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A study on deformities in leprosy -A prospective observational cross sectional study.

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ABSTRACT

Leprosy is a disease of antiquity. The early evidence of leprosy was observed in an Egyptian skeleton of 2nd century BC and in two Coptic mummies of the 5th Century AD. At present leprosy is common in South East Asia, Africa, Central and South America, Eastern Mediterranean, Western Pacific and .

India contributes about 58% of the global Leprosy burden with present prevalence rate of 2.4/10,000 population and 71% of new cases worldwide. 93% of the case load is contributed by 11 endemic states of India

This study was conducted in the Department of Dermatology Tirunelveli Medical College from August 2014 to September 2014.A total of 35 patients were included in the study. The most common type deformity observed was Trophhic ulcer. (77.4%). The most common age group involved was above 50 years(68.45%). Grade - II deformity was the commonest grade presented with 74,2%.

KEYWORDS : Leprosy, deformities, multidrug therapy.

INTRODUCTION:

Leprosy is a chronic disease caused by Mycobacterium leprae, primarily affecting the peripheral nerves, and skin. As a single disease entity, leprosy is one of the foremost causes of deformity secondary to nerve damage. Leprosy still continues to be one of the major public health problems in many countries including India. Though in 2010-2011, Annual New Case Detection Rate (ANCDR) has been reduced to 4.12% from 10.93 during 2009-2010, there are still 48.6% of MB cases detected in 2010-2011. Even though India achieved the goal of elimination (i.e. point prevalence rate of less than 4 cases per 10,000 population), higher prevalence of leprosy is reported in some areas. Usually diagnosis of leprosy is made on clinical signs and symptoms, however finding of M. leprae in affected tissue confirms the diagnosis.

In India, an individual should be regarded as having leprosy if patient shows one of the following cardinal signs:

- Diminution or loss of sensation in a skin lesion, or in an area supplied by one of the peripheral nerves typically affected by Leprosv.
- 2. Enlargement and/or tenderness in a peripheral nerve typically involved in Leprosy
- 3. The finding of acid fast bacilli in smears.

However, even with the provison that two out of these three signs must be present for a diagnosis of Leprosy, all three call for qualification before acceptance at face value.

In view of all these facts, the deformity of Leprosy is studied with the following objectives.

OBJECTIVES

- To identify the deformities due to leprosy and grade them according to TheWHO scale.
- To find out the prevalence of various deformities among patients studied.
- To correlate the socio-demographic profile with deformities due to Leprosy.

MATERIALS AND METHODS:

The present study was an Observational Prospective study done in the Department of Dermato-Venero-Leprology, Tirunelveli Medical College Hospital from August to September 2014. Clinically and histologically confirmed leprosy cases were considered for the study. A total of 35 patients attending the Out-patient department during the study period, were included for the study. The age group under 18 years and deformities due to causes other than leprosy were excluded from the study. The study was conducted after getting approval from the Institutional Ethical committee. Detailed history was taken and thorough clinical examination was performed after obtaining informed consent from the patient. The data was recorded on a pre-designed proforma. The deformities were graded according to The WHO grading.

RESULTS:

A total of 35 patients were studied. Among them 28 were males and 7 females. The deformity rate was 91.4%. The most prevalent deformity is Trophic Ulceration comprising 77.14% followed by anesthesia 74.2%. Clawing and resorption each accounted for 57.14%.

The youngest patient was 28 years old and the oldest 84 years. The maximum deformities were seen in the age group above 50 years(68.45%) and among them the most common was Trophic ulceration (82.6%). This is followed by the age group 35-50 years (21.2%) among whom Trophic ulceration and Loss of sensation were found in equal proportion (85.7%).

The study included 80% males and 20% females. The present study showed that males had more deformities (74.2%) compared with females (17.1%) The proposed reason is that men are more engaged in out-door activities and have increased exposure compared to women

Considering the occupation, the majority of leprosy patients are unemployed (57.14%). The reason behind this is the patients with deformity were unable to go for work. Among the people occupied, 14.2% were laborers, 11.42% farmers and 5.7% masons. Another 11.42% belonged to other occupations. Deformities are more in occupations involving heavy work..

In this study among the 35 patients, 26 patients (74.2%) had Grade -II deformities and 6 patients (17.14%) had Grade- I deformities. Grade II deformities were again most prevalent in the above 50 years age group and more among males. Claw hands were seen in 48.5% and clawing in toes, 31.4% and clawing in both hands and feet, 22.8%.In the study population, 28.57% had resorption of both fingers and toes while, 45.7% had only toe resorption and 22.8% had only resorption of fingers.Regarding the peripheral nerve.thickening, ulnar nerve was the most common nerve involved in 94.28% followed by the common peroneal nerve in 91.4%.

