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Research Paper

Rising Burden Of Smear Positive Leprosy Cases In A Tertiary Care Hospital Of North India

Microbiology

KEYWORDS : Leprosy, Paucibacillary , Multibacillary, Acid Fast Bacilli

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ABSTRACT

Objective: To study rising burden of smear positive leprosy cases in a tertiary care hospital of North India from 2012- 2014.

Methods: Patients with clinical suspicion of leprosy, attending Guru Nanak Dev Hospital, Amritsar, from January 2012 to December 2014 were referred to the Department of Microbiology, GMC, Amritsar where cases were confirmed by slit skin smear examination. Smears were prepared from eight sites, stained with modified Zeihl Neelsen stain and examined under oil immersion to look for acid fast bacilli (AFB).

Results: Out of 235 clinically suspected patients, 62 were diagnosed as smear positive for acid fast bacilli. A rise in number of smear positive cases was observed from 21.2% in 2012 to 29.9% in 2014.

Conclusion: There is an urgent need to take up measures to keep a check on leprosy by timely surveillance, easy availability of multidrug therapy at all medical centers in India so that prompt treatment can be started to prevent damage to the nerves and prevent disabilities.

Introduction:

Leprosy or Hansen's disease is one of the oldest bacteriological diseases .It is a chronic infectious disease caused by *Mycobacterium leprae*, which can affect all ages and both sexes. *Mycobacterium leprae* is weakly acid and alcohol fast bacilli. Morphologically it is a straight or slightly curved rod varying in size from 6-8 um× 0.5µm. Leprosy is characterized by long incubation period, generally 5 -7 years. It usually affects the skin and peripheral nerves, but has a wide range of clinical manifestations depending on the immune status of the patient .Depending upon the clinical manifestations, leprosy is classified as tuberculoid leprosy, lepromatous leprosy, indeterminate leprosy,borderline tuberculoid and borderline lepromatous leprosy . The disease is also characterized based on bacillary load as paucibacillary or mulitbacillary[1,2].

Lepra bacilli are usually demonstrated in smears and biopsy as acid fast bacilli where they may be present singly, small / large bundles or globi. For demonstration of lepra bacilli in smear or biopsies, approximately 10^5 bacilli need to be present. Demonstration of acid fast lepra bacilli in stained smears is considered as a practical approach to confirm the diagnosis, monitor the progress of the disease and for monitoring treatment outcome .Stained smear preparations are also used for calculating the bacteriological and morphological indices. Bacteriological index is defined as semi quantitative estimation of density of bacilli present in skin smears. It is not a true reflection of the bacillary load as it takes into account both live and dead bacilli. Morphological index helps to estimate viability of *Mycobacterium leprae*, as the solid stained bacilli are considered viable organisms .Leprosy is a leading cause of permanent physical disability. Timely diagnosis and treatment, before nerve damage has occurred, is the most effective way of preventing disability due to leprosy. It was a major public health problem of India in the last century[1, 2].

National Leprosy Control Programme (NLCP) was launched in 1955 based on dapsone monotherapy[3] followed by National Leprosy Eradication Programme (1983) with introduction of multidrug therapy. This programme was initiated with the goal to decrease the prevalence rate of leprosy below 1case/10,000 population which was achieved in December 2005 (0.95/10,000 population)[4]. The prevalence rate was further reduced to 0.73/10,000 population in April 2013 [5]. Leprosy was supposed to be eliminated globally by the year 2000 [4]. However 1.27 lakh new cases were detected during the year 2013-14, which is a setback to achieve this goal. Since transmission of leprosy is from man to man, so the only way to achieve elimination of leprosy is early diagnosis and treatment [5,6].

Material and Method

The Department of Microbiology, at Government Medical College, Amritsar, in north India is a tertiary care centre providing laboratory confirmation of leprosy by slit skin smear examination. Patients with clinical suspicion of leprosy, attending the GuruNanak Dev Hospital, Amritsar were referred to the Department of Microbiology, Government Medical College, Amritsar , Punjab. Smears were prepared from eight sites (nasal mucosa of both the nostrils, both the ear lobes and two of the most prominent lesions, both buttocks), and stained with modified Zeihl Neelsen stain. Smear were examined under oil immersion to look for acid fast bacilli (AFB), both intra and extracellular, and reported as positive or negative for AFB.

Results:

We collected the data in a retrospective manner for the past 3 years (January 2012 – December 2014). A total of 235 clinically suspected patients were examined. Out of 235 patients, 154 were males and 81 were females. Male patients outnumbered the female patients.(M: F : 1.81:1). 40 males and 22 females were diagnosed as smear positive for acid fast bacilli. A rise in number of AFB smear positive cases among the clinically suspected patients attending the O.P.D. were observed from 2012 to 2014 from 21.21% to 27.65% (Table1).Globi were seen in 3.67% of cases.

Table 1: Acid fast bacilli positivity in leprosy patients from 2012 -2014

YEAR	Total number of patients	Positive samples	Percentage positive(%)
2012	66	14	21.2
2013	75	20	26.7
2014	94	28	29.9

Discussion:

Leprosy is a chronic health disease which mainly presents with cutaneous or nerve disorder. In our study males were more af-

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fected than the female which is in concordance with trends prevalent in our country. A similar report of increase in smear positivity for acid fast bacilli has been reported from department of Microbiology, at Chhatrapati Shahuji Maharaj Medical University (CSMMU), Lucknow in 2012[7]. However, numbers of leprosy cases are increasing at other teaching hospitals as well probably due to discontinuation of surveillance activities, distribution of multidrug therapy, deformity prevention and management performed by leprosy workers during the NLEP phase. Thus we need to take up measures to keep a check on leprosy by timely surveillance, easy availability of multidrug therapy at all medical centers in India, so that prompt treatment can be started to prevent damage to the nerves and prevent disabilities. We need to be vigilant so that all the hard work done does not go in vain .

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