

Time trends in MB-PB ratio among untreated leprosy patients attending a referral hospital in UP, India during 2001 to 2010

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Secular trends in incidence of leprosy serve as a powerful tool in determining progress in reaching eradication. However, the interpretation of these trends must take into account both operational and epidemiological factors. A study was done to assess a time trend in the ratios of MB & PB from 2001 to 2010 based on the leprosy patients registered in a referral hospital in UP, India. Data were analyzed based on the gender, age and residence. Regardless of these factors, MB proportion shows no significant trends. These findings are discussed and it is concluded that we are no more close to eradication as compared to the status over a decade ago. Hence, much greater efforts will be required to promote early detections of MB cases, whether children or adults, male or female.

Key words : Leprosy, MB: PB ratio, Referral Hospital, Eradication, India

Introduction

Multibacillary (MB) leprosy patients can be the major source of transmission and therefore their early detection becomes critical in the national eradication programme. (Izumi 1999; Pandey et al 2006). The Government of India's current thrust is to focus on the New Case Detection Rates and promoting early reporting to integrated primary health centers, government dispensaries and other integrated centers (Joshi et al 2007). However, this has not yet resulted in early reporting of MB cases.

The interpretation of time trends in incidence of leprosy (Fine 1982). To what extent the change

reflects reality and not the change of definition or policy needs careful scrutiny (Irgens and Skjaerven 1985) Manifestation of the symptoms in MB leprosy need not necessary be the patches as in PB leprosy but nerve thickening, nodules etc which may be easily ignored or mistaken for some other diseases (Jindal et al 2009). Given the prevailing stigma patients generally delay reporting either because they do not want to be identified or hopeful that it may disappear by its own (Raju and Rao 2011). Further, many patients are still ignorant of the integration of leprosy into general health services and may still prefer to report to leprosy hospitals. In describing secular

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trends of new leprosy cases diagnosed in Brazil during 1987 to 2006 Andrade and Ignotti explained that the trend is more operational than epidemiological (Andrade and Ignotti 2008).

In order to investigate these issues, it was proposed to study the time trends in MB: PB ratios of untreated leprosy patients attending a major referral hospital in Uttar Pradesh India during the period 2001 to 2010. The findings are presented in this paper, and the discussed in terms of interpretation of the trends.

Material and Methods

The Leprosy Mission Community Hospital at Naini in Allahabad district, UP was established in 1910, and currently registers the largest number of untreated leprosy patients in any other TLM hospital in India. It has 150 beds, 93 staff, and registers 3000 new cases and 20,000 repeat visits

of leprosy cases per year. The medical record department is well organized to register all patients, new and old, ensure complete data entries, both base line and follow-up visits, using a unique registration number for each patient. The hospital has now instituted electronic medical records to capture and review all data for better patient management.

For purpose of this study, relevant data from the year 2001 to 2010 were extracted from the medical records, entered on to Excel sheets and analyzed using SPSS package:

Percentages and Ratios were computed and the differences tested for statistical significance, using z-and chisquare tests.

Results

The total number of new untreated leprosy cases has increased significantly from 952 in 2005 to

