

Original Article

Spinal Tuberculosis: Age Distribution of the Patients

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Abstract:

This cross sectional epidemiological study was done in National Centre for Tuberculosis and Research and 250 bed TB Hospital, Shyamoli Dhaka. In this study 107 patients of diagnosed spinal tuberculosis attending the hospital during January 2007 to December 2014 were included. The purpose of this study was to analyze the age distribution of the patients with additional information on sex distribution and economic status. The study revealed that 19.6% of the patients were below the age of 15 years, of which 42.9% were within the age range of 11-15 years. Among the paediatric patients there was slight predominance of male sex (52.4%), while of the total patients female sex dominated (57%). Children of low income family, earning less than 10,000 taka per month, suffered the most (80.9%).

Key words: Spinal, Tuberculosis, emphasis, Pediatric age.

Introduction:

Spinal tuberculosis is a destructive form of skeletal tuberculosis which accounts for 50% of skeletal tuberculosis, 15% cases of extra pulmonary tuberculosis and 1-3% of all cases of TB^{1,2}. It is one of the oldest diseases known to mankind and has been found in Egyptian mummies dating back to 3400BC³. Tuberculosis was a leading cause of mortality in the beginning of twentieth century⁴. Improvement in socioeconomic status leads to a major decline in its prevalence. Malnutrition, poor sanitation and exanthematous fever are the factors contributing to the spread of the disease⁵. Spinal tuberculosis is a dangerous form of skeletal tuberculosis as it can be associated with neurologic deficit due to compression

of the adjacent neural structures and significant spinal deformity. So, early diagnosis and management of spinal tuberculosis has special importance in preventing these serious complications⁶. Tuberculosis in children under 15 years of age, also called pediatric tuberculosis, is a public health problem of special significance because it is a marker of recent transmission of tuberculosis. It is told that now a day's spinal tuberculosis is a disease of children in developing nations and elderly in developed countries. Spinal tuberculosis more commonly affect infant and children as there is intense blood flow through the growing bone in children^{7,8}. It is known that spinal tuberculosis is more severe, dangerous and disabling in children than in adults. Children represent a high risk group for acquiring the disease. There are many article published on spinal tuberculosis, but there is a paucity of reports on spinal tuberculosis in children⁹.

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Materials and Methods:

A cross sectional study was carried out by collecting data of all the patient attending in National tuberculosis control hospital, Dhaka, Bangladesh from January 2007 to December 2014 with the diagnosis of spinal tuberculosis. Data were collected with a pre-structured data sheet. Patients were selected irrespective of age, sex, social status and religion. Data were collected by searching the hospital record of patients. The collected data were checked, edited and processed with computer keeping view of the objective of the study.

Result:**Table I:** Distribution of patients of spinal tuberculosis by age (n=107)

Age Group (Years)	Total Number (%)
0-10	12 (11.2)
11-20	20 (18.7)
21-30	30 (28.0)
31-40	18 (16.8)
41-50	13 (12.1)
51-60	12 (11.2)
>60	02 (1.9)
Total	107 (100)

A total 107 patient were found to have spinal tuberculosis. Among them 21(19.6%) are of pediatric age group and 86(80.4%) are adult.

Table II: Distribution of pediatric patient of spinal tuberculosis (n=21) by age.

Age	No of Patients (%)
0-28 days	0 (0)
29 days-1 year	01 (4.8)
1-3 years	05 (23.8)
3-5 years	02 (9.5)
6-10 years	04 (19)
11-15 years	09 (42)
Total	21 (100)

Table III: Distribution of patient below age 15 year by their sex (n=21)

Sex	No of Patient (%)
Male	11 (52.4)
Female	10 (47.6)
Total	21 (100)

Table IV: Distribution of all (n=107) patient of this study by sex

Sex	No of Patient (%)
Male	46 (43)
Female	61 (57)
Total	107 (100)

Table V: Distribution of spinal tuberculosis patient below 15 year (n=21) by income group.

Monthly family income (Taka)	No of Patient (%)
Upto 5000	10 (47.6)
5001-10000	7 (33.3)
10001-20000	3 (14.3)
>20000	1 (4.8)
Total	21 (100)

Discussion:

Approximately 19.6% of all patients in this study were below the age of 15 years, this observation is compatible with some other studies, which reflects that pediatric spinal tuberculosis is a significant health problem in developing countries like Bangladesh. The incidences of spinal tuberculosis in children as reported by MRC (British) are variable, 58% of all spine tuberculosis patient in Korea, one third of patient in Chennai, India and 26% in Hong Kong^{9,10}. In this study among the pediatric patient 42.9% are in the range 11-15 years and another 19% between 6-10 years. Generally, children with spinal tuberculosis presented in a relatively advanced stage. The age ranges of the pediatric patients in this study were between 1.5 months to 15 years. These findings are little different from some other studies. In one study by Moon MS, et al they found that infant and younger children suffer more commonly than older child and adolescent⁹. Spinal tuberculosis results from hematogenous dissemination and is usually secondary to pulmonary tuberculosis. Secondary hematogenous seeding can also occur from a silent focus elsewhere in the body. There is a minimum lag of 2-3 years between the development of primary focus and manifestation of the disease in the spine This might be the explanation of that, the majority of the patient in this series belongs to age group between 11-15 years. Children are not the miniature of the adults. Anatomically and physiologically there are a lot of differences. Bone in children grow longitudinally and appositionally, and model during growth. The destruction of bone in children is rapid and severe by the infection than that of the adults. However, bone lesions in children heal and model faster than those of the adults. The growth cartilage is relatively well preserved in tuberculous lesions¹⁰⁻¹³. Children represent high risk group for acquiring the disease and it still remains a leading cause of paraplegia in developing nations^{14,15}. Regarding sex there is a male predominance about 52.4% among the pediatric patient in contrast to female in the whole sample.

Approximately 80.9% of the pediatric patient had a monthly family income below 10,000 taka, among them 47.6% comes from the very poor income which was below 5,000 taka per month. In a study done in Bangalore Mohanagar Palike area, India shows that about 65% of pediatric tuberculosis patient belongs to lower income group and another 30% comes from lower middle income family¹⁶. Spinal tuberculosis are also likely to be predisposed among the poor family suffering from malnutrition, poor sanitation and other contributing factors for vicious cycle of poverty which are similar for pulmonary tuberculosis.

Conclusion:

Children are predisposed to spinal tuberculosis more commonly between 11-15 years of age and those coming from the low income family. Timely diagnosis and treatment of spinal tuberculosis in children is imperative.

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