

Research Article

Socio demographic profile of pediatric tuberculosis patients of north Gujarat region, India: a cross sectional study

Yagnavalkya Jani¹, Ankur N. Sarvaiya², Nilesh Thakor^{1*}

¹Department of Community Medicine, Smt. NHL Municipal College, Ahmedabad, Gujarat, India

²Department of Pathology, GMERS Medical College, Dharpur-Patan, Gujarat, India

³Department of Community Medicine, GMERS Medical College, Dharpur-Patan, Gujarat, India

Received: 29 September 2015

Accepted: 15 October 2015

*Correspondence:

Dr. Nilesh Thakor,

E-mail: drnileshthakor@yahoo.co.in

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Tuberculosis continues to be one of the most important public health problems worldwide. It infects one third of the world's population at any point of time. Children are especially vulnerable to the effects of tuberculosis, which is often difficult to diagnose and therefore difficult to treat effectively. Pediatric TB results from failure of TB control in adults. The objective of the study was to study socio demographic profile of pediatric tuberculosis patients.

Methods: This cross sectional observational, descriptive epidemiological study was conducted at GMERS medical college and hospital Dharpur-Patan located in north Gujarat during January 2015 to June 2015. The study was conducted among all the 151 pediatric TB patients who were currently under treatment at selected Hospital. Parents of the patient were informed about the purpose of the study and their informed written consent was taken. By interviewing them on the basis of pre-designed and pre tested proforma, socio demographic information was collected. The collected data was analyzed using statistical package for social science (SPSS 17 Trial version).

Results: Out of 151 pediatric patients 87 (57.6%) were male. Age range of the children was 1 to 14 years. In our study mean age of children was 8.41±2.86 years. 68 (45.0%) patients were adolescents. 127 (84.1%) patients were from rural area. 63 (41.7%) heads of the family of patients were illiterate. 116 (76.8%) of the patients lived in joint family. 89 (58.9%) patients had kuccha house. Overcrowding was present in 86.7% of the patients. Family history of TB was present in only 23.2 % of the patients. 76.8% of the patients belonged to social IV and V according to modified Prasad's classification. 105 (69.5%) patients had extra pulmonary TB. Category-1 constituted 125 (82.7%) cases. 3 % patients had HIV infection.

Conclusions: Apart from pharmacological treatment, poor housing condition and illiteracy of the parents of these patients need to be addressed.

Keywords: TB, Pediatric TB, Tuberculosis, Socio demographic profile, Extra pulmonary TB

INTRODUCTION

Tuberculosis is a worldwide, chronic communicable bacterial disease. It is a very strange disease because of its varied clinical presentation, host response, chemotherapeutic response, etiology and social implications. It continues to be one of the most important public health problems worldwide. It infects one third of

the world's population at any point of time. There are approximately 9 million new cases of all forms of TB occurring annually and 3 million people dying from it each year. 95 % of cases and 98 % of the TB deaths are contributed by developing countries.¹ India is the highest TB burden country accounting for one fifth of the global incidence and it is 17th among 22 high TB burden countries in terms of TB incidence rate.² Every year,

approximately 1.8 million persons develop tuberculosis, of which about 0.8 million are new smear positive highly infectious cases. Tuberculosis kills about 0.32 million people every year. Two out of every five Indians are infected with TB bacillus. Every day about 5000 people develop the disease.^{2,3} Most of new cases of TB and deaths due to TB occur in developing countries where infection is often acquired in childhood. No other chronic infection of childhood comes anywhere close to TB. It is one of the giant killers of children. Childhood deaths from TB are usually caused by disseminated disease.⁴

Tuberculosis causes poverty but also found more amongst poor. The majority of its victims are migrant, labourers, slum dwellers, residents of backward areas and rural and tribal pockets. Poor living conditions, malnutrition, shanty housing and overcrowding are the main reasons for the spread of the disease. Children are especially vulnerable to the effects of tuberculosis, which is often difficult to diagnose and therefore difficult to treat effectively. Pediatric TB results from failure of TB control in adults.⁵ This study is a humble effort to throw light on socio demographic profile of pediatric tuberculosis patients.

