

Original Article

A STUDY OF HIGH DISABILITY RATE AMONG LEPROSY AFFECTED PERSONS IN GWALIOR DISTRICT

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Abstract

Introduction: Even though India achieved the goal of elimination (i.e point prevalence rate of less than 1case per 10,000 population) of leprosy as a public health problem at National level in Dec 2005. **Objectives :** To determine the prevalence of disability among Leprosy Affected Persons and to determine the factors associated with high disability rates **Material & Method: Study Design:** Cross Sectional study. **Study Population:** All registered patients at 16 DDRs in gwalior district. **Methodology:** The study was divided into two parts. First was the in depth interviews with the study participants, second was detail examination in bright sunlight. **Result:** In the present study 182 persons were included in the study in which 108 were males and 74 were females. Of these 182 leprosy affected persons, 68 were having no deformity, 38 were having Grade I deformity and 76 were having Grade II deformity **Conclusion:** The present study hereby concludes that there are multiple factors that determine the disability among leprosy patients. The chances of acquiring disability in leprosy patients increases as the severity of leprosy increases like multi bacillary patients and patients with more number of nerves involved.

Key Words: Disability rates, LAPs, Leprosy

Introduction:

Even though India achieved the goal of elimination (i.e point prevalence rate of less than 1case per 10,000 population) of leprosy as a public health problem at National level in Dec 2005. (WHO,2009)⁽¹⁾ Higher prevalence of leprosy is reported in some areas. Therefore, new cases of leprosy occur due to long incubation period of disease and relatively higher prevalence of leprosy in certain areas of country.

Most of the leprosy patients do not have disability and or deformity when the disease first appears but develops them later. Even when the patients develop disabilities or deformities they are mild and reversible to begin with and become severe and permanent only later on.

It is important to realize that the peripheral workers cannot prevent disabilities in leprosy simply by giving them pills or distrusting pamphlets among them. Disability prevention requires active collaboration between health care professional on one hand and patients and their family on other. Only then the goal of prevention of disability in leprosy patients can be realized.

In India leprosy has been declared eliminated in 2005. The prevalence of leprosy has decline to 0.88/10000 population in 2006, similarly the disability rates all over the world have also seen a steep decline.(SEARO,2006)⁽²⁾

In the light of the seriousness of the problem the present study has been under taken with objectives of

- To determine the prevalence of disability among Leprosy Affected Persons.
- To determine the factors associated with high disability rates

Material and Methods

Study Design : An urban based Cross Sectional study carried out at 16 Drug Distribution Point(DDPs) attached to Urban leprosy Unit, Gwalior MP

Study Population: All registered patients at 16 DDRs in gwalior district

Sampling: All the patients registered for treatment at 16 Drug Distribution Points(DDPs) from the start of MDT were included in study provided they gave the verbal consent for the participation. Thus out of 216 patients registered, only 182 patients were included in study. Rest includes those who did not give the verbal consent for participation or those who could not be traced even after three consecutive visits. Thus the final sample size was limited to 182.

Methodology

The study was divided into two parts. First was the in-depth interviews with the study participants, second was detail examination in bright sunlight.

Method of Interview:

All the study participant were contacted individually by a research team comprising of faculty and students of Department of Community Medicine, GR Medical College, Gwalior and they were asked to come on respective DDP's on a fixed date for in-depth interview and physical examination. The date chosen was the same date on which the patient had to come for collection of his drugs.

During the interview data collected on general profile of patients, duration of treatment, any previous treatment taken and the current Disease status.

Method for Physical Examination:

All the patients were physically examined by the research team in bright sunlight and privacy was maintained. For proper examination patients were asked to wear minimum cloths . All the female patients were examined in presences of another female preferably her own family member

Before the start of the study a standard protocol was developed. All the members of the research team were given orientation training and this standard protocol was strictly followed. During the examination the research team looked for any hypo or hyper pigmented anesthetic patch, signs of nerve involvement in Ulnar Nerve, Median Nerve, Lateral Popliteal Nerve and Posterior Tibial Nerve. Beside these team members also looked for any visible deformity in hand and foot.

