



Original Article

Epidemiological Trends of Leprosy in Rajshahi District

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Abstract

This retrospective study was done in Rajshahi Medical College Hospital using the data from DOTS corner of Rajshahi Medical College Hospital. Study period was 2002 to 2008. According to proper clinical evaluation and slit skin smear results, patients were categorized into purely neuritic, tuberculoid, borderline tuberculoid, borderline, borderline lepromatous and lepromatous leprosy. In our study, we have found that number of leprosy cases has decreased substantially after 2004. Average case detection in the study period was 38.5 per year. Age group analysis has shown that no age group is exempted from the disease; quite a few cases have been described in the 1-9 year age group. Borderline tuberculoid (BT) leprosy was found to be the commonest form of leprosy in Rajshahi district. In fact, about 75% of the total leprosy cases were BT. Other forms of leprosy, in decreasing order of frequency, were LL, BL, TT, BB, and PN. Paucibacillary and multibacillary cases were almost equal in number.

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Introduction

Leprosy, (from the Greek lepi, meaning scales on a fish), or Hansen's disease, is a chronic infectious granulomatous disease that primarily affects the skin, the peripheral nerves, the upper respiratory tract, and the eyes.¹ The causative agent is an acid-fast bacterium, *Mycobacterium leprae*, first identified in 1873 by the Norwegian physician, Gerhard Henrik Armauer Hansen. Historically, leprosy has affected mankind since at least 600 BC, and was well-recognized in the civilizations of ancient China, Egypt and India. Leprosy was considered a divine curse for sin in the Old Testament and also in Buddhism. The fact that leprosy has been deemed an incurable disease, causing severe deformities and disabilities, has resulted in severe stigmatization. This has resulted in double suffering by victims, both from the

disease itself and from public discrimination. Although documented since antiquity, leprosy currently remains endemic in some developing parts of the world.² In 1995, the World Health Organization (WHO) estimated that between two and three million people were permanently disabled because of leprosy.³

According to official reports received during 2008 from 118 countries and territories, the global registered prevalence of leprosy at the beginning of 2008 stood at 212,802 cases, while the number of new cases detected during 2007 was 254,525. The number of new cases detected globally has fallen by 11,100 cases (a 4% decrease) during 2007 compared with 2006.⁴ Globally, the annual detection of new cases continued to decline, from a peak of >763 000 in 2001 to 254 525 in 2007.

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Data on new-case detection are still being collected from endemic countries, including Malawi and the United Republic of Tanzania. The number of new cases detected in the Eastern Mediterranean Region increased during 2007 as a result of inclusion of reports from southern Sudan, where the coverage of leprosy control activities has greatly improved. At the beginning of 2008, the Democratic Republic of the Congo and Mozambique reached the leprosy elimination goal (defined as a registered prevalence rate <1 case/10 000 population).⁴

Bangladesh has made appreciable progress in the control of leprosy by achieving the elimination goal by the end of December 1998. This is 2 years ahead the target date set by the World Health Organization (WHO). By the end of December 1998 the national prevalence was 0.87 and it further declined to 0.63 at the end of December 2002. Though Bangladesh has achieved nationwide elimination of leprosy, in several areas the prevalence is still above 1 per 10,000. At the end of 1998 in 15 areas- 13 districts and 2 metros- leprosy had not yet been eliminated. The number of areas declined to 10; 8 districts and 2 metros- by the end of 2002.⁵ Bangladesh continues to be a country with a high burden of leprosy in terms of

absolute numbers of new cases, averaging around 8000–10,000 annually.⁶

In this article, we have tried to explore the epidemiology and demographic profile of leprosy in Rajshahi district.

Materials and methods

This retrospective study was done in Rajshahi Medical College Hospital using the data from DOTS corner of Rajshahi Medical College Hospital. Study period was 2002 to 2008. According to proper clinical evaluation and slit skin smear results, patients were categorized into purely neuritic, tuberculoid, borderline tuberculoid, borderline, borderline lepromatous and lepromatous leprosy.

