

HANSENS DISEASE: STUDY OF CLINICAL, NEUROPATHOLOGICAL, NEUROPHYSIOLOGICAL PATTERN OF LEPROUS NEUROPATHYVijay Kumar Nandmer¹, Ajay Kumar Nandmer²**HOW TO CITE THIS ARTICLE:**

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ABSTRACT: A need still exists to determine the clinical and neurophysiological characteristics of leprosy neuropathy at distinct times of the disease by different methods that measure the various nerve fiber functions. A prospective clinical study was performed 100 patients of clinically proven Hansen's will take in study and given diagnosis is made by dermatologist and neurologist. For Study of Clinical, Neuropathological, Neurophysiological Pattern of leprous neuropathy and results shows that Peripheral neuropathy is common neurological disorder, although population based studies are scarce. It is a diverse group of disorder with varying etiologies. Many of these are amenable to treatment while others are not. It affects all age groups are different etiologies in various age groups. Disorder is more common in males. Leprosy is still most common cause of peripheral neuropathy in this part of world. GBS is commonest cause in acutely presenting patients of peripheral neuropathy. Vacuities is also common especially in undiagnosed peripheral neuropathy patients and revealed by nerve biopsy. Tingling and numbness are two most common sensory complains. On objective sensory examination impairment of pain/temperature was most common. Evidence of large fiber dysfunction was less common. Almost half of leprous neuropathy had impaired joint position and vibration. Anesthetic patches and thickened nerve are two commonest indicators of leprous neuropathy. Among DTRs ankle jerk was most commonly affected. Almost half of GBS patients had history of preceding illness. Overall sensorimotor polyneuropathy was most common type of pattern after clinical- electrophysiological evaluation. Multiple mononeuropathy was most common in leprous neuropathy. Most patients had axonal type of involvement. In GBS patients predominantly motor neuropathy was found Skin smear examination is readily available and easy test to diagnosed leprosy, if done carefully. Sural nerve biopsy is useful in doubtful diagnosis. Around 16. 47% patient remains undiagnosed even after all investigation. Further population based studies are need of the day for evaluating the changing epidemiology of peripheral neuropathy.

KEYWORDS: Hansens disease, Clinical, Neuropathological, Neurophysiological, Leprous neuropathy.

INTRODUCTION: The objective of the proposed research work is to study entrapment neuropathy in Hansen's in patients attending Neurology OPD and admitted in neurology ward, Chronic central nervous system infection is characterized by pain, numbness, paresthesia, weakness, thinning of limbs, nerve thickening,. Diagnostic evaluation of a patient with sign and symptoms of hansens must comprise a very detailed history, exact physical and nervous system examination, NCV. Nerve biopsy, neuroimaging and laboratory examination. The aim of study is that we will try to correlate the clinical, biochemical and radiological profiles to outcome of hansens.

AIM AND OBJECTIVES: Study was carried out at over a period of 2 years from September 2011 to September 2013 with following objectives: To study the pattern of entrapment neuropathy biopsy proven leprous neuropathy. The sequential improvement entrapment neuropathy in leprous

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neuropathy with antileprosy treatment. Evolve treatment guidelines in patient with leprosy neuropathy using the tool of neurophysiology, neuropathology of leprosy neuropathy for the further prognosis and outcome. Study pattern of nerve involved in treated and non-treated patients. Neurophysiology in all patients and to monitor their sequel during treatment. Neuropathology in Hansen's. To study the associated disorders influencing outcome of Hansen's e.g., B12 deficiency, neural trauma. Follow up of neurophysiology and improvement in course of treatment. Determine the epidemiological profile of peripheral neuropathy patients. Clinical profile of peripheral neuropathy patients with special reference to referred undiagnosed patients. Electrophysiological profile of these patients.

MATERIAL AND METHODS:

Inclusion Criteria:

1. 100 patients of clinically proven Hansen's were taken in study and given diagnosis is made by dermatologist and neurologist.
2. The patient classified into new treated, follow up, treatment group and accordingly worked up.

Clinically diagnosed Hansen's disease with clinically proven neuropathy or neurophysiologically proven neuropathy taken from Neurology and dermatology department after detail workup and routine investigation of patient e.g., Nerve biopsy, vitamin-B12, CSF, HIV, VDRL.

Clinically obvious Hansen's neuropathy followed clinically and neurophysiologically but on the other hand sub-clinically involved Hansen's, nerve biopsy is done to prove about Hansen's neuropathy. In study patients are followed up for 2 years, patient visit neurology OPD and Lab every 3 months and on every visit clinical and neurophysiology was done.

Exclusion Criteria:

1. Patients who are taking anti-leprotic treatment for 2 years or more.
2. Burnout syndromes.

This prospective study where we take consecutive patient of diagnosis of peripheral neuropathy secondary to leprosy and all the cases where neuropathologically proved leprosy over the period of 2011 to 2014. The diagnosis of leprosy neuropathy was based on clinical examination of cutaneous and neurological system confirmed by histological abnormalities in skin biopsy, skin smear, nerve biopsy. NCV examination. The patient are classified using Ridley and Joblin and sural nerve bilaterally and WHO Classification. All the Patient will undergo following Steps of Evaluation:

1. Detailed history and neurological examination.
2. Details of past treatment record.
3. Laboratory investigations example ESR, CBC, HIV, RBS, Liver function test, Kidney function test.
4. ANA, ANCA, ANTI-DS DNA to be performed if possible.
5. Detail electromyography and nerve conduction test in all patients.

Median, Ulnar, Radial, peroneal and Tibial nerve study, bilateral in all the patient and sensory nerve conduction studies performed in median, ulnar, super facial, radial, super facial peroneal and sural nerve bilaterally.

