Research Paper

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Study of childhood hansens disease at a tertiary care centre

Medical Science

KEYWORDS : Childhood leprosy, adolescents, transmittability, contacts.

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ABSTRACT

Background: Leprosy is a disease known to affect all ages. Occurrence of childhood leprosy determines rate of disease transmission. Leprosy in a child can affect his academic career as well as social life.

Aim:

A retrospective study was undertaken to analyze the clinical profile of childhood and adolescent leprosy cases. The aim of the study was to describe the pattern of clinical presentation, the role of contacts and the incidence of neuritis, reactions and deformities in this age group.

Results: Amongst 734 total cases of leprosy, 120 were children between 4-18 years of age (16.34%). M:F=2.01:1. Eighty four cases (70%) had multibacillary leprosy . Forty (33.33%) cases had family contact. Ninety six cases(80%) showed nerve involvement and 7 cases (5.83%) had Grade2 deformities. Histopathological diagnosis was done in 64 cases with 90% correlation. Type 1Lepra reactions were seen in 24(20%) cases. Seven patients had relapse of the disease, four of which belonged to multibacillary group. Defaulter of treatment was seen in 18(15%).

Conclusion: Detection of leprosy in children indicates increased disease transmission. Severe forms of leprosy occur in older children.

Introduction:

Leprosy is an infectious disease caused by Mycobacterium leprae. Significant numbers of children are seen to be affected in high endemic regions. The number of childhood leprosy cases is important to determine the level of disease transmission and can be considered as an index of prevalence of disease in the population. The percentage of childhood leprosy in the state of Maharashtra was 12.70 during the year 2012-2013 with a prevalence of leprosy 0.92.During the year 2011-2012, the percentage of child leprosy was 13.04 with prevalence of 1.07.

As the source of infection is usually a family contact it is necessary to follow them so as to detect and treat them appropriately. Early detection of cases can prevent long term suffering due to deformities and reactions as is evident by the increased number of complications in the older age group.

Materials & Methods:

All cases of leprosy less than eighteen years of age during1998-2014 are included in this study. Sociodemographic information was recorded. Clinical presentation including skin lesions, reactions, deformities and type of leprosy was noted. History of contact in the family was noted and was examined for the same. Skin biopsy was done in doubtful cases. Cases with relapse were included in this study. Number of defaulters was also recorded. WHO criteria was used for disability grading. All information was tabulated and analyzed. Ethical clearance was obtained from institutional ethics committee.

Results:

Out of 734 registered cases of leprosy, 120 were below the age of 18 years. (16.34%). The male to female ratio is 2.01:1. Age of the patients ranged from 4-18 years. The mean age of presentation was 12.89 with SD 3.750. Most of cases were between 14-18years of age (49.16%), followed by 9-13yrs (34.16%) and 4-8yrs(15%) Male to female ratio was 2.01:1. Eighty four cases (70%) belonged to the multibacillary group, maximum cases(54.76%) of which were between 14-18years of age, followed by 9-13 years(34.52%) and 10.71% in the age group of 4-8yrs of age. The mean age of multibacillary cases was 13.25 with SD 3.502. The paucibacillary group had 36(30%) cases, mean age of which was 12.056 with SD 4.208. There is no statistically significant difference in the occurrence of type of leprosy according to WHO classification(MB/ PB) in various age groups(p>1)(table 1). However considering the Ridley Jopling classification significant difference was found between the mean age of tuberculoid leprosy and borderline lepromatous leprosy, also between borderline tuberculoid and borderline lepromatous leprosy(table 2).Older age groups presented with more severe forms of leprosy.History of family contact was noted in 40(33.33%) cases. Ninety six cases (80%) showed nerve involvement. The occurrence of nerve involvement showed significant difference depending upon the age (p=0.005). Maximum nerve involvement was noted in the age group of 14-18yrs (55.20%) followed by that in the age group of 9-13years(34.375%) and least in the younger age group (10.42%)(table 3). Deformities were seen in thirty five (29.16%) children, out of which twenty eight cases (80%) had grade 1 deformity. Children presenting with deformities belonged to the older age group. Only one case of grade 1 deformity was noted in the age group of 4-8yrs. Grade 2 deformity was seen in seven cases, four of which were in the age group of 14-18years (57.14%).No cases of grade 2 deformity were noted in the age group of 4-8years. Thus significant difference in the occurrence of deformities is noted among various age groups(p=0.0024). Histopathological diagnosis was done in 64 cases with 90% correlation. Six patients (5%) had pure neuritic type of leprosy out of which two had grade 2 deformity both aged 17years. Lepra reactions were seen in 24(20%) cases. Out of 120 patients adequately followed up after completion of treatment, 6 patients (5%) had relapse of the disease, 4 of which belonged to multibacillary group. Defaulter of treatment was seen in 18(15%) cases.

