

# Epidemiological Profile of Disability in patients with Leprosy in a Tertiary Care Centre

Asia A J<sup>1</sup>, Tapre V<sup>2</sup>, Asia A A<sup>3</sup>

<sup>1,2</sup>Department of Dermatology, Venereology and Leprosy, Government Medical College Akola, Maharashtra

<sup>3</sup> Department of Physiology, Government Medical College Akola, Maharashtra

**Abstract- Background** : Leprosy is an infectious disease which may lead to disability before, during and even after treatment. Despite of taking complete antibacterial treatment some patients with leprosy are left with disability and deformities. They remain reminders of disease leading to social discrimination, economical constraints and loss of confidence among patients.

**Objective** : To find out prevalence of disability in new patients with leprosy registered at Department of skin during the period 2010 to 2014.

**Results** :- Amongst 664 new cases of leprosy registered between the period 2010 to 2014, total 162 patients (24.4%) were found to have disabilities. Males were more commonly involved than females ratio being 1.9:1. Out of these 162 patients 67 (41.3%) patients had Grade I and 95 (58.4%) had Grade II disability. Disability was seen in 09 (5.55%) of pure neuritic type of leprosy, 50 (30.8%) of PB cases and 103 (63.58%) belonged to MB cases. Hands were involved in 63.4% of cases where as feet were involved in 29%. 7.35% of cases had involvement of both hands and feet.

**Conclusion** : Early case detection, and thorough neurological examination is needed to decrease the chance of developing disability.

**Index Terms**- Disability, Deformity, Leprosy, Tertiary Care Centre

## I. INTRODUCTION

Leprosy is one of the foremost causes of disability and crippling deformities. Deformities may occur due to disease process (like loss of eye brows, facial deformities) or due to loss of motor functions (Clawing of hand, foot drop, lagophthalmos) or those resulting from injuries (like ulcers, resorption of fingers, fracture of bones and corneal ulcers). In spite of introduction of Multi Drug Treatment since last 30 years supplemented by contact surveys, increased efforts to detect cases early in the community and use of information technology cases of leprosy and deformity / disability have not declined as expected. Illiteracy and social stigma remain a major deterrent to self reporting causing delayed treatment and subsequent disability. Although being a completely curable disease leprosy is still a major cause of deformity, disfigurement and morbidity. Prevalence rate of disability in leprosy patients vary between 16 to 56%. The prevalence rate of Leprosy in India in 2009 was 0.72/10,000. As per WHO report 2009 India has achieved the goal of elimination (i.e. point prevalence rate of less than 1 case per 10000 population of leprosy) in December 2005. Still higher

prevalence has been reported by few authors. Timely diagnosis of Grade I disability is of great importance for disability elimination. In 2009 WHO launched enhanced Global strategy for further reducing the disease burden due to leprosy for 2011-2015 (reduction of new case of Leprosy with Grade 2 disability per lakh by 35% at the end of 2015). Disability prevention can be achieved by active collaboration between health care professionals, patients and their family. Only then the goal of prevention of disability in leprosy patients can be realized. In the light of seriousness of the problem this study has been undertaken at this tertiary care centre during the period between 2010-2014 with objective of studying proportion of disability among leprosy patients and epidemiological factors associated with it.

## II. MATERIAL AND METHODS

The present study was an observational non analytical study of 664 new patients who were diagnosed as having leprosy during the period from 2010 to 2014 and who had not taken any anti-leprotic treatment in the past. Before data collection permission was obtained from administrative authority of this tertiary care centre. The data was reviewed from the outpatients ticket and indoor papers. Data regarding type of disability, socio-demographic variables like age, sex, education, occupation, marital status, was recorded. For the type of leprosy WHO clinical classification which is simply based on number of skin lesions and number of thickened nerves was followed. For disability classification WHO 3 point scale in 1998 was followed for hands, feet and eyes.

### WHO disability grading 1998

#### Hands and feet

Grade 0 : No anaesthesia, no visible deformity or damage.

Grade 1 : Anaesthesia present but no visible deformity or damage.

Grade 2 : Visible deformity or damage present.

#### Eyes

Grade 0 : No eye problem due to leprosy, no evidence of visual loss.

Grade 1 : Eye problem due to leprosy present but vision not severely affected as a result of this. (vision 6/60 or better : can count fingers at 6 metres distance, corneal sensation testing – optional).

Grade 2 : Severe visual impairment (vision worse than 6/60 : Inability to count fingers at 6 metres distance), also includes lagophthalmos, iridocyclitis and corneal opacities.

