concomitant symptoms in the combined treatment group than the group treated with steroid alone.

According to present study time from onset of paralysis to presentation at clinic and extent of paralysis when first seen, shows that patient with partial weaknes and taking treatment as early as possible recovered well.

According to Dalton, findly, Jonglkees et, al., study initial complete paralysis indicates bad prognosis while in partial paralysis complete recovery seen. Cawthorne and Hyanee noted full recovery in 47 out of 111 patients with complete palsy as against 57 out of 67 with partial palsy.

Cawthorne and Wilson condluded that 55 % of complete palsy fails to recovered while 95% of incomplete palsy recover spontaneously.

In the present series, 92.1 % complete recovery, 5.23 % partial recovery, 2.67% nil recovery were found in partial paralysis group while only 54.54% complete recovery, 31.91% partial recovery and 13.65% no recovery were found in complete paralysis group.

In present series

1. 94.74% of patients recovered completely who presented within 24 hours.
2. 78.57 % of patients recovered completely who presented in 24-48 hours.
3. 71.42% of patients recovered completely who presented in 2-3 days. While
4. 61.54 % of patients recovered completely presented in 3 – 5 days.

The present series shows that 91.89 % of patient recoverd completely with normal taste sensation and 56.52% of patient recovered with diminished taste sensation.

As far as lacrimation is concerned Verjal, Maxwell and magielski have given good importance to this test, however Collier, Dalton and Lathop consider this test unimportant and unreliable, because of exposure keratitis.

In present series, out of 60 patient, 90% of patients are completely recovered who have normal lacrimination, 76.94% of recovered completely with diminished lacrimation and 0% had nil recovery with absent lacrimation.

In present series of 60 patients, 90.91% of patient are recovered fully with normal salivation and 64.71 % of patient are recovered completely with decrease salivation and 70% of patient shows complete recovery who had not able to do cannulation of ducts.

A 25% reduction of salivation between sides is considered significant[17]. But even an ardent supporter recently has confirmed that this technique is no more accurate than guessing[20].

Looking the results of conservative treatment, the treatment of choice is category III, steroid, anti-viral agent, vasodilators and vitamin B complex.
In present series,

1. 65% of patients are complete recovered with category – I and 20% of patient partial recovered and 15% of patient shows no any recovery.
2. 80% of patient are completely recovered with category II and 15 % of patient partial recovered and 5% of patient shows nil recovery.

3. 90% of patient are completely recovered with category III and 10 % of patient partial recovered and No any patient shows nil recovery.

Adour K. K. Hetzler D.G. et al[18] shows that there was definite role of steroid in Bell's palsy. The were concluded from their study.

Adour[18] concluded a double blind study with placebo, prednisolone and prednisolone with acyclovir, shows that patients treated with acyclovir and prednisolone demonstrated less degrees of facial weakness on MST testing and a lower incidences of unsatisfactory recovery.

Jalaudin M.A. [16] conducted a study with placebo, with steroid alone, and with steroid & methylcobalmin (Vit. B. Complex) shows the improvement of concomitant symptom was better in the methylcobalamin and steroid treated groups than the group treated with steroid alone.

So from present series of study it definitely shows that steroid has definite role in recovery, but superior to steroid alone, is a combine therapy with antiviral, vasodilator and Vit. B. Complex. and also degree of muscle tone and extent of paralysis are mort reliable criteria in assessing prognosis of Bell's palsy. Early presentation and early treatment had good prognosis But the value of lacrimation and taste sensation, salivation test is limited.