The other associated impairments like pain and joint stiffness were present in 82.85% and 71.42% respectively. These may significantly affect their mobility and ability to work. 57.14% patients had madarosis. Regarding other systemic illnesses, only 5.7% had Diabetes and none of them had tuberculosis. Another interesting feature is that none of them was hypertensive even though the study population included majority of people more than 50 years of age. The significance of this finding is however unknown.

With respect to the Multi Drug Therapy for Leprosy, Grade II deformity was observed in 54.28% of patients who had completed a full course of MDTand Grade I deformity observed in 20% of the study group who had completed MDT. 14.28% people who had not taken MDT but were under Dapsone monotherapy before the institution of MDT had Grade — II deformity. This difference can be assigned to the fact that those who are disabled are more easily detected and are more likely to be motivated to take treatment.

DISCUSSION:

The study included 35 known cases of Leprosy among whom 28 were males and 7 were females, conducted at the Department of Dermato-Venero-Leprology, Tirunelveli Medical College Hospital.

In the present study, it was found that 91.4% of the study participants suffered from some form of disability either Grade I or Grade II. These rates are higher than the rates reported by Singhi MK et al(8), 2004(35%) and Ishida Y, 2009(9) (60%) and also

Higher than the rates reported by TCakiner et al(3), 1993 (76.8%) and Jain P K et al, 2011(10). This difference in Disability Rates can be attributed to the fact that there are Geographical variations in the rates reported in various regions and also the differences existing in the occupation and socioeconomic status of the population under consideration.

In this study, the age group that has maximum deformity is the above 50 age group (68.45%). This is in correlation with the study bySow SO et al(4), where 68% of the study population were above 50 years of age and the study by Anil kumar et al where 65% patients belonged to age above59 years.Variations are seen in the study by PK Kar et al(6), where 60% were above 40 years.

The possible explanations for this are as follows. The incubation or latent period is very long in a proportion of infected individuals resulting in manifestation of disease late in their lives. In adult life, in endemic areas, the disease is often the result of re-infection or super-infection among the previously infected and whose immune response had become inadequate in the old age.

In the study population, 80% were males and 20% were females in a ratio of 4:1.This is in contrast to The WHO Expert Committee report of 2003 on leprosy situation in India, where 63.2% were males and 33.8% were females and the study by Jain P K et al(10), where 59.3% were males and 40.6% females. But in the study conducted by PK Kar et al(6), 2006, 75.8% were males and 24.1% were females, which is about the same in this study.

Although leprosy affects both sexes, in most parts of the world, males are affected more frequently than females often in the ratio of 2:1. The relatively low prevalence among females may be due to biological or environmental causes. In Asian countries, women cover their bodies more than men and also men generally expose themselves to greater risk of infection due to their lifestyle.

In this study, 17.14% had Grade — I deformity and 74.2% had Grade — II Deformity. This is in contrast to the study conducted by PK Kar et al(6),2006, where 46.7% had Grade I and 32.20% had Grade II Deformity and also the study conducted by Thakkar et al where Grade I deformities accounted for 29.2% and Grade II deformities, 13.6%. In a developmental article titled 'THE PROBLEM AND CHALLENGE OF DISABILITY AND REHABILITATION IN LEPROSY'(7) the ratio of Grade 2: Grade 1 deformities in Tamil Nadu was 1.1 with 922 persons having Grade I and 1013 patients having Grade II deformity, which is in correlation with the findings of the present study. The reason is that the study population consisted of chronic cases of leprosy and the majority of the participants were above the age of 50 years.

The study had 77.14% patients with trophic ulceration which was higher than other deformities. This is in contrast to the study by PK Kar(6) et al, where 10.3% had trophic ulcerations and in the study by Jain P K et al(10), 34.6% had trophic ulceration. The reason for this is the increased proportion of long standing chronic cases in the study

population. The predominant deformity in both the above-mentioned studies was Anesthesia accounting for 48.2% in the former and 49.4% in the latter. But in our study, Loss of accounted for 74.2% with loss of sensation in palms and soles only 42.8% and in the distal half of both upper and lower limbs, 48.5% which is again higher than both the above mentioned studies.

Claw hands were seen in 48.5% and clawing in toes, 31.4% and clawing in both hands and feet, 22.8%. In the study by PK kar(6), 15.7% had claw hand deformity while the magnitude of claw hand in the study by Srinivasan H in Vishakapatnam was 21.5%. In the study by Sow SO et al, 33% patients had claw hand deformity.(4)The proportion of claw hand deformity in the present study is higher than all the above mentioned studies. The possible reason for this may be the increased Ulnar Nerve involvement in the study population leading to Ulnar Claw hand.

Trophic ulcers



Claw hand



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