https://dx.doi.org/10.22161/ijmpd.4.1.1 *ISSN: 2456-8015*

Prevalence of nerve conduction study to determine the prognostic value in Bell's palsies patients

Authors: Dr. Garima Bafna[1], Dr. Ankit Kumawat[2*]

[1]Senior Professor, Department of Physiology, JLN Medical College, Ajmer, India
[2]Post Graduate Resident, Department of physiology, JLN Medical College, Ajmer, India
***Corresponding author:**
Dr. Ankit Kumawat
Email id: ankit4brothers@gmail.com

Abstract— *Objective: To assess and compare side to side nerve conduction amplitude and degree of recovery facial nerve in bell's palsy patients.*

METHODS: The present study was conducted on 23 Bell's palsy patients (Aged 20-40 years) within 2week after onset of disease, in department of physiology with collaboration with department of ENT in JLN medical college and attached hospitals, Ajmer. Motor nerve conduction and latency recorded. Patient was made to lie down and surface electrodes were fixed over the skin which is on the nerve and supplying muscle. By stimulating the nerve at two different point and record motor evoke response.

Result: Motor response is reduced in facial nerve; If motor response is <10% of normal (moderate-to-severe).recovery time is 6-12month.; If motor response is 10-30% of normal (mild-to-moderate) recovery time is 2-8month.; If motor response is >30% of normal complete recovery expected within 2month.

Conclusion: Present study concluded that early recovery (within 2 months) recorded in patients with motor response is >30% of normal as compared to patients with motor response is <10% compared to healthy side. (Within 6-12 months). NCS is used to as an important tool to diagnose and prognoses the facial neuropathy in the Bell's palsy patients.

Significance: Present Study signifies the importance of nerve conduction studies in early initiation of treatment and recovery of facial neuropathy in Bell's palsy patients.

Keywords*— *Bell's palsy, facial neuropathy, Nerve conduction velocity.

I. INTRODUCTION

Bell's palsy is a common neurological problem causing considerable loss of self-esteem among patients. An observational study was conduct to determine the short outcome of bell palsy within 2month after the onset of injury to recovery of facial nerve degeneration. During study other cause of neuropathy excludes. After clinically grading the newly diagnosed unilateral Bell's palsy patient using the house-brackmann facial nerve grading system, nerve conduction studies of facial paralysis was clinically graded again at the end of 2month from onset.

Bell's palsy (facial palsy) causes sudden unilateral, peripheral and temporary weakness in facial muscles which gradually resolves over times in 80-90% of cases. The exact cause remains unknown/idiopathic but may viral, ischemic, and autoimmune in origin, post traumatic injury.

NCS is the most informative noninvasive Electro diagnostic test for measuring the dysfunction of large myelinated sensory and motor fiber, with provides quantitative and objective data. It has diagnostic as well as prognostic value, with detecting subclinical or an asymptomatic neuropathy.

Criteria

Inclusion Criteria:

- A unilateral peripheral facial nerve palsy (patients).
- Consent given by patient

Exclusion Criteria:

- Any other neuropathy(except bell's palsy)
- Unstable cardiovascular disease
- Severe immune deficiency

II. METHOD

The present study was conducted on 23 Bell's palsy patients (aged 20-40 years) within 2week after onset of disease, in department of physiology with collaboration with

https://dx.doi.org/10.22161/ijmpd.4.1.1 *ISSN: 2456-8015*

department of ENT in JLN medical college and attached hospitals, Ajmer.

Patient was made to lie down and surface electrodes were fixed over the skin which is on the nerve and supplying muscle. By stimulating the nerve at two different point and record conduction velocity response

All patients recruited for this study had a total of 2 visits. The first visit was within 2 week of the onset of Bell's palsy where the facial paralysis was clinically graded using the House-Brackmann grading system with collaboration of ENT department, and second visit on 2month where maximum recovery taken.

Patient (Total No.23) divided in 3 group

Group 1:- 14 out of 23 patients who have recovery time within 2 month

Group 2:- 7 out of 23 Patients which have recovery have within 3-6 month

Group 3:- 2 out of 23 patient which still in follow up

III. RESULTS

Table.1: Variables in Nerve conduction velocity in facial palsy

S. No	No. of patient of bell's palsy	velocity(m/s) At first visit	velocity(m/s) At 2 month	recovery time
Group 1	14	40.4 ± 3.2	44.5 ± 3.2	Within 2 month
Group 2	7	34.6 ± 3.2	39.8 ± 3.2	3-6 month
Group 3	2	19.3 ± 3.2	22.6 ± 3.2	6-9 month

