



ISSN: 0976-3031

Available Online at <http://www.recentscientific.com>

International Journal of Recent Scientific Research
Vol. 5, Issue, 10, pp.1857-1860, October, 2014

**International Journal
of Recent Scientific
Research**

RESEARCH ARTICLE

A STUDY ON PROFILE OF TUBERCULOSIS PATIENTS AT A TUBERCULOSIS UNIT IN BANGALORE

Chethana R¹, and Anwith HS²

¹Department of Community Medicine, Kempegowda Institute of Medical Sciences, Bangalore

²Post Graduate cum Tutor Department of Community Medicine, Kempegowda Institute of Medical Sciences, Bangalore

ARTICLE INFO

Article History:

Received 12th, September, 2014

Received in revised form 21st, September, 2014

Accepted 11th, October, 2014

Published online 28th, October, 2014

Key word:

Tuberculosis, Co morbidities, Tuberculosis Unit, Spectrum

ABSTRACT

Background: Tuberculosis [TB] has claimed its victims throughout much of known human history. During the year 2012 in India, there were an estimated 22 lakhs new cases of TB and 2.7 lakh people died from TB; this is despite the availability of treatment that will cure most cases of Tuberculosis.

Objectives:

1. To describe the socio demographic profile of patients registering for treatment
2. To describe the spectrum of the Tuberculosis in study subjects
3. To assess the proportion of other medical co morbidities among Patients suffering from Tuberculosis.

Materials & Methods:

All the cases registered at Tuberculosis Unit Banashankari Bangalore, between March 2014 to June 2014 constituted the study population. A detailed history was obtained by personal interview using, a pre tested semi structured questionnaire and also from treatment card maintained at the centre like type of Tuberculosis, category of treatment, etc.

Results: A total of 80 subjects participated in the study. Of which 63.75% of the study subjects were males, in the age group 29 – 38 years that is 35%. 70% of the study subjects were married & 62.50% living in nuclear family. 52.50% of the respondents belonged to upper lower class. Of the total study subjects 60% were started on DOTS therapy within 5 days of diagnosis. Majority of the cases were pulmonary tuberculosis 61.25%, with the smear positivity being 85.71%. 87.50% of the patients were under Category I therapy & the rest under Category II. A total of 47.50% of subjects suffered from Medical co morbidities.

© Copy Right, IJRSR, 2010, Academic Journals. All rights reserved.

INTRODUCTION

Tuberculosis has claimed its victims throughout much of known human history. It reached epidemic proportions in Europe and North America during the 18th and 19th centuries, earning the sobriquet, "Captain Among these Men of Death."¹ Tuberculosis [TB] continues to be the major global health problem causing ill health among millions of people every year, also second leading cause of death due to an infectious disease after Human Immuno Deficiency Virus.

During the year 2012 in India, there was an estimated 22 lakhs new cases of TB and 2.7 lakh people died from TB which amounts for quite a large number. The current prevalence of Tuberculosis continues to be high with a prevalence of 230 per 1 lakh population, this is despite the availability of treatment that will cure most cases of Tuberculosis². Mortality due to Tuberculosis in India is 22 per one lakh population in the year 2012, in absolute numbers 2.7 lakhs annually². TB is the most common opportunistic infection among people living with HIV a 5.6 percent of incidence of HIV was seen in Tuberculosis patients during the year 2012².

In India Tuberculosis is mainly the disease of the poor, besides the disease burden, TB also causes enormous socio-economic burden to India as it primarily affects people in most productive years of life, commonly in the age group of 15-54

years.³ Poor living conditions, malnutrition, shanty housing and overcrowding are the main reasons for the spread of the disease.⁴ Every patient cured of disease stops spreading TB, and every life saved is a child, mother, or father who will go on to live a longer, TB-free life.

Hence this study was undertaken to study the profile of the patients registered for treatment. Also there are very few studies describing various comorbidities associated with tuberculosis in a single study. Hence an attempt was made to describe the various comorbidities in a single study.