### III. RESULTS

During the period from 2010 to 2014 it was noticed that total 664 new cases of leprosy were diagnosed as having leprosy. Out of these 162 cases ( 24 % ) were found to be having disability. 106 (65.43 %) were males and 56 ( 34.56 %) were females. (Table 1) Most of the cases (36.4% ) were of age group 31 to 45. (Table 2 )

Grade I deformity (loss of sensations) was seen in 67 ( 41.3%) cases while Grade II disability (deformity ) was seen in 95 (58.4 % ) cases . Disability of hand was seen in 103 (63.4 %) and that of feet in 47 ( 29 % ). 12 ( 7.3 5 %) of cases were seen to be having disability of hand as well as feet. (Table 3 ) Disability was seen in 09 (5.55 %) of pure type of leprosy , 50 (30.8 %) of PB cases and 103 (63.58 %) of MB cases. (Table 4 ) . Ulnar nerve was the most common nerve affected (70%) followed by lateral popliteal nerve . Out of 162 cases with deformity , 31 ( 19.1 % ) had Type 1 reaction at the time of diagnosis and 15 ( 9.25 % ) presented with Type 2 reaction. 2 cases were seen to be having disability of hands , feet and lagophthalmous. Severe visual impairment was not seen in any of our cases . 62 ( 38.28 %) patients were from urban and 100 ( 61.7 %) were from rural areas.

**Table 1 : Sex of patients and Disability rate**

Sex	Total number of cases	Patients with Disability	Disability rate
Male	408	106	26.98 %
Female	256	56	22.87 %
	664	162	24.4 %

**Table 2 : Age and Disability Rate in patients studied**

Age in years	Number of Cases	Number of Disability	Disability rate
0-15	67	12	17.91 %
16-30	102	22	22.56 %
31-45	206	59	28.64 %
46-60	180	46	25.5 %
>60	109	23	21.10 %
	664	162	24.39 %

**Table 3 : Site of Disability and Grade**

Site of disability	Grade 1	Percentage	Grade 2	Percentage	Total Percentage
One or both Hands	46	28.3	57	35.1	63.4
One or both Feet	16	9.9	31	19.1	29
Hands and feet both	5	3.0	7	4.3	7.3
	67	41.3	95	58.4	100

**Table 4 : Type of Leprosy , Disability and Residence**

Type of Leprosy	Disability	Patients staying in Urban region	Patients staying in Rural region
MB	103 (63.58%)	44	59
PB	50 (30.8 %)	14	36
Pure Neuritic	09 (5.55 %)	04	05
	162	62	100

### IV. DISCUSSION

33-56% of newly registered leprosy patients already have clinically detectable nerve function impairment ( 1,2,3,4,5 ) . In the present study it was found that 24 % of patients having leprosy suffered with disability .These rates are lower than rates reported by others Singhi et al 2004 (35 %) ( 6 ) and Farooq R 2008 (55%) ( 7 ) and higher than as reported by Sarkar J. 2012 (20.1 %) ( 5 ) . This indicates the decrease in disability rates as compared to last decade . Grade 1 and Grade 2 deformities were noticed in 10 % and 14.3 % patients respectively. The higher prevalence of Grade 2 disability was also reported in studies by other authors ( 7,8,9 ) . 09 (5.55 %) cases were found to be of pure neuritic type. This was slightly more than as reported by Mahajan (4.6 %) ( 10 ) and less than as reported by Sarkar (9.4%) ( 5 ) . Disability rates were maximum in age group of 31 – 45 years. This was in accordance with other authors ( 11 ) . Disability rate was significantly higher in males ( 65.4 %) than females (34.56%) . Similar findings were seen by Schreuder A M ( M 64.4 % , F 35.6% ) ( 12 ) and others ( 13 ) . Ulnar nerve was commonly involved (71%) followed by lateral popliteal nerve and great auricular nerve . Cases with MB leprosy were seen to have higher prevalence of disability ( 63.58 % ) compared to PB patients ( 30.8% ) similar to findings by Schipper and Rao . ( 13, 14 ) . Our study clearly indicates that chances of acquiring disability in leprosy patients increased in MB cases .

### V. CONCLUSION

Prevention of disability/ deformity can be done easily by basic level health workers . Early case detection , contact tracing , timely treatment and thorough examination for signs of possible nerve function impairments is need of the hour. Keeping close watch on development of nerve involvement , periodic examinations for nerve function impairment and reactions in leprosy during and after MDT is essential . Special emphasis on physiotherapy is needed

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#### AUTHORS

**First Author** – Dr Anand Jagdish Asia , M.D. (Dermatology) Professor, Department of Dermatology, Venereology and Leprosy, Government Medical College Akola , Maharashtra .  
Email : anjuasia2010@gmail.com

**Second Author** – Dr Vaibhav Tapre , M.D. (Dermatology) Assistant Professor, Department of Dermatology, Venereology and Leprosy Government Medical College Akola, Maharashtra.  
Email: taprevaiabhav@gmail.com

**Third Author** – Dr Anju Anand Asia , Assistant Professor, Department of Physiology , Government Medical College Akola , Maharashtra . Email : anjuasia2010@gmail.com

**Corresponding Author:** Dr Anand Jagdish Asia  
Flat no. 303, Sri Sai Gajanan Residency, Bhagwatwadi, Station road ,Akola Maharashtra, Ph: 9822360284,9921237265. Email : anjuasia2010@gmail.com