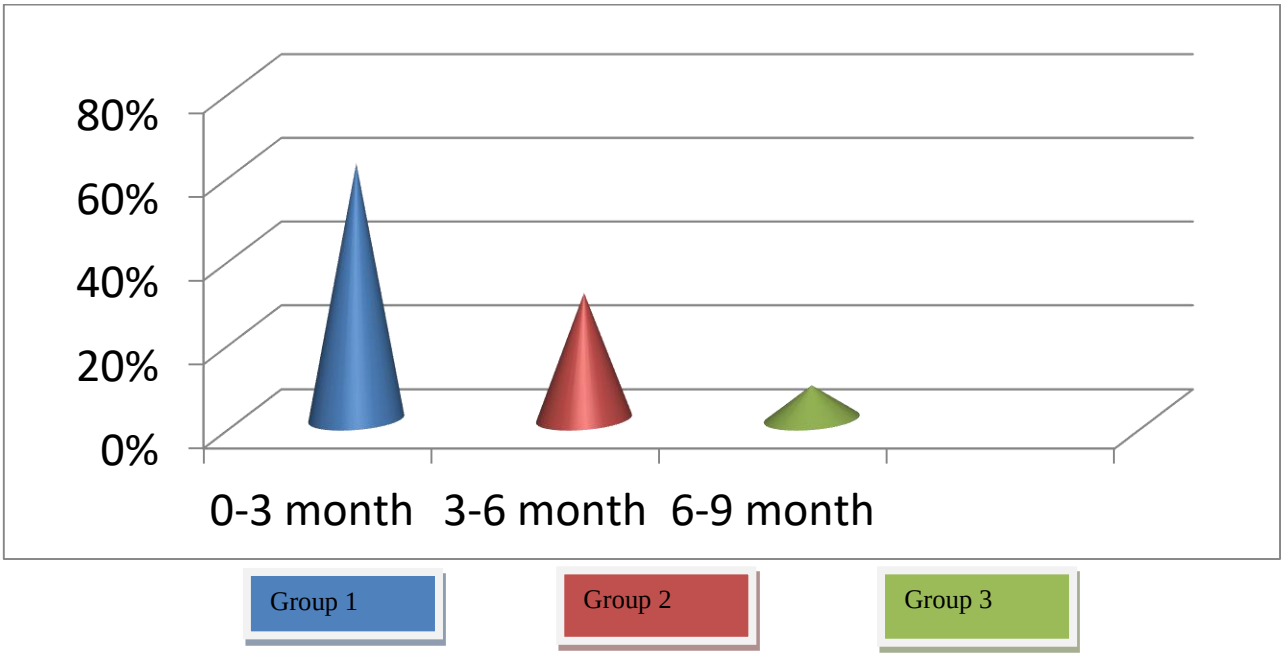

Fig.1: Relation of recovery time (horizontal), and percentage of facial palsy patients (vertical)

IV. DISCUSSION

Nerve conduction velocity is reduced in facial nerve palsy.

- If velocity is <10% compared to healthy side (moderate-to-severe) group 3, recovery time is 6-9 month.
- If velocity is 10-30% of normal (mild-to-moderate) group 2, recovery time is 2-6 month.
- If response is >30% of normal complete group 1, recovery expected within 2 month.

Study concord to –Olsen, 1975; Dumitru et al., 1988

V. CONCLUSION

In most patients with acute facial palsy (idiopathic or Bell's palsy), an underlying cause cannot be found. In these patients, the chance of recovery is very high but also depends upon nerve degeneration. Complete recovery rates

https://dx.doi.org/10.22161/ijmpd.4.1.1 *ISSN: 2456-8015*

between 70% and 90% have been reported. NCS is prognostic tool as well as diagnostic tool to predict full recovery. A useful prognostic tool would help to identify the minority of patients who will develop defective healing (mild synkinesis).

VI. LIMITATION

Study was conducted on small sample size in short time duration. For better results large sample size spanned over longer time duration may be taken.

REFERENCES

[1] Kar N, Banerjee SK. Prediction of recovery of Bell's palsy from clinical manifestations. Journal of the Indian Medical Association. 1992; 90: 267-79.
[2] May M, Blumenthal F, Klain SR. Acute Bell's palsy: prognostic value of evoked electromyography, maximal stimulation, and other electrical tests. Am J Otol. 1983; 5: 1-7.
[3] Halvorson DJ, Coker NJ, Wang-Bennett LT. Histological correlation of the degenerating facial nerve with electron urography. Laryngoscope. 1993; 103: 178-84.
[4] Peitersen E. The natural history of Bell's palsy. Am J Otolaryngol. 1982; 4: 107-111.
[5] House]W, Brackmann DE. Facial Nerve Grading System. Otolaryngol Head Neck Surg. 1985; 93:146-47.
[6] Yasukawa M, Yasukawa K, Ohnuma H. Prognostic diagnosis of facial palsy with electron urography. Masui-Japanese Journal of Anesthesiology. 1995; 44: 378-87.
[7] Wang Y, Zhang S, Xu H. A report of 164 cases of Bell's palsy. Chinese Journal of Otorhinolaryngology. 1996; 31: 334-37.
[8] Katusic SK, Beard CM, Weiderholt WC, et al. Incidence, clinical features and prognosis in Bell's palsy: Rochester, Minnesota 1968-1982. AnnNeurol. 1986; 20: 622-27.
[9] Danielidis V, Skevas A, Van Cauwenberge P, Vinck B. A comparative study of age and degree of facial nerve recovery in patients with Bell's palsy. European Archives of Oto-Rhino-Laryngology. 1999; 256: 520-22.