OBJECTIVES

1. To describe the socio demographic profile of cases registering for treatment
2. To describe the spectrum of the Tuberculosis disease suffered by the subjects
3. To assess the proportion of other medical co morbidities among Patients suffering from TB.

MATERIALS & METHODS

Data collection was started after obtaining clearance from institutional ethical committee, District Tuberculosis Officer [Bangalore] & medical officers in charge of respective health centres.

* Corresponding author: **Anwith HS**

Post Graduate cum Tutor Department of Community Medicine, Kempegowda Institute of Medical Sciences, Bangalore

The study was conducted at Banashankari Tuberculosis Unit located in south Bangalore, Karnataka which serves a population of 5 lakhs. The DOTS centres under it include Banashankari Maternity Home, Yarabh Nagar Health Centre, JP Nagar Health Centre, Kumaraswamy Layout Health Centre, Vidyapeta Health Centre, Yediyur maternity home, C T bed Health Centre, NR Coloney Health centre. NR Coloney Health centre was not functional during the study hence no visit was given.

Table 1 Socio demographic characteristics of the study population:

Age group in years	Number n = 80	Percentage %
18 - 28	24	30.00
29 - 38	28	35.00
39 - 48	11	13.75
49 - 58	09	11.25
Above 59	08	10.00
Gender		
Males	51	63.75
Females	29	36.25
Religion		
Hindus	64	80.00
Muslims	13	16.25
Christian	03	3.75
Socio economic class		
Upper middle	08	10.00
Lower middle	23	28.75
Upper lower	42	52.50
Lower	07	8.75
Marital status		
Married	56	70.00
Unmarried	21	26.25
Divorced	01	1.25
Separated	02	2.50
Occupation		
Unemployed	19	23.75
Unskilled	27	33.75
Semi skilled	05	6.25
Skilled	22	27.50
Clerical, shop owner, farmer	06	7.50
Semi profession	01	1.25
Family		
Nuclear	50	62.50
Joint	14	17.50
Three generation	16	20.00

Consent was obtained from all the patients/guardians. All the cases registered at Tuberculosis Unit Banashankari fulfilling the inclusion & exclusion criteria between March 2014 to June 2014 constituted the study population. A total of 105 patients were registered for DOTS during the study period among which 80 patients fulfilling the inclusion & exclusion criteria were included into the study. A detailed history regarding socio demographic profile, personal habits like smoking and alcoholism, past & family history of TB and medical comorbidities which the patients were suffering, was obtained by personal interview, using a pre tested semi structured questionnaire for all the patients under study. Socio economic classification was done using Modified Kuppaswamy's Socio-economic Status Scale⁵ CPI-IW of May 2013. Other details like TB number, type of Tuberculosis [pulmonary or extra pulmonary], Category of DOTS, HIV status and weight of the patient were obtained from the treatment card maintained at DOTS centre. Information regarding the medical comorbidities which patients were suffering were also collected using interview, past treatment records, available lab investigation reports and clinical examinations. Data was entered to

Microsoft Excel 2007 & analysed using the same. Descriptive statistics like mean, percentages were applied.

Inclusion Criteria

- a) Patients registered at Tuberculosis Unit Banashankari during the study period
- b) Patients must be on DOTS therapy
- c) Patients willing to participate and co-operate in the study.
- d) Subjects must be aged above 18 years.

Exclusion Criteria

- a) Confirmed patients for MDR [Multi Drug Resistant Tuberculosis] and [Extremely Drug Resistant Tuberculosis] Tuberculosis
- b) Patients taking treatment under Local DOTS providers like private clinics, pharmacies etc

Sample Size: 80 Patients Using the formula $n = [Z a/2]^2 pq / d^2$ Here p= prevalence of tuberculosis = 256 per 1 lakh population⁴

q = 1-p, Taking precision = 10%
 $n = [1.96^2 * 0.256 * 0.744] / 0.10^2 = 73.1380$, Adding Error 10% of 73.180 = 7.138
 73+7 = 80, Approximately **80 patients**.