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SUMMARY: The present study was done on 100 patients of peripheral neuropathy at neurology department between September 2011 and September 2013.

After taking proper neurological history detail neurological examination was done in all patients. Stepwise approach applied for investigating all patients according to set protocol.

Results of study are summarized below:

- Most common diagnosis was leprosy in nerve biopsy patients (30%). Second most common diagnosis was vasculitis (29%). 16% patients remain undiagnosed in this particular group.
- Out of 28 patients of hansens 6[21.42%] patients has cranial nerve involvement in which 7th cranial nerve [10.71%] is most commonly involved nerve.
- Out of total 100 patients 28 are diagnosed as hansens, and inching method [Kimura] is done in 20 patients, out of which 12[60%] patients shows focal demyelination,6 [30%] has normal finding on inching and 2[10%] patients shows non-recordable NCS.
- Male: Females was 2. 8:1
- Age range from 2 to 78 years and mean age was 37.67±20.42 years. Maximum patients were in to 5th decade of life.
- Hansen's disease (Leprosy) was diagnosed in 30%, GBS in 5. 47%, Vasculitis in 29%, atypical diabetic neuropathy in 5.47%, and 16.43% remain undiagnosed after all investigations.
- Around 213 of cases of leprosy were in the age group of 11-50 years with following distribution-second decade 143%, third decade 28.6%, fourth decade 10.7%, fifth decade 143%, sixth decade 10.7% and seventh decade 17.9%.
- 314th of GBS patients were between 11-40 years (mean 27.800±15.68), age ranges from 3 years to 65 years.
- The male to female ratio in leprous neuropathy was 6:1.
- In the GBS group 68% patients were male.
- In Vasculitis neuropathy 63% patients are female.
- Two third patients presented with duration of symptoms less than 12 month before presentation (Mean 31.22±68.18 months). In GBS group all patients are in less than 1 month duration group (Mean 12.99±9.12 days). 78% patients in Hansen's disease group were presented before 5 years, out of them only 32% are before 12 months. 314th of hereditary neuropathy was presented with more than 5 year duration.
- Among subjective sensory complains tingling (70%) was the most common followed by numbness (52%) with pain (28%) and burning (26%) was less common.^[1]
- Objective sensory examination revealed that 49% had impairment of pain/temperature. Evidence of large fiber dysfunction found in 1/3k' patients.
- In leprosy patients 50% impairment in Joint position and 46% had vibration impairment.
- In 27% patient's skin examination was abnormal. Most common finding was anaesthetic patches (14%) followed by shiny atrophic skin (11%) and 6% patients had skin ulcerations.^[2]
- In leprosy group skin was abnormal in 60% of patients. In these abnormalities anesthetic patch was present in 40% of PBHD and 39% of MBHD patients.
- 30 patients out of 100 were had thickened nerves. CPN (21.5%) and ulnar nerve (20.5%) were most common nerve found thickened. All leprosy patients had nerve thickening.
- Diminished DTRs found in 72% patients. Most common reflex affected was Ankle jerk (52.5%) followed by Supinator and Knee jerks each 42%.

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- 32% patients of leprosy had diminished or absent DTRs.
- Nerve conduction study showed 81% axonal and 16% demyelinating pattern.^[3]
- 48% of GBS patients had history of preceding illness. History of diarrhea was in 41.66% of total and URTI in 33.33% preceding events.
- According to clinical and electrophysiological features, 58% patients presented with polyneuropathy pattern, 36% with multiple mononeuropathy and 6% with mononeuropathy. Sensorimotor neuropathy (54%) was most common pattern followed by motor (27%) and sensory(19%).^[4]
- GBS group comprised 18/25 pure motor and 7/25 sensorimotor type of involvement.^[5]
- Leprosy group comprised multiple mononeuropathy as the most common pattern found in 60% of patients while 32% had mononeuropathy.
- 32% leprosy neuropathy had positive skin smear for leprosy.
- According to our study family history was positive in 12% of patients.
- 73% patients in our study underwent sural nerve biopsy for diagnostic evaluation. Out of them 69.44% were male. Patients were distributed in all age groups with two peaks between 11-30 and 61-80 years age group 36% in each.^{[6],[7]}

CONCLUSION:

- Peripheral neuropathy is common neurological disorder, although population based studies are scarce.
- It is a diverse group of disorder with varying etiologies. Many of these are amenable to treatment while others are not.
- It affects all age groups are different etiologies in various age groups.
- Disorder is more common in males.
- Leprosy is still most common cause of peripheral neuropathy in this part of world.
- GBS is commonest cause in acutely presenting patients of peripheral neuropathy.
- Vasculitis is also common especially in undiagnosed peripheral neuropathy patients and revealed by nerve biopsy.
- Tingling and numbness are two most common sensory complains.
- On objective sensory examination impairment of pain/temperature was most common. Evidence of large fiber dysfunction was less common.
- Almost half of leprosy neuropathy had impaired joint position and vibration.
- Anesthetic patches and thickened nerve are two commonest indicators of leprosy neuropathy.
- Among DTRs ankle jerk was most commonly affected.
- Almost half of GBS patients had history of preceding illness. Overall sensorimotor polyneuropathy was most common type of pattern after clinical electrophysiological evaluation.
- Multiple mononeuropathy was most common in leprosy neuropathy.
- Most patients had axonal type of involvement.
- In GBS patients predominantly motor neuropathy was found Skin smear examination is readily available and easy test to diagnosed leprosy, if done carefully.
- Sural nerve biopsy is useful in doubtful diagnosis.^[7]
- Around 16.47% patient remain undiagnosed even after all investigation.

- Further population based studies are need of the day for evaluating the changing epidemiology of peripheral neuropathy.

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