Letters to the Editor

Response of patients with nerve function impairment in leprosy to low dose steroid administration: An outpatient based study

Sir,

Lepra bacilli predominantly affect the peripheral nervous system and the skin.[1] The motor nerves predominantly affected are ulnar, radial, common peroneal, posterior tibial and facial.[2] In the tuberculoid spectrum (TT, BT and BB) nerve involvement starts early and progresses and it is due to the granuloma infiltrating the nerve or reactional damage. In the lepromatous spectrum (BL, LLs and LLp) the damage may take years or may increase suddenly during a reactional episode and is widespread and symmetrical.[3] Appropriate use of steroid along with physiotherapy and multidrug therapy (MDT) forms the basis of treatment in motor paralysis. Most of the patients visiting this center were from distant areas and thereby were not able to come for a regular monthly follow-up. Therefore in this study instead of the high-dose steroid we tried to evaluate the motor response in patients with leprosy who were on domiciliary low-dose steroid treatment for their motor involvement.

The study was retrospective and conducted in patients who attended the outdoor patient department (OPD) at CJIL, Agra over a period of one year from August 2004 to July 2005. All relevant information was obtained from patients' OPD notes. Patients with ulnar, median, radial, lateral popliteal, posterior tibial, and facial nerve involvement with obvious motor damage, patients in whom voluntary motor muscle testing (VMT) had been done prior to the start of therapy and subsequently repeated at least once between four to eight months were included in this study. The VMT was done using Medical Research Council scale.[4]

Patients having features of only sensory loss, those on steroid therapy prior to onset of nerve damage, those who could not tolerate drug therapy and patients with obvious pain at the time of presentation, which prevented a baseline VMT record and also those who required inpatient management were excluded from this study.

After a detailed history, clinical examination, slit-skin smear test, VMT was done and the patients were administered prednisolone as per severity of disease taking into consideration the severity of reaction, and number of nerves involved. The dosage ranged from 10–20 mg, which was given for one to four months.

Voluntary motor muscle improvement was noted as follows:

- If greater than half the number of muscles presenting initially with paresis/paralysis showed the following increase in the VMT score over the baseline score
- One-step increase - (+) or marginal improvement (e.g. a 3+motor power of ulnar nerve prior to therapy was increased after treatment to 4+)
- Two-step increase - (++) or moderate improvement
- Three-step increase - (+++) or marked improvement
- Good response was considered if the patients showed moderate (++), marked (+++) or complete recovery. Poor response was considered if the patients showed no response or marginal change (+).

Forty-nine patients fulfilled the inclusion criteria and were included in the study. Males were seven times more than females. The age of patients ranged from 8 to 70 years. Twenty-nine patients gave history of illness of less than one year duration. The majority of patients with reactions presented within six months. Borderline-Tuberculoid (BT) and BT with reaction accounted for more than two-thirds of the patients with nerve damage, followed by borderline lepromatous and polyneuritic leprosy patients, who comprised 20% and 10% respectively. Ulnar nerve was the most commonly involved nerve followed by the lateral popliteal and median nerve. Patients with lateral popliteal nerve damage presented early as compared to median and ulnar nerve. Out of 49 patients, the number of patients receiving 20 mg, 15 mg and 10 mg of prednisolone were 24, 18, and seven respectively. All the four patients less than 15 years received 10 mg of prednisolone .

A good response was considered if there was a complete recovery, marked (3+), or moderate (2+)

recovery. Similarly, a poor response was considered if there was mild (1+) or no change.

Patients presenting within one year of onset of lesions or reactions fared better. Patients with fewer nerve trunks' involvement (<5) responded better. Approximately two-thirds of patients treated with 20 mg of steroid had good response as compared to lesser dosage (Figure), without worsening of the motor response even after two months of completion of steroid therapy. Among the patients who responded, 55% responded in first two months and 75% did so in the first four months of therapy. Response in patients with BT/ BT with reaction was better. Pure neuritis patients had the poorest response [Figure 1]. Patients with lateral popliteal nerve and ulnar nerve involvement responded more favorably than median nerve.

Nerve damage may occur before anti-mycobacterial treatment, during treatment and even in patients who are released from treatment labeled 'cured' by leprosy programme.[5] Patients with disease duration of less than six months had good chances of recovery and greater than one year had poor response.[6] Similar finding were noticed in our study. The initial dose of steroid was usually not more than 40 mg and the crucial dose seemed to be between 15-20 mg.[3] In our study it was found that 20 mg of steroid provided favorable response in the majority of patients. Though statistical significance was not present with regard to this data, a prospective study with a larger sample size may be of benefit.

Ulnar nerve was the most commonly involved nerve as seen in other studies. Common peroneal nerve responded better, followed by ulnar and median. This may probably be due to the fact that patients with foot drop presented early for treatment as compared to claw hand.

To conclude, early initiation of steroid therapy in dosage as small as 20 mg results in favorable motor recovery in patients with recent nerve damage.

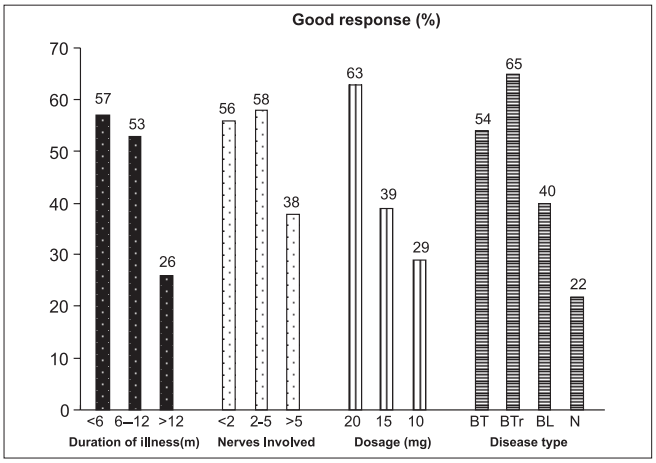

Figure 1: Summary

Varadraj V. Pai, B. K. Girdhar[1], K. Hanumanthayya, R. S. Tophakhane[2]

Department of Dermatology, SDM College of Medical Sciences, Dharwad, [1]Central JALMA Institute for Leprosy (CJIL), Agra, [2]KIMS, Hubli, India.

Address for correspondence: Dr. Varadraj V. Pai, Department of Dermatology, SDM College of Medical Sciences, Dharwad, Karnataka – 580 009, India.
E-mail - docpai@rediffmail.com

DOI: 10.4103/0378-6323.66582 -

REFERENCES

1. Jopling WH, McDougall AC. Handbook of Leprosy. 5th ed. New Delhi: CBS Publishers; 1996. p. 1.
2. Ramu G, Pfaltzgraff RE. Clinical leprosy. In: Hastings RC, Opromolla DV, editors. Leprosy. 2nd ed. Edinburgh: Church Livingstone; 1994. p. 237-90.
3. Naafs B. Current views on reactions in leprosy. Indian J Lepr 2000;72:97-122.
4. Medical Research Council. Aids to the examination of the peripheral nervous system, Memorandum no. 45, Her Majesty's Stationery Office, London, 1981.
5. Naafs B. Bangkok Workshop on Leprosy Research. Treatment of reactions and nerve damage. Int J Lepr Other Mycobact Dis 1996;64:S21-8.
6. Srinivasan H. Leprosy: surgical and ancillary treatment. In: Valia RG, Valia AR, editors. IADVL textbook and atlas of dermatology. 2nd ed. Mumbai: Bahalani Publishing House; 2001. p. 1630-44.