Results

Table 1: Year wise leprosy detection rate

Year	Total number of patients	Sum total	Average case detection per year
2002	30		
2003	51		
2004	52		
2005	41	231	38.5
2006	42		
2007	35		
2008	21		

Table 2: Age distribution of the patients in years (%)

Year	1-9	10-19	20-29	30-39	40-49	50-59	60-69	70 and above
2002	1 (3.3)	10 (33.3)	5 (16.6)	6 (20)	4 (13.3)	2 (6.6)	2 (6.6)	0
2003	1 (1.9)	13 (25.4)	10 (19.6)	10 (19.6)	12 (23.5)	3 (5.9)	1 (1.9)	1 (1.9)
2004	0	10 (19.2)	9 (17.3)	8 (15.3)	14 (26.9)	5 (9.6)	3 (3.2)	3 (3.2)
2005	2 (4.8)	7 (17.0)	6 (14.6)	10 (24.3)	11 (26.8)	1 (2.4)	2 (4.8)	2 (4.8)
2006	1 (2.4)	9 (21.4)	8 (19.0)	6 (14.3)	12 (28.6)	4 (9.5)	1 (2.4)	1 (2.4)
2007	1 (2.8)	4 (11.4)	7 (20.0)	3 (8.6)	16 (45.7)	1 (2.8)	1 (2.8)	2 (5.6)
2008	0	2 (9.5)	5 (23.8)	4 (19.0)	5 (23.8)	2 (9.5)	3 (14.3)	0

Table 3: Year wise sex distribution

Year	Male (%)	Female (%)	Total
2002	17 (56.6)	13 (43.4)	30
2003	26 (51.0)	25 (49)	51
2004	29 (55.8)	23 (44.2)	52
2005	25 (61.0)	16 (39.0)	41
2006	25 (59.5)	17 (40.5)	42
2007	15 (42.8)	20 (57.2)	35
2008	14 (66.7)	7 (33.3)	21

Table 4: Year wise pattern of leprosy (According to Ridley-Jopling classification)

Year	PN (%)	TT (%)	BT (%)	BB (%)	BL (%)	LL (%)	Total
2002	1 (3.3)	3 (10.0)	22 (73.3)	0	4 (13.3)	0	30
2003	0	3 (5.9)	37 (72.6)	0	7 (13.7)	4 (7.8)	51
2004	1 (1.9)	5 (9.6)	33 (63.5)	0	6 (11.5)	7 (13.4)	52
2005	1 (2.4)	1 (2.4)	29 (70.8)	4 (9.7)	1 (2.4)	5 (12.2)	41
2006	0	1 (2.4)	34 (81.0)	0	1 (2.4)	6 (14.3)	42
2007	0	1 (2.9)	29 (82.9)	0	2 (5.8)	3 (8.6)	35
2008	0	2 (9.5)	16 (76.2)	0	2 (9.5)	3 (14.3)	21

PN= Purely Neuritic leprosy, TT=Tuberculoid leprosy, BT= Borderline Tuberculoid leprosy, BB=Borderline leprosy, BL=Borderline Lepromatous leprosy, LL=Lepromatous Leprosy

Table 5: Year wise pattern of leprosy (According to WHO classification)

Year	PB (%)	MB (%)	Total
2002	19 (63.3)	11 (36.7)	30
2003	28 (55.0)	23 (45.0)	51
2004	28 (53.9)	24 (46.1)	52
2005	18 (44.0)	23 (56.0)	41
2006	24 (57.1)	18 (42.9)	42
2007	14 (40.0)	21 (60.0)	35
2008	12 (57.1)	9 (42.9)	21

PB=Pauci-Bacillary, MB=Multi-Bacillary

In our study, we have found that number of leprosy cases has decreased substantially after 2004. Average case detection in the study period was 38.5 per year. Age group analysis has shown that no age group is exempted from the disease; quite a few cases have been described in the 1-9 year age group. Borderline tuberculoid (BT) leprosy was found to be the commonest form of leprosy in Rajshahi district. In fact about 75% of the total leprosy cases were BT. Other forms of leprosy, in decreasing order of frequency, were LL, BL, TT, BB, and PN. Paucibacillary and multibacillary cases were almost equal in number.

