



WRIST DROP IN LEPROSY: ROLE OF STEROID AND ADJUNCT PHYSICAL THERAPY IN EARLY RECOVERY

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<p>Article Info <i>Received 15/02/2015</i> <i>Revised 27/03/2015</i> <i>Accepted 29/04/2015</i></p> <p>Key words: Wrist drop, leprosy, MB, Voluntary Muscle Testing (VMT), Eye, Hand Feet score (EHF), Multi Drug Therapy (MDT).</p>	<p>ABSTRACT</p> <p>To study the role of intervention with steroid and adjunct physical therapy in early reported wrist drop in leprosy under Disability Prevention and Medical Rehabilitation (DPMR) programme. An MB leprosy cases 5 year after RFT (Release after treatment) presented with wrist drop with ulna median weakness reported to the Research Institute. Clinical history, examination and skin smear was done. Steroid (Prednisolone) and physiotherapy exercise initiated and assessed VMT and EHF with follow-up at regular interval. After 15 weeks, there was complete recovery of affected part of leprosy person. Use of steroid and physiotherapy wrist drop in initial stages shows significant improvement in the muscle power.</p>
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INTRODUCTION

Leprosy is the most common treatable cause of neuropathy in the world. [1] In all patients with leprosy, the nerve tissue is involved. Clinical examination is often sufficient to reliably diagnose leprosy neuropathy. Left untreated, leprosy can be progressive, causing permanent damage to the skin, peripheral nerves, limbs and eyes. Wrist drop, also known as radial nerve palsy, is a condition where a person cannot extend their wrist and it hangs flaccidly. Ulnar nerve is most commonly involved in upper limb, followed by median nerve and radial nerve is least commonly involved and wrist drop due to leprosy is quite rare.

Case History

A 38 year old male, non-agricultural laborer was first diagnosed with multibacillary leprosy cases in the year 2008. He has successfully completed WHO MDT from a government hospital. In April 2014, he developed left wrist weakness and unable to extend joint with a little, middle

and ring finger weakness for duration of 2 weeks. A proper history and examination (clinical and microbiological examination) was carried out in the outpatient department and enrolled in Disability Prevention and medical rehabilitation section. No history of any type of trauma of affected part before reporting to the Institute. On examination, radial, ulnar and median nerves of left hands were thickened but not tender. The ulnar and median nerve muscles are weakened with complete wrist drop. Slit skin examination of sites shows zero BI and MI and diagnosed as old cases of MB with neuritis with left wrist drop with ulna medical weakness. VMT and EHF score was done.

He was placed on dosages of Prednisolone as per DPMR guidelines [2] and imparted training for the active and passive physiotherapy based. It begins with a maximum of 40mg of Prednisolone daily in the morning. Tapering of the dosage was made by 5mg daily during the successive week. It was made according to the patient's response. The total duration of steroid therapy was 12



weeks with a 15 day follow-up. Gradual introduction of gravity elevated exercises after getting muscle power grade II of the affected part. Cock-up splint was applied during the course of treatment. After 15 weeks ,left wrist drop of

patient recovered completed. EHF score improved from 6 to zero and grade of disability from II to zero during the course of 15 weeks.

Table 1. Muscles assessments of radial nerves

Nerve	Muscles	First Day assessment		First month assessment		Second month		Third month		Final assessment at 15 weeks	
		Right	Left	Right	Left	Right	Left	Right	Left	Right	Left
Radial	Ext. C. RAD LON & BR	5	0	5	1	5	3	5	4	5	5
	EXT. C. ULNARIS	5	0	5	1	5	3	5	4	5	5
	Ext. DIG. COM	5	0	5	0	5	3	5	4	5	5
	EXT. POL.LON	5	0	5	0	5	3	5	4	5	5

Note: 5- Normal strength, 4- Full range movement against some resistance, 3- full range movement, no resistance, 4- Movement of Joint but no full range, 1 –muscle flicker, 0-Complete paralysis

Figure 1. Wrist drop at time of enrollment



Figure 2. Cock-up splint of affected wrist



Figure 3. Complete recovery of left wrist after 15 weeks of adjuvant therapy



DISCUSSION

Nerve damage appears to be the result of the multiplication of bacilli within Schwann's cells and damage to the perineurium, which is partially replaced by Schwann's cells. Bacillary multiplication and nerve destruction are most intense at certain superficial sites of predilection. The earlier corticosteroids are given after the onset of nerve damage, the more likely permanent nerve function impairment will be prevented. [3, 4] In leprosy,

upper and lower limbs and face are mainly affected by deformities. Either the median or ulnar nerve or rarely the radial nerve is involved in isolation or in combination. For radial nerve palsy standard FCU transfer, FDS transfer and FCR transfer are the reconstructive methods. [5] As long as there are signs of weakness, someone, preferably the patient himself, must put all his paralyzed joints through their full range of movement each day, even if they cannot



be actively maintained in their positions of function. Protect his paralyzed muscles by splinting his joints in their positions of function during sleep, and never allow a muscle to be overstretched. Make sure he does active physiotherapy to retain the mobility of all his joints. Deformities of hands (Claw hand/drop wrist) and feet (foot drop) develop due to paralysis of muscles that can be corrected by surgery to those patients who came late to seeking treatment. If proper care of deformity is not taken, joints of the fingers, thumb and ankle may become stiff. The skin around the joint becomes loose to allow movement. Once fibrosis develops exercise may not help. When muscles get paralyzed, the limb gets deformed owing to an imbalance of muscle force around the joints. If the joint is not moved passively for its full range of movement, lax skin on one side of the joint is not stretched and becomes shortened, resulting in fixed deformity of the

joint that restricts the full movement of the joint. Delay in treatment of leprosy, lepra reaction and neuritis are the main causes of the development of disability. If neglected, these disabilities/deformities may worsen gradually and even lead to debilitation of the affected person. Early diagnosis of nerve damage can easily be done by regular and periodic nerve function assessment of all susceptible nerve trunks. The patient needs to have regular follow-up for long duration even after treatment.

CONCLUSION

Wrist drop in person affected with leprosy has a good prognosis with the use of the steroid and regular physiotherapy early reported cases. Awareness of its clinical characteristics and diagnostic assessment methods may help clinicians make a diagnosis of radial neuropathy and exclude irrelevant evaluations.

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