Table 1: Agewise distribution of cases according to WHO classification

Type	4-8yrs	9-13yrs	14-18yrs
MB	9	29	46
PB	9	12	15
Total	18	41	61

Chi square statistics= 4.289 with degree of freedom=2 and p=0.1171

Table 2: Agewise distribution of cases according to Ridley Jopling Classification using ANOVA

Type	4-8yrs	9-13yrs	14-18yrs	total
TT	6	6	8	20(mean=11.650,SD=4.77)
BT	11	28	33	72(mean=12.472.SD=3.53)
BL	1	4	13	18(mean=15,SD=2.931)
LL	0	1	2	3(mean=14.667,SD=4.77)
Pure neuritic	0	2	5	7(mean=14.571,SD=2.760)
total	18	41	61	120

Difference between TT and BL – P=0.0040, BT and BL – P=0.0053.

Table 3: Nerve involvement according to age

No of nerves involved	4-8yrs	9-13yrs	14-18yrs	total
0	8	8	8	24

>1	10	33	53	96
total	18	41	61	120

Chi square test= 8.536, with Df=2, P= 0.0140

Table 4: Type of deformities according to age

Grade of deformity	4-8yrs	9-13yrs	14-18yrs	total
0	17	34	34	85
1	1	4	23	28
2	0	3	4	7
total	18	41	61	120

Chi square test=16.562, DF=4,p=0.0024

Discussion: The present study includes cases between 4 to 18yrs. of age. The total number of cases in this age group was 120(16.34%).Most of the studies on childhood cases of leprosy include cases,upto 15 years of age with occurrence of childhood cases ranging from 4-15%[1,2,3,4,5.] Majority of the cases reported are 6-12yrs, with male predominance.There is evidence of increase in skin lesions with increasing age5. Few studies include adolescents which have shown severe forms of disease with lepra reactions and deformities[6, 7]. Another study included adolescents (10-20yrs) [8] which reported increased disease burden among adolescents affecting their social life and carreer. Our study noted maximum cases in the age group of 14-18years (49.16%). Borderline lepromatous and lepromatous leprosy was seen more in the older age group as compared to tuberculoid leprosy and borderline tuberculoid leprosy. The higher incidence of lepromatous leprosy in this age group can be attributed to their physiologically immmunosuppressed state. Nerve involvement was noted in 80% in our study with maximum occurrence in 14-18 years of age.The risk of deformity is reported to be 6.13 times more in case of nerve involvement occurring more with increasing age9. The percentage of nerve involvement in various studies varies from 27.4% to 70%[1, 5, 10.] Grade 2 deformities were seen in seven cases(5.83%), four of which belonged to 14-18years of age. The incidence of deformities varies from 4-12%. The lower occurrence of grade 2 deformity could be attributed to early detection of cases4.Claw hand deformity in an adolescent boy in our study led to interruption in his education. Another male developed nerve abscess and had to undergo nerve decompression.

There are a considerable number of patients with contacts of leprosy cases in our study (33.3%). There was a family of three children being affected with the index case being their mother. The father of the four year old male child that was affected had histoid leprosy. Two siblings affected had history of lepromatous leprosy in the father.Thus early detection of cases among contacts of multibacillary leprosy is necessary to prevent development of severe forms and complications of leprosy.A case of indeterminate leprosy in an infant has been reported wherein the father had borderline lepromatous leprosy11. Early diagnosis may not be possible due to nonspecific clinical features or sometimes even with histopathology. In situ PCR studies have been useful in such cases. As we know that indeterminate leprosy is a precursor of lepromatous disease it is important to diagnose leprosy at this stage.