METHODS

This Cross sectional observational, descriptive epidemiological study was conducted at GMERS medical college and hospital Dharpur, Patan located in north Gujarat. The study was conducted among all the 151 pediatric TB patients who were currently under treatment at selected Hospital .The study period was 6 months from January to June 2015. All patients and their parents were interviewed at center. Each interview was conducted at a time when patient come into OPD and ward of TB. Parents of the patient were informed about the purpose of the study and their informed written consent was taken. By interviewing them on the basis of pre-designed and pre tested proforma, socio demographic information was collected. The collected data was analysed using statistical package for social science (SPSS 17 Trial version).

RESULTS

Out of 151 pediatric patients 87 (57.6%) were male. Age range of the children was 1 to 14 years. In our study mean age of children was 8.41±2.86 years. Mean age of male patient was 9.12±4.26 years. Mean age of female patient was 7.12±3.86 years. 68 (45.0%) patients were adolescents. 127 (84.1%) patients were from rural area. 63 (41.7%) heads of the family of patients were illiterate. 116 (76.8%) of the patients lived in joint family. 89 (58.9%) patients had kuccha house. Overcrowding was present in 86.7% of the patients. Family history of TB was present in only 23.2% of the patients. 76.8% of the patients belonged to social IV and V according to modified Prasad’s classification (Table 1).

105 (69.5%) patients had extra pulmonary TB (Table 2). These pediatric TB cases were divided into two categories as per Revised National Tuberculosis Control Programme (RNTCP). Category-1 constituted 125 (82.7%) cases. 26 (17.3%) cases were in Category-2 (Table 3). 3% patients had HIV infection. 56 % of patients preferred syrup formulation, if available.

Table 1: Socio demographic profile of pediatric tuberculosis patients.

Character	Specific Character	No. of Patients (n=151)	Percentage
Sex	Male	87	57.6
	Female	64	42.4
Age groups (in years)	Preschool (1-4 Years)	27	17.9
	Primary school (5-9 years)	56	37.1
	Adolescent (10-14 years)	68	45.0
Residence	Rural	127	84.1
	Urban	24	15.9
Education of Heads of Family	Illiterate	63	41.7
	Primary	40	26.5
	Secondary	18	11.9
	Middle school	15	9.9
	Higher secondary	11	7.3
Type of family	Above Higher secondary	4	2.6
	Nuclear	35	23.2
	Joint	116	76.8
Housing condition	Kuccha House	89	58.9
	Pukka House	62	41.1
	Overcrowding Present	131	86.7
	Overcrowding Absent	20	13.3
Family history of TB	Present	35	23.2
	Absent	116	76.8
Social Classification according to Modified Prasad’s Classification	Class-1	0	0.0
	Class-2	12	7.9
	Class-3	23	15.2
	Class-4	69	45.7
	Class-5	47	31.1

DISCUSSION

In Thakor N et al out of 100 patients, 60 were female and 40 were male. Age range was 1-14 year. Mean age of children was 8.63±3.66 years. Mean age of male patients was 9.36±3.16 years. Mean age of female patients was 7.53±4.10 years. According to modified Prasad’s classification, 78% patients belonged to lower socioeconomic class. 94% patients were in Category-1 and 79% had extra pulmonary TB. 4% patients had HIV infection. Parents of 90% patients didn’t have knowledge

of TB. 60% of patients preferred syrup formulation, if available.⁵

Table 2: Age group and type of TB wise distribution of the patients.

Age Group	Type of TB		Total
	Extra Pulmonary TB	Pulmonary TB	
Preschool (1-4 years)	20	7	27 (17.9)
Primary school (5-9 years)	43	13	56 (37.1)
Adolescent (10-14 years)	42	26	68 (45.0)
Total	105 (69.5)	46 (30.5)	151 (100)

Figures in the parenthesis are percentages

In the study carried out by S.K. Kabra et al, mean age of the children was 7.75 years and sex distribution was almost equal. Category-1 constituted 70.4% cases. Category-2 and Category-3 cases were 2.6% and 27.0% respectively.⁶

Table 3: Gender and category wise distribution of the patients.