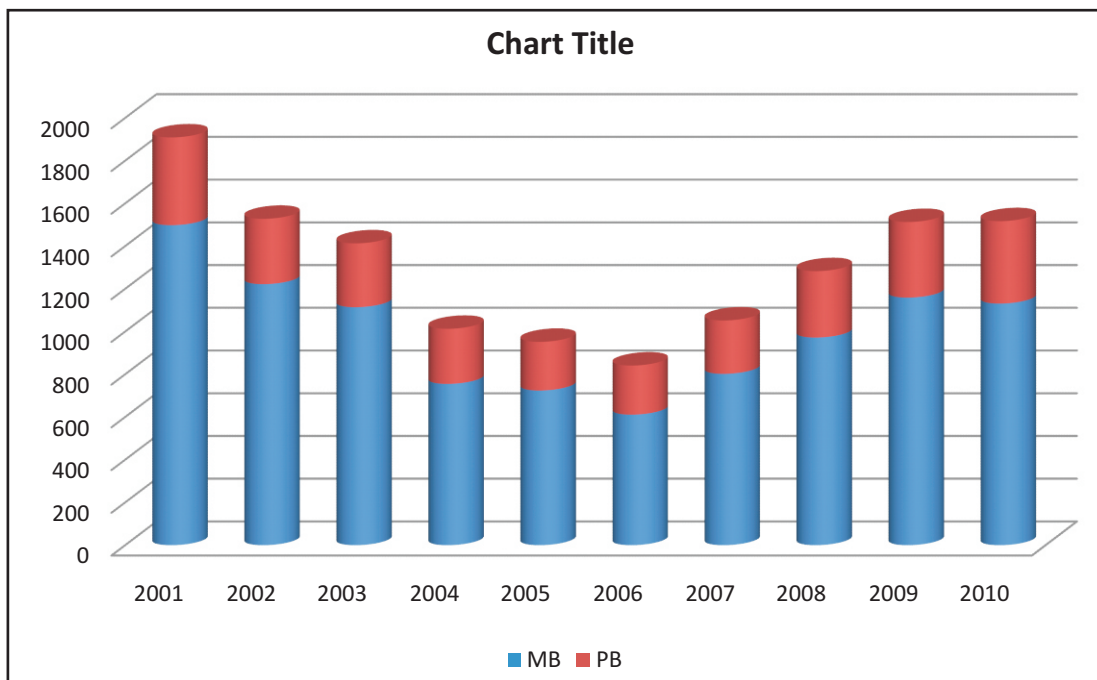


Figure 1 : Number of new untreated patients seen in TLM Naini Hospital from the year 2001 to 2010.

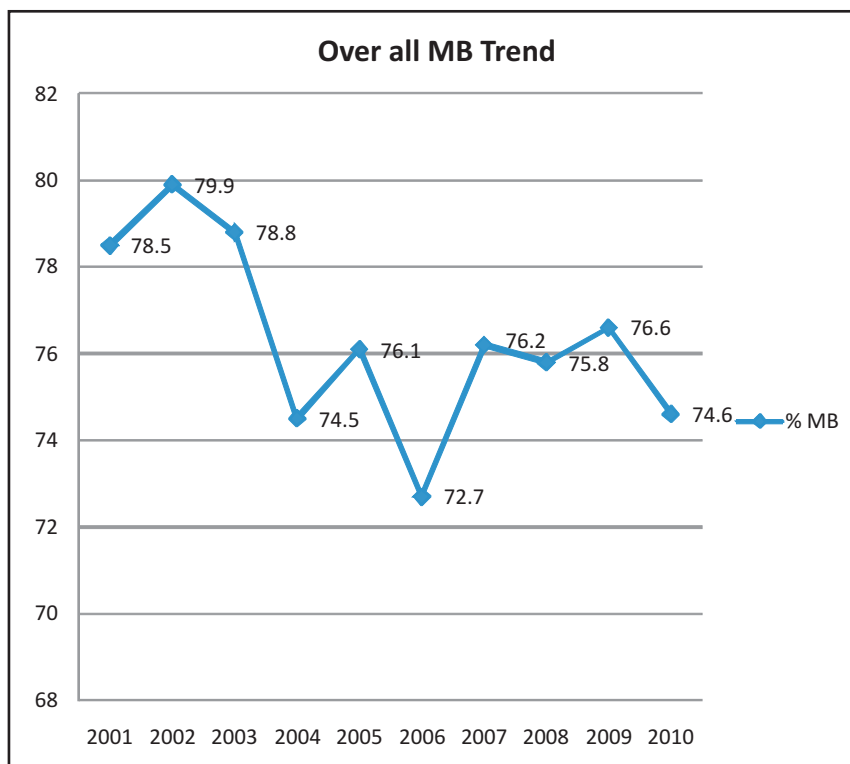


Figure 2 : Overall MB Trend from 2001 to 2010

Table 1 : Population of MB cases in Male, Female, Adult & Children representing from the year 2005 to 2010.

Year	All Cases of Leprosy					MB Case				
	Total	Men	Women	Adult	Child	Total	Men	Women	Adult	Child
2005	952	642	258	900	52	724	516	175	691	33
2006	841	560	239	799	42	611	422	165	587	24
2007	1052	665	330	995	57	802	531	252	783	19
2008	1283	843	379	1222	61	972	680	259	939	33
2009	1513	990	436	1426	87	1159	810	303	1113	46
2010	1517	976	435	1411	106	1131	753	313	1066	65

1517 in 2010, as given in table 1, which also shows the number by gender, age for total leprosy patients seen and the numbers of MB cases.