Sampling method: Purposive Sampling

Statistical analysis: Descriptive statistics

RESULTS

Table 2 Distribution of study subjects based on treatment and laboratory tests:

Place of diagnosis	Number n = 80	Percentage%
Government hospital	37	46.25
Private hospital	22	27.50
Private lab	02	2.50
Designated microscopic centre	19	23.75
interval between diagnosis and treatment		
0 - 5	48	60.00
6 - 10	16	20.00
11 - 15	07	8.75
16 - 20	04	5.00
>20	05	6.25
Investigation*		
Sputum microscopy	60	75.00
Sputum culture	02	2.50
Chest x ray	38	47.50
Fnac & biopsy	20	25.00
Others	10	12.50
DOTS centre		
Banashankari referral hospital	01	1.25
Yarabh nagar h c	31	38.75
J p nagar h c	11	13.75
Kumar swamy layout h c	17	21.25
vidyapeeta h c	10	12.50
c t bed h c	07	8.75
Yadiyur maternity home	03	3.75

Total comes up to more than 80 as certain study subjects underwent multiple investigations and total percentage comes to more than 100% for the same reason. Others included CSF analysis 2, CT scan 2, MRI spine 1, Pleural fluid analysis 2, Pus Analysis 1, Broncho Alveolar Lavage 2.

DISCUSSION

In our present study 63.75% of the study subjects were males, majority in the age group of 29 - 38 years which constituted 35% of the total subjects. As compared to the observation done in survey by NFHS 3⁹, males constituted higher proportion of cases among the study population which is in accordance to the observation done in our study.

A study done by QH Khan *et al*⁶ in rural Aligarh revealed that prevalence of Tuberculosis increased with age & most of the study subjects were aged above 60 years. Majority of our study subjects were Hindus constituting 80% of total subjects which is in accordance with NFHS2 & NFHS3⁹ survey. 52.50% of our study subjects belonged to Upper Lower class which is in accordance to the study done by QH Khan⁶ in rural Aligarh.

Table 3 Distribution of study subjects based on profile of tuberculosis

Type of tuberculosis	Number n = 80	Percentage%
Pulmonary	49	61.25
extra pulmonary	31	38.75
smear status		
positive	42	85.71
negative	07	14.29
Extra pulmonary site*		
pleural effusion	06	19.35
Lymph node	16	51.61
Skin	01	03.23
Bone & joint	03	09.68
Others	05	16.13
Category of dots		
Category 1	70	87.50
Category 2	10	12.50
Past history of tuberculosis		
Yes	10	12.50
No	70	87.50
Family history of tuberculosis		
Yes	10	12.50
No	70	87.50
Currently smoking		
Yes	14	17.50
No	66	82.50
SMOKING history in past		
Yes	31	38.75
No	49	61.25
Currently consuming alcohol		
Yes	11	13.75
No	69	86.25
Past history of alcohol consumption		
Yes	26	32.50
No	54	67.50

*Others included involvement of Meninges & Brain 2, Vasculitis eye 1, Abdominal Tuberculosis 1, Cold abscess thigh 1.

Subjects with pulmonary Tuberculosis constituted 61.25% and that of extra pulmonary 38.75% of the study population with a ratio of 1.58:1, this was less when compared to the results of the study done at Yavatmal by Geeta Pardeshi, Dilip Deshmukh⁷, which had revealed a ratio of 14:1, this observation may be attributed to the age criteria of the patients in the later study.

Similarly ratio between smear positive and smear negative tuberculosis in our study was 6:1 but in the study done at Yavatmal by Geeta Pardeshi, Dilip Deshmukh⁷ it was 1.44:1. Among the extra pulmonary sites affected, involvement of lymph node was most common with 51.61% involvement which is similar to the results of a study done in Finland by Tuula Vasankari *et al*⁸.