Discussion

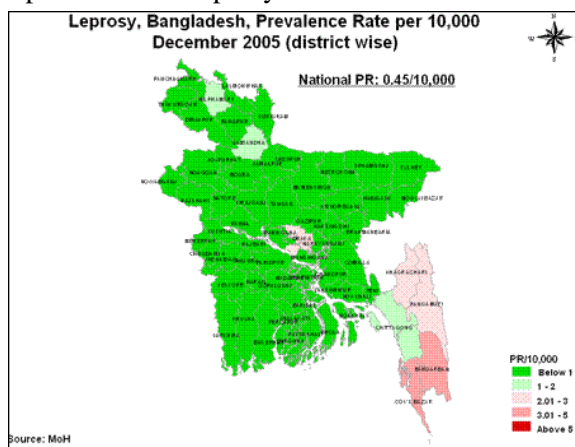
Population of Rajshahi district in 2003 was 2286874.⁷ So, it is quite evident that in 2002, 1 case of leprosy was detected among 76229 people in Rajshahi district. In 2008, the case detection rate was nearly 1 case per 110,000 people. Though some cases may still remain undetected, comprehensive coverage by both government and non-government organizations in the field of tuberculosis and leprosy has helped a lot in improving population awareness. Rajshahi district

has achieved the elimination goal set by WHO, but still there is a long way to go. From public health perspective, to prevent future resurgence of leprosy, it should be totally eliminated from the country. The WHO Strategic Plan for Leprosy Elimination 2000–2005¹ encouraged commitment among endemic countries in dealing with the challenges posed by the disease. The most important component of the strategy was to ensure that leprosy control activities would be available and accessible to all affected individuals at their nearest health facility.⁸

Leprosy control activities include diagnosis, treatment with multi-drug therapy (MDT), patient and family counseling, community education, prevention of disabilities/ impairments, rehabilitation and referral for complications. The main principle of leprosy control is “morbidity control”, i.e. timely detection of new cases, their treatment with effective chemotherapy in the form of multi-drug therapy, prevention of disability and rehabilitation. This is unlikely to change over the coming years. The emphasis will remain on providing diagnostic and treatment services that are equitably distributed, affordable and easily accessible. The significant achievements in reducing the global burden of leprosy over the last two decades are the result of two important events in the history of the fight against leprosy. The first event took place in 1981, when a WHO Study Group on Chemotherapy of Leprosy recommended the use of multi-drug therapy as the standard treatment for leprosy.⁹ The success of multi-drug therapy led to the second event in 1991, when the Forty-fourth World Health Assembly passed resolution WHA44.9, declaring its commitment to eliminating leprosy as a public

health problem by the end of 2000 – i.e. achieving a prevalence of less than one case per 10 000 population.¹⁰

WHO actually has succeeded a lot in the global control of leprosy. Since 1985 to date, the prevalence of leprosy has been reduced globally by > 90%, with >15 million persons detected and had completed treatment with multi-drug therapy, with very few relapses reported. The global leprosy cases reduced from >10 million in 1985 to < 1 million by the year 2000 and to < 0.3 million in 2005.¹¹ The number of countries reporting prevalence rates above one per 10 000 population has been reduced from 122 in 1985 to nine at the beginning of 2004.¹¹ There has been a considerable increase in coverage of leprosy services in hard to- reach areas and in underserved populations. Since 1995, the drugs required for multi-drug therapy have been available free of charge in all endemic countries through WHO. There is now increased awareness and political commitment in all endemic countries. There is increased acceptance of the idea of integrating leprosy control services in to general health services, and this is being implemented as a policy in most countries. Multiple Drug resistance following MDT has not been reported. As of now, only 5 major countries, Brazil, Democratic Republic of Congo, Mozambique, Nepal and Tanzania are yet to attain the goal of elimination of leprosy as a public health problem.¹¹ The situation in Bangladesh is well depicted in the following map, showing district-wise distribution of prevalence of leprosy.



Source: Ministry of health and family welfare, Bangladesh

In many countries the continued reliance on specialized personnel and institutions inhibited the process of building up the capacity and competence of general health workers to take responsibility for leprosy control in their own area. But, in Bangladesh, because of very close collaboration between government and non-government organizations (NGO), we have a very competent and effective setup for leprosy control. Because of the mass campaign provided by the GO and NGO's people are much more aware about leprosy today than before. Availability of free and supervised multi-drug therapy has also contributed a lot in leprosy control of Bangladesh.

Conclusions

Even though the leprosy burden has been reduced substantially, new cases of leprosy will continue to appear in the future in most of the currently endemic countries. The basic principles for leprosy control will continue to be the same in coming years; based on early detection and treatment of leprosy patients. Health services must continue to provide quality services for leprosy control to these communities over an indefinite period of time. Special expertise in leprosy and its control needs to be maintained at national and sub-national levels. Continued GO and NGO collaboration will play a substantial role in the ultimate goal- total eradication of leprosy from the world.

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