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Full Article

Study of leprosy in children

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Leprosy, a disease as old as mankind, has been a public health problem in many developing countries and among children, it reflects disease transmission in the community and efficiency of control programmes. Our study on childhood leprosy was carried out at Gandhi Hospital, spread over 4 years. There were 32 children among 280 diagnosed cases of leprosy. The study revealed an incidence of 11.43% among leprosy patients with more number of boys being affected than girls. Most of children presented with hypopigmented anaesthetic patches. Hansen's BT was the most common clinical type of leprosy with extremities being the common site of involvement. Slit-skin smear was positive in 25% of children. We could find significant positive clinico-pathological correlation among 12 children who were subjected to biopsy. Reactional states and deformities were less common in our study.

Key words: Hypopigmented anaesthetic patches, Nerve thickening, Reactions, Deformities, Leprosy

Introduction

Leprosy is a chronic disease caused by *M. leprae* affecting the peripheral nerves, skin and certain body tissues. Though prevalence of leprosy is decreasing in India, it is still a significant health problem. Childhood leprosy is an indication of endemicity of leprosy. The present study is an attempt to study the prevalence, clinical profile and reactional state among children with leprosy.

Material and Methods

From June 2004 to May 2009, we diagnosed 280 new cases of leprosy. Of these, 32 were children in the age group 0-18 years. Clinical features of leprosy in children may sometimes be confusing and sensory testing is difficult in them. The diagnosis was established on the basis of clinical examination and slit- skin smear and skin biopsy. Pityriasis alba, pityriasis versicolor , vitiligo were differentiated from leprosy by sensory deficit and nerve thickening. Skin biopsy was done in 12 children .

Results

There were 23 boys and 9 girls with boy to girl ratio of 2.5 : 1. They were in the age group of 0 to 18 years. Commonly affected age group was 11-15 years (50%), followed by 16-18 year (34.38%) and 6-10 year age group(15.62%) (Table 1). The youngest was 6 year old boy with BT Hansen's. Distribution of the patients as per the Ridley-Jopling classification : TT 0; BT 22(68.75%); BB 1(3.12%); BL 5(15.62%); LL 3(9.38%) and PNL 1(3.12%) (Table 1).

There was no case of indeterminate leprosy. A positive family/contact history was obtained in 18% of children. Most of the children presented with hypopigmented anaesthetic patches. 12 patients (37.5%) presented with single lesion and 20 patients (62.5%) presented with multiple

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lesions. Upper limbs was the most common site of involvement (59.37%) followed by lower limb (46.87%). The common nerve trunk involved was ulnar nerve in 18 patients (56.25%) followed by lateral popliteal nerve in 12 children (37.15%) and posterior tibial nerve in 9 children (28.12%). Common cutaneous nerves involved were radial cutaneous in 10 children (31.25%) followed by greater auricular in 6 cases (18.75%) and sural nerve in 4 cases (12.5%). Multiple nerve involvement was seen in 59.38% and single nerve involvement in 40.62%. Slit-skin smear was positive in 8 patients (25%). Positive clinico - pathological correlation was observed in 37.5%. Reactions were seen in 2 patients (6.24%), 1 patient (3.12%) of each type. Deformity was seen in one case (3.12%). 26 cases were on PB-MDT and 6 cases were on MB-MDT.

Discussion

The study revealed an incidence of 11.43% among leprosy patients. This is comparable with the studies by Cortes and Rodriquez (2004) and Kumar et al (1989) who have reported an incidence of 7% and 7.2% respectively. There was male preponderance with male to female ratio of 2.5:1. Similar observations of male predominance were reported earlier (Kumar et al 1989, Jain et al 2002). The youngest patient in our study was of 6 years old. Although the incubation period of leprosy is in years, it has been reported in infants as early as 2 months of age (Brubaker et al 1985). The age of onset of leprosy varies in different countries. It is known that children form a high risk group in families of leprosy patients. Dave and Agarwal (1984) studied children in 200 families of which 100 families had a family member with active leprosy. On comparing these two groups, the prevalence rate was 14.2 times higher among contacts (Dave and Agarwal 1984). Positive contact history in our study (18%) is low compared with the study by Kumar et al (1989) (23.9%) and Jain et al (2002) (38.8%). The risk of a person developing leprosy is four times when there is a leprosy contact in the neighbourhood. This risk is increased to nine times if the contact case is within the immediate household (van Beers et al 1999). Hansen's BT was the most common type of leprosy recorded in our study (71.88%) which is similar to the studies by Kumar et al (1989) (57.7%) and Jain et al (2002) (66.3%). Multiple hypopigmented hypoaesthetic patches was the most common presentation. The common location of patches was on upper extremities (59.37%). In the study, the majority of lesions were on exposed parts of the body, face, limbs. Such observations are similar to those noted by Jain et al (2002) and Sehgal and Chowdhary (1989). However, Ganapati et al (1976) have observed more number of lesions on the gluteal region. Positive clinico-pathological correlation in our study is low (37.5%) compared to the study by Kumar et al (2000) (60.6%). Recently, it has been suggested that selection of the site of the biopsy plays an important role in the histopathological diagnosis since clinically dissimilar lesions biopsied from the same patient can show different types of histopathology (Nadkarni and Rege 1999). An increasing incidence with age was noted in 10-18 year age group. Reactional states and disabilities are rare in children (Debi and Mohanthi 1977, Waters et al 1978). Low incidence of reactions (6.24%) were observed in our study which is contrast to the study by Jain et al (2002) who have reported higher incidence of reactions (29.7%) in their study. Children with thickened nerve trunks are at 6.1 times higher risk of developing deformities compared to the those who did not have nerve enlargement (Kar and Job 2005). Our study revealed lower incidence of deformities (3.12%) compared to the studies by Kar and Job (2005) who have observed higher incidence of deformities (10.5%) in their study. Various factors contribute to the deformities: increasing age of children, delay in accessing health care, multiple skin lesions, multibacillary disease, smear positivity, multiple nerve involvement and reaction at the time of presentation. Children with above risk factors should be followed up

more frequently so as to detect any deformity as early as possible.

Conclusion

There is increase in incidence of childhood leprosy. Any hypopigmented macule in pediatric age group should arouse suspicion of leprosy. The family members of newly diagnosed patients should be screened regularly for leprosy. This would allow earlier institution of therapy and reduce morbidity and deformity. Regular school surveys and early detection of cases is an important tool which will go long way in achieving the goal of elimination of leprosy.

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