Statistical Test: Descriptive statistics was used in analysis and interpretation of result. Chi- square test with 95% CI was used to see any significant difference between two proportions.

Result:

In the present study 182 persons were included in the study in which 108 were males and 74 were females. Of these 182 leprosy affected persons, 68 were having no deformity, 38 were having Grade I deformity and 76 were having Grade II deformity (Table-I)

Majority of the patients were suffering from Multi bacillary (MB) type of leprosy. (Type-II)

On Physical Examination it was noted that most of the patients were suffering from 2 or more nerve involvement. Ulnar nerve was the most common nerve affected followed by Lateral Popliteal nerve (Table-III)

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Similarly the disease affected more than one site in most of the persons. Hand(124) was the most common site affected followed by foot(111). The most common deformity seen was insensitivity to pain followed by ulcers in foot (Table IV)

The reaction rate among the leprosy affected patients was 29.67% (54/182) and this was proportional to the grade of Disability (Table V)

The Disability Rate was also more common among the regular patients compared to irregular patients (Table VI)

Table I: Socio Demographic Profile of Leprosy Affected Persons

S. No	Characteristic	Disability Absent	Disability Present	P- value
1	Sex <ul style="list-style-type: none"> Male Female 	41 27	67 47	$\chi^2 = 0.04$ df=1 p=0.839
2	Age <ul style="list-style-type: none"> 0-20 years 21-40 years 41-60 years >60 years 	9 26 44 39	1 12 27 24	$\chi^2 = 3.48$ df=3 p=0.322
3	Religion <ul style="list-style-type: none"> Hindus Muslims Others 	61 1 3	98 17 2	$\chi^2 = 8.90$ df=1 p=0.011
4	Education Qualification <ul style="list-style-type: none"> Illiterate Upto 5th Std Upto 10th Std Graduate Post Graduate /Professionals 	16 10 16 21 5	60 21 23 8 2	$\chi^2 = 27.90$ df=4 p=0.00001
5	Occupation <ul style="list-style-type: none"> Unemployed Unskilled workers Skilled workers Housewife/students Farmers Businessmen Professionals 	5 8 4 15 3 20 6	40 11 13 30 11 9 7	$\chi^2 = 0.04$ df=1 p=0.839

Table II: Distribution of patients according to Type and Disability

S. No	Type	Disability Not Present	Disability Present	P value
1	Multi Bacillary (MB)	27	94	$\chi^2 = 34.93$ df=1 p=0.0000
2	Pausi bacillary (PB)	41	20	

Table-III: Distribution of patients according to Type of Nerve affected

S. No	Nerve affected	Grade 0		Grade I		Grade II	
		Number of Nerves	Number of Nerve affected	Number of Nerves	Number of Nerve affected	Number of Nerves	Number of Nerve affected
1	Ulnar Nerve	136	32	76	49	152	119
2	Median nerve	136	2	76	9	152	64
3	Popliteal nerve	136	11	76	35	152	103
4	Posterior Tibial Nerve	136	3	76	13	152	77

Table IV: Distribution according to the site affected

S. No	Site affected	Number (N=182)	Percentage
1	Hand <ul style="list-style-type: none"> Insensitivity Claw Absorption Ulcers 	51	28.02%
		38	20.8%
		20	10.9%
		15	8.2%
2	Foot <ul style="list-style-type: none"> Insensitivity Claw Absorption Ulcers 	39	21.4%
		6	3.2%
		18	9.8%
		48	8.2%
3	Eye <ul style="list-style-type: none"> Corneal anaesthesia Lag ophthalmos Blindness 	0	0
		12	6.5%
		5	2.7%

Table V: Distribution according to the Reaction Rate

S. No	Grade	Reaction	Percentage
1	Grade 0	13/68	19.11%
2	Grade I	12/38	31.57%
3	Grade II	29/76	38.15%

Table VI: Distribution according to treatment Regularity

S. No	Grade	Regular	Irregular	P Value
1	Grade 0	60	8	$\chi^2 = 3.56$ df=2 p=0.168
2	Grade I	36	2	
3	Grade II	73	3	

Discussion:

In present study it was found that 62.6% of the study participants suffered from some form of disability either Grade I or Grade II. These rates are some what higher than the rates reported by Singhi MK et al, 2004 (35%)⁽³⁾ and Ishida Y, 2009 (60%)⁽⁴⁾ but lower than the rates reported by T Cakiner et al, 1993 (76.8%)⁽⁵⁾. This difference in Disability Rates can be attributed to the fact that there are Geographical versions in the rates reported in different countries

In the present study males have shown higher leprosy cases than female but this difference is not statistically significant. Similar higher predisposition to leprosy and Disability associated with it was also noted with increasing age. Studies carried out by other researchers like Selvaraj,et al ,1998⁽⁶⁾ Saha SP et al ,1993⁽⁷⁾ etc have also shown similar results.

The present study has also revealed that Disability Rates are also higher among Muslims compared to other communities and this difference was statistically significant. However the authors of the present study are of the opinion that a bigger study with larger sample size is required to comment on it. Similar finding has also been reported by Singhi MK et al, 2004⁽³⁾

On detail analysis it was noted that a higher cases of leprosy and disability were among illiterates and persons with few years of schooling than higher qualified persons and this difference was statistically significant. This difference can be attributed to the fact that persons with higher qualifications are more aware of the signs and symptoms of leprosy and treatment required for it than an illiterates. Studies carried out by Kar S et al,2010⁽⁸⁾ had also shown similar results. Similarly, statistically significant difference was also noted on the occupation profile of the study participant. A higher predisposition toward leprosy was noted among unemployed and unskilled workers and farmers than other occupation. Also a higher disability rates were noted among these occupational persons. Study carried out by Girdhar BK et al, 1996⁽⁹⁾ had also shown similar results.

It was noted in the present study that a statistically significant higher number of cases was of Multi bacillary type than of Pausi bacillary type. Also it was noted that majority of these cases were suffering from some form of disabilities. Multi bacillary patient required longer duration of treatment and thus there are more chances of patient non compliance than Pausi bacillary type. Other researchers had also emphasized on this point in their studies.⁽¹⁰⁻¹¹⁾

On physical examination it was noted that majority of the patients were suffering from more than one nerve involvement. Ulnar nerve(119) was the most common nerve involved in majority of the patients followed by Lateral Popliteal Nerve (103). Studies carried out by other researchers have also shown that Ulnar nerve in hand and Lateral Popliteal nerve in Foot are the most common nerve involved in a leprosy patients. (Saha SP et al ,1993⁽⁷⁾ and Girdhar BK et al, 1996⁽⁹⁾)

In line to above findings the most common deformity seen was insensitivity in hand and ulcers in foot. Other deformities commonly noted were claw hand (20.8%), absorption of digits of foot and hand and lag ophthalmosis. Studies carried out by Sharama P et al, 1996⁽¹²⁾ had also shown similar results. However some researchers have noted higher percentage of claw hand deformity among their studies participant.^(12,13)

On further analysis of the study result it was noted that 29.7% of the study participants reported some form of drug reaction and this reaction was more common among higher grade i.e Grade II. This difference is statistically significant. These reaction are dangerous as they have the potential for permanent disability among leprosy patients if its not properly treated especially in those suffering from Grade II deformity. Other researchers have also shown similar findings.⁽¹⁰⁻¹²⁾

It is found in the present study that higher Disability Rates were noted among regular drug takers than those with irregular drug takers. This difference can be assigned to the fact that those who are disable are more easily detected and are more likely to be motivated to take treatment. Different studies have also shown that disabilities are more common among regular patients than those taking irregular treatment^{13,14)}

Conclusion:

The present study hereby concludes that there are multiple factors that determine the disability among leprosy patients. The chances of acquiring disability in leprosy patients increases as the severity of leprosy increases like multi bacillary patients and patients with more number of nerve involved.

Awareness about the signs and symptoms and lepra reaction among the patients can help reduce the incidence of disability among the leprosy patients.

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