Proportion of study subjects with Diabetes in our study was 16.25% which is higher than the results of the study done in Denmark, where it was 5.3%¹⁰. Proportion of study subjects with COPD in our study was 22.50% which is higher than, that seen in a study conducted in Korea where it was 12.10%.¹¹ This observation can be attributed to the sample size. Proportion of HIV co infection among the study subjects was 7.50%, which is more than WHO estimate of

disease burden in India for 2012.² WHO revealed HIV co infection to be 5.60% among the TB patients in India².

Table 4 Distribution of study subjects based on the comorbidities they are suffering

Co morbidities *	Number N = 80	Percentage%
Present	38	47.50
Absent	42	52.50
Diabetes		
Present	13	16.25
Absent	67	83.75
Hypertension		
Present	04	05
Absent	76	95
Copd		
Present	18	22.50
Absent	62	77.50
Anemia		
Present	45	56.25
Absent	35	43.75
Other co morbidities**		
Present	09	11.25
Absent	71	88.75
Hiv status***		
Positive	06	07.50
Negative	73	91.25
Unknown	01	01.25

* Total people suffering co morbidities are less than the individual co morbidities suffered, as few patients suffered multiple co morbidities.

**Others included Gout 1, Thyroid disorders 5 & Coronary Artery Disease 1, Epilepsy 1, & Carcinoma 1.

***HIV status of one of the patient is unknown as he refused to consent for HIV testing.

Acknowledgement

We sincerely thank Dr Pradeep B S Associate professor Department of Epidemiology, Centre for Public Health, NIMHANS, Bangalore for his valuable inputs and support. We also thank all the people who contributed in completion of the study.

References

1. Anne Leegaard, Anders Riis, Jette B. Kornum, Julie B. Prah, Vibeke Ø. Thomsen, Henrik Toft Sørensen *et al*. Diabetes, Glycemic Control, and Risk of Tuberculosis. *Diabetes care journal* 2011December; 34:2530-35.
2. Geeta Pardeshi, Dilip Deshmukh. Disease Characteristics and Treatment Outcome in Elderly Tuberculosis Patients on DOTS. *Indian journal of community medicine* 2007 october; 324:292-94.
3. K Park. Text book of preventive and social medicine. 22nded. Jabalpur: Banarsidas Bhanot; 2013. p. 166 - 83.
4. Khan QH. Epidemiology of Pulmonary Tuberculosis in Rural Aligarh. *Indian Journal of Community Medicine* 2006; 311:39-40.
5. National family health survey 3 volume1 [online]. 2006[cited 2014 Aug 08]; [540 screens]. Available from: URL:http://www.rchiips.org/nfhs/NFHS-3%20Data/VOL-1/India_volume_I_corrected_17oct08.pdf
6. TB INDIA 2014 Annual status report [Online]. 2014 [cited 2014 Aug 08]; [204 screens]. Available from: URL:http://www.tbcindia.nic.in/Pdfs/TB%20INDIA%202014.pdf
7. Thomas M Daniel. The history of tuberculosis. *Respiratory medicine Journal*.2006; 10011:1862-70.
8. Tuberculosis fact sheets [Online]. March 2014 [cited 2014 Aug 08]; Available from:

URL:<http://www.who.int/mediacentre/factsheets/fs104/en/>

9. Tuula Vasankari, Pekka Holmström, Jukka Ollgren, Kari Liippo and Petri Ruutu. Treatment outcome of extra-pulmonary tuberculosis in Finland: a cohort study. BMC public health 2010; 10399:1-14.
10. Vijaya K, Ravikiran E. Kuppuswamy's Socio-economic Status Scale-Updating Income Ranges for the Year 2013.

National journal of research in community medicine 2013 July;22:079-148.

11. Yong Il Hwang, Joo Hee Kim, Chang Youl Lee, Sunghoon Park, Yong Bum Park, Seung Hun Jang. The association between airflow obstruction and radiologic change by tuberculosis. J Thorac Dis 2014; 65:471-76.