The percentages of MB among male and female leprosy patients during 2005 to 2010 are shown

in table 2.

While the percentage of MB are lower in females, there are no significant changes during the period.

The percentage of MB cases among adult &

Table 2 : Percent MB untreated cases among males & females.

Year	Total Male PATIENTS	MB % in Male	Total Female PATIENTS	% MB in Female
2005	642	516(80.4%)	258	175(67.8%)
2006	560	422(75.4%)	239	165(69.1%)
2007	665	531 (79.8%)	330	252 (76.3%)
2008	843	680(80.7%)	379	259(68.3%)
2009	990	810(81.8%)	436	303(69.5%)
2010	976	753(77.2%)	435	313(71.9%)

Table 3 : Percent MB untreated cases among adults and children

Year	Total adult Patients	MB % In Adult	Total child Patients	% MB in Child
2005	900	691(76.8%)	52	33(63.5%)
2006	799	587(73.5%)	42	24(57.1%)
2007	995	783 (78.7%)	57	19 (33.3%)
2008	1222	939(76.8%)	61	33(54.1%)
2009	1426	1113(78.1%)	87	46(52.9%)
2010	1411	1066(75.5%)	106	65(61.3%)

Table 4 : Overall % of untreated MB cases from Allahabad district, Uttar Pradesh & Other States

Year	Allahabad				Uttar Pradesh				Other States			
	Total	MB	PB	% MB	Total	MB	PB	% MB	Total	MB	PB	% MB
2005	336	232	104	69.1	432	332	100	76.9	184	160	24	86.9
2006	278	198	80	71.2	397	286	111	72.1	166	127	39	76.5
2007	357	256	101	71.7	502	397	105	79.1	195	159	36	81.5
2008	287	249	38	86.8	696	482	214	69.3	300	241	59	80.3
2009	425	296	129	69.6	766	603	163	78.7	322	260	62	80.7
2010	377	259	118	68.7	740	565	175	76.4	400	307	93	76.8

children are given in Table 3

The above table shows no significant changes in adults as well as in children.

The overall % of MB cases during the period 2005 to 2010 according to the residence of the patients, viz., whether from Allahabad district, Uttar Pradesh & Other states are presented in Table 4.

Here also no significant changes are seen.

Discussion

Secular trends in occurrence of diseases or their complications serve as a powerful tool in managerial decisions for intervention and control (Park 2011). However, the interpretation of these trends must take into account both operational and epidemiological factors (Rao and Richard

2012). The operational factors in implementing leprosy control activities in show variations in different geographic areas and over time, and have greatly influenced case detection figures (Noordeen 2006; Pandey et al 2006). Even within a state, there have been variations in definitions, coverage, methodology and recording of new cases of MB leprosy (Pandey et al 2006). The government of India has successfully reached elimination and also widely implemented integration of leprosy services into the general health system, especially in the rural areas (Joshi et al 2007). Studies have shown that under the integrated setup, voluntary reporting has resulted in more MB cases and at a late stage reporting for diagnosis and treatment (Daniel et al 2009). The choice of patients seeking care in a leprosy hospital might also be affected over time, and must be considered in drawing conclusions of time trends (Arora et al 2008).

A further complication in interpretation arises due to the operational factors and selection biases that arise in hospital based statistics. In this research, there were no major changes in hospital policies, definitions of MB leprosy, diagnostic procedures or other operational factors, but there could be a number of selection biases and therefore must be interpreted with caution. It is possible that the integrated settings were unable to diagnose or treat MB cases with deformities, and therefore such patients were referred to a referral hospital (Daniel et al 2009). Taking into account these factors, the finding in this study that MB proportion shows no significant trends could perhaps be interpreted that we are no more close to eradication compared to the status over a decade ago, and much greater intervention will be required to promote early detection s of MB cases, whether children or adults, male or female. It is hoped that eradication of leprosy will slowly become a reality in India, but the present data do not substantiate this hope.

A similar study should be done in the community which might present a clear picture about the trends of MB proportion in leprosy and would distinguish more clearly the epidemiological factors from the operational.

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