Histopathological examination was done in 64 cases with 90% correlation. The importance of histopathological examination for accurate diagnosis has been adequately stressed4. The cases of leprosy present with illdefined, hypopigmented patches,which may be difficult to differentiate from pityriasis alba, tinea versicolor or post inflammatory hypopigmentation.It is also difficult to assess loss of sensation in children. Histopathology in such cases helps in accurate diagnosis.

Relapse of the disease was noted in our study which was seen in five percent of cases which has also been reported in other studies[10]. The cause of relapse could be inaccurate diagnosis and hence inadequate treatment. Adequate follow up is essential in all cases to detect early relapse and prompt treatment. Moreover individualized treatment may be considered in such cases instead of fixed duration therapy

Type 1lepra reactions were encountered in 20% cases with no cases of type 2 lepra reactions.

The role BCG vaccination in prevention of leprosy is controversial.The association between BCG vaccination and prevention of leprosy is not shown to be significant [5].

Conclusion:

As the incidence of childhood hansens disease is a marker of transmittability of the disease, detection of leprosy at this age through active surveys is important for early diagnosis and treatment. Familial contacts of lepromatous case need to be thoroughly screened. The role of contacts in transmission of leprosy need to be adequately addressed to so that cases can be detected earlier to prevent complications 12. It is important to understand the implications of lepromatous leprosy at this stage, considering the long term complications and social stigma.A careful assessment and regular follow up is essential in preventing complications of leprosy in children which can have profound impact on their educational career and social life 13.

REFERENCE

1) K Deb Burman,A Rijal et al: Childhood leprosy in Eastern Nepal: A hospital based study: Indian J Lepr:75(1)2003:47-52 | 2) Elsia Belo ImbiribaI,IIJosé Camilo Hurtado-GuerreroI,III et al. Epidemiological profile of leprosy in children under 15 in Manaus (Northern Brazil),1998–2005 Rev Saúde Pública 2008;42(6)1-5) | 3) Sarita Sasidharanpillai , Manikoth Payyanandan Binitha et al: Childhood leprosy: A retrospective descriptive study from Government Medical College,Kozhikode, Kerala, India: Lepr Rev(2014) 85, 100–110. | 4) Mahim Jain, Chitra S Nayak, Ramaya Chokkar, Rashmi Aderao: Clinical, bacteriological, and histopathological characteristics of children with leprosy:A retrospective, analytical study in dermatology outpatient department of tertiary care centre: Indian Journal of Paediatric Dermatology | Vol 15| Issue 1 | January-April 2014 | 5) Leena Das, Bijay Kumar Meher, Nikunja Bihari Das et al: A Clinco-Bacteriological Study of Leprosy in Paediatric Age Group: Advances in Infectious Diseases, 2013, 3, 269-273 | 6) AG Rao: Study of leprosy in children: Indian J Lepr 2009, 81 : 195-197 | 7) Palit A, Inamdar A C: Childhood leprosy in the post-elimination phase:data from a tertiary health care Hospital in the Karnataka state of south India: Lepr Rev (2014) 85, 85–92 | 8) AS John,PSS Rao,R S Kundu,MS Raju: Leprosy among adolescents in Kolkata, India; Indian journal of leprosy:77:3:2005:247-53 | 9) Bikash Ranjan Kar,C K Job: visible deformity in childhood leprosy:A 10 years study:international of Leprosy and other mycobacterial diseases:vol 73, No 4,243-8 | 10) Singhal A, Sonthalia S & Pandhi D: Childhood leprosy in a tertiary-care hospital in Delhi, India: A reappraisal in the post-elimination era- | 11) K. V. Krishna Moorthy & K. V. Desikan: Indeterminate leprosy in an infant: Lepr Rev (2006) 77, 377–380) | 12) S jain,R P Reddy et al: Childhood leprosy in an Urban clinic : Hyderabad:india,Clinical presentation and The role of household contacts:lepr rev 2002:73:248-53. | 13) C. R Butlin & Saunderson P: Children with leprosy:Lepr Rev (2014) 85, 69–73) |