Conclusion: Bell's palsy is mot common type of facial weakness. Sex of patients and side of diseases do not alter the prognosis Most of the patients present with complaint of facial weakness or asymmetry followed by dribbling of saliva and improper eye closure. Fewer patients present with altered taste sensation. Recurrence of disease is poor prognostic factor. Partial paralysis, short duration and early starting treatment within 24 hours are associated with good prognosis. Flacid face, which means complete facial weakness has poor prognosis Topodiagnostic tests such as lacrimation test, salivary flow test, and taste sensation are not much valuable because many other factors take considerable part in the positive or negative result of this test. Steroids has definitely role in management. Bell's palsy can be best treated by a combination of steroids with other agents, like vasodilators, neurotonics, antiviral, although steroid alone may be satisfactory effective in treatment

References:

1. Price, Fife, T; Fife, DG, "Bilateral simultaneous facial nerve palsy". J Laryngol Otol. 2002: 116 (1): 46–8.
2. Jain V, Deshmukh A, Gollomp S, "Bilateral facial paralysis: case presentation and discussion of differential diagnosis". J Gen Intern Med 2006: 21 (7): C7–10.
3. Sullivan FM, Swan IR, Donnan PT et al. "Early treatment with prednisolone or acyclovir in Bell's palsy". N. Engl. J. Med. 357 2007: (16): 1598–607.
4. Adour K.K By F.M. Hilsinger, R.I. Kahn, Z.M. Sheldon, M.I. 1978, the true nature of Bell's palsy, analysis of 1000 concecutive patients, laryngoscopy 88, 787 – 801.
5. Tarek S. Shafshak. M.D., The possible contribution factors for the success of steroid therapy in Bell's Palsy, The journal of Laryngology and Otology, Nov. 1994.
6. Rengachary SS. Cranial nerve examination. In RH wilkin s, SS Rengachary, editors, Neurosurgery 2nd Ed. New York, MC, Graw Hill, 196 ; 67-86
7. Serafina Domica, A study of Bell;s Palsy, The internal Journal of Advanced Nursing practice, 1998, Vol. 2 No.1.
8. D.S. Sardana, A.K. Tewari, taste disturbances in head injury. Indian Journal of Otolaryngology, June – 1980, volume, -32. No. 2.
9. Tschiassny K. et. al, Eight syndromes of facial paralysis and their significance. Ann otol. Rhinol. Larynogol. 62 : 677, 1953.
10. D.S. Grewal, Bachi, T, hathiram, Rohan Walvekar, Alok V. Mohorikar, Minal shroffs, N.K. Bahal Surgical Decompression in Bell's palsy, Indian journal of Otolaryngology and Head & Neck surger, July – Sept. 2002. Vol. 54 No. 3.
11. Hsenry B. Cramer M.D., Jack M. Kartush. Testing the facial nerve function in the

otofplaryngologic clinics of North America, , June -1991 Vol.- 24 Number -3.
12. Peirterson, E, The natural history of Bell's Palsy. American Journal of Otolaryngology, 1982; 4 : 107 : 111.
13. Brawn J. S, Bell's Palsy, a – 5 years review of 174, consecutive cases, an attempted double blind study,1982; Laryngoscope 92 : 1369 – 1373.
14. Wolf, S.M. Wagner, J.H. Davidson S. Forsy the A, treatment of Bell's Palsy with prednisolone, a prospective randomized study , neurology, 1978. 25 : 158 - 161
15. May, M. Wetter, R Hardin, W.B. Sullivan J. The use of steroids in Bell's Palsy. a prospective controlled study, Laryngoscope. 1976 ; 95 : 406 – 409.
16. Jalaludin M.A., Methyl cobalamin treatment of Bell's Palsy. Dept. of ototrinolargngolazy, fereculto of medicine, University of matuyer, Malaysia. Methods find Exp. Clin parmacol (spain) Oct. 1995, 17(8) p – 539 – 44.
17. House J.W. & Brackmann D.E., Facial nerve grading system. Otolaryngology Head Neck Surgery , 1985; 93 : 146 – 147.
18. Adour K.K., Ruboyiances J.M. Von – Doersten PG et. al. Bell's Palsy treatment double blind randomized controlled trial, Ann, Otol – Rhinol Laryngol 1996,105 ; 371 – 378.

Conflict of interest: None
Funding: None