Category	Female	Male	Total
Category 1	56	69	125 (82.7)
Category 2	8	18	26 (17.3)
Total	64 (42.4)	87 (57.6)	151 (100)

Figures in the parenthesis are percentages

In the study of V K Arora et al, Extrapulmonary TB (EPTB) was seen in 47 percent of children. Among EPTB, lymphadenopathy was seen in 75 % of cases in their study.⁷ Whereas, in the study carried out by Saumyaswaminathan et al, lymphadenopathy was the most common (67%), among extrapulmonary manifestations.⁸

In our study Out of 151 pediatric patients 87 (57.6%) were male. Age range of the children was 1 to 14 years. In our study mean age of children was 8.41±2.86 years. 68 (45.0%) patients were adolescents. 127 (84.1%) patients were from rural area. 63 (41.7%) heads of the family of patients were illiterate. 116 (76.8%) of the patients lived in joint family. 89 (58.9%) patients had kuccha house. Overcrowding was present in 86.7% of the patients. 76.8% of the patients belonged to social IV and V according to modified Prasad’s classification. 105 (69.5%) patients had extra pulmonary TB. Category-1 constituted 125 (82.7%) cases. 3% patients had HIV infection. 56% of patients preferred syrup formulation, if available.

In our study family history of TB was present in only 23.2 % of the patients similar to the findings observed by Madhi F et al in a Paris suburb, where 22% had history of contact with TB patients.⁹ Prevalence of HIV infection in the patients was 3%. Several studies have shown prevalence between 0.8 to 2%.¹⁰⁻¹²

CONCLUSION

Majority of the patients (69.5%) had extra pulmonary TB. Majority of the patients (82.7%) were in category-1. More than half of the cases (55%) were in age group of 1-9 years. Overcrowding was present in 86.7% of the patients. 76.8% of the patients belonged to social IV and V according to modified Prasad’s classification. This study has observed that pediatric TB still continues to be a major problem in 1-9 years of age group and belonging to low socio-economic status. Poor housing conditions which continue to haunt our population is an important risk factor for TB transmission. Thus improving the socio-economic conditions and proper treatment of adult TB who are the sources of infection to children will go a long way in preventing pediatric TB and protect children who are the future of our country.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Kishore J. RNTCP: DOTS strategy including DOTS plus. In, National Health Programme of India, 8th edition, New Delhi, Century Publications. 2009;191-230.
2. Govt. of India (2013), TB India 2013, RNTCP Status Report, Central TB Division, Ministry of Health and Family Welfare, New Delhi. Available from: <http://www.tbcindia.org>.
3. WHO (2013), India Tuberculosis Profile, WHO report 2013. Available from: <http://www.who.int/tb/data>.
4. Park K. Tuberculosis. In, Textbook of Preventive and Social Medicine, 20th edition, Jabalpur, Bhanot Publishers.2009;159-176.
5. Thakor N, Prajapati D. Health and socio-demographic profile of paediatric tuberculosis patients on DOTS therapy in Ahmedabad city. Int J Med Sci Public Health. 2014;3:1123-6.
6. Kabra SK, Lodha R, Sheth V. Category based Treatment of Tuberculosis in Children, Indian Paediatrics 2004;41:927-37.
7. Arora VK, Agarwal SP. Pediatric Tuberculosis: An Experience from LRS Institute of Tuberculosis and Respiratory Diseases. In, Tuberculosis Control, Central TB Division, Ministry of Health and Family Welfare, New Delhi.

8. Swaminathan S, Rekha B. Pediatric Tuberculosis: Global Overview and Challenges *Clin Infect Dis.* 2010;3:184-94.
9. Madhi F, Fuhrman C, Monnet I, Atassi K, Poirier C, Housset B, et al. Transmission of TB from adults to children in a Paris suburb. *Pediatr Pulmonol.* 2002;34(3):159-63.
10. Joshi SM, Lahiri KR. Seropositivity rate for HIV infection in hospitalized children on selective screening. *Indian Paediatr.* 2001;38:267-71.
11. Lahiri S, Shahab T, Malik A, Alam S. HIV seropositivity in hospitalized children with high likelihood of AIDS. *Indian Paediatr.* 2002;39:372-5.
12. Shahab T, Zoha MS, Malik MA, Malik A, Afzal K. Prevalence of Human Immunodeficiency Virus Infection in Children with TB. *Indian Paediatr.* 2004;41:595-9.

Cite this article as: Jani Y, Sarvaiya AN, Thakor N. Socio demographic profile of pediatric tuberculosis patients of north Gujarat region, India: a cross sectional study. *Int J Res Med Sci* 2015;3:3382-5.