Original Article

SOCIO-DEMOGRAPHIC PROFILE OF TUBERCULOSIS PATIENT: A HOSPITAL BASED STUDY AT DEHRADUN

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ABSTRACT

Background: In healthy people infection with Mycobacterium tuberculosis often causes no symptoms since the person's immune system acts to "wall off" the bacteria. The common symptoms of active TB of the lung are coughing, sometimes with sputum or blood, chest pain, weakness, weight loss, fever and night sweats. If left untreated, each person with active TB disease will infect on an average between 10 and 15 people every year and this continues the transmission of Tuberculosis. So to understand these factors study was carried out about socio-demographic profile of patients attending DOTS Microscopy Centre (DMC).

Methodology: Present study was done at DOTS Microscopy Centre (DMC) of HIMS Hospital Dehradun and 362 patients of age 18 years and above with cough that has persisted for more than 2 weeks was taken for study purpose.

Results: Sputum positivity was maximum in age group 20-39 years i.e.(39.0 %)more among males i.e. 39.8% Specially Hindus i.e. (40.1%). Majority of the study subjects i.e. 52.5% belong to joint family, with family size more than 10 members (44.5%). Sputum positivity was more amongst subjects who were in Government job i.e. 41.1%. Sputum positivity was maximum in lower socioeconomic class (B.G.Prasad).i.e. 37.3%. The sputum positive results were observed maximum in subjects with presenting complaints of cough with anorexia and weight loss i.e. 41%

Conclusion: An improvement in living conditions, education, socioeconomic status and sanitation is desirable to curtail down the prevalence of tuberculosis.

Keywords: Tuberculosis, DOTS, Socio-economic class

INTRODUCTION

RNTCP is the largest and the fastest expanding programme throughout the world. Treatment success rates have tripled from 25% to 86% & TB death rates have been cut 7-fold from 29% to 4% in comparison to the pre-RNTCP era.

Tuberculosis remains a worldwide public health problem despite the fact that the causative organism was discovered more than 100 years ago. It is a disease of poverty affecting mostly young adults in their most productive years. The vast majority of TB deaths are in the developing world[1]. Age is an important determinant of the risk of diseases after infection. The risk may increase in the elderly, possibly because of waning immunity and co morbidity[2]. Hindus were at a significantly greater risk of tuberculosis at all sites than Muslims[3]. The common symptoms of active TB of the lung are coughing, sometimes with sputum or blood, chest pain, weakness, weight loss, fever and night sweats[4]. If left untreated, each person with active

TB disease will infect on an average between 10 and 15 people every year and this continues the transmission of Tuberculosis[1].Despite the fact that million have been spent till now to uproot this disease it is absolutely clear that reaching the unreached millions in need of TB diagnosis and care requires accessible laboratory facilities with quality services and effective anti-tuberculosis drugs , but this isn't enough as we need more than medical treatment to conquer this evil of the society.

The objective of the present study was to assess the major socio-demographic characteristic & main clinical symptom of pulmonary tuberculosis patients seeking treatment from under RNTCP.

METHODOLOGY

The present study was conducted at DOTS Microscopy Centre (DMC) of HIMS, Dehradun". It comprised of all the patients who attended DOTS Microscopy centre of HIMS for a period of six months i.e. from 1st

July to 31st December 2010. All patients ≥18 years reporting chest symptoms, with cough that has persisted for more than 2 weeks were enrolled for study and 362 such patients were identified during study period. Total patients attended the centre were 538.The study was approved by the institute's ethics committee. Informed verbal consent was taken from all the patients included in the study. A separate written consent was also taken from the patients who underwent process of sputum induction.

All information regarding Socio-Demographic profile which included their name, address, age, religion, caste, family size, type of family was collected and recorded on a pre-designed and pre-tested questionnaire. Details of past / personal history and presenting complaints were recorded in questionnaire. General and systemic examination was done using standardized methodse.g. for Blood pressure, anthropometry & Sputum examination for AFB was done for all study subjects.

RESULTS

Overall Sputum positivity was 37% i.e. 134 cases were sputum positive out of 362 study subjects. Sputum positivity was maximum in age group 20-39 years i.e.(39.0 %)followed by 37.6% in 40-59 years and 34.5% in more than 60 years of age group, meaning thereby that pulmonary tuberculosis affected productive age group more.

Out of 362 study subjects sputum positivity for pulmonary tuberculosis was found to be maximum in males i.e. 39.8%, as compared to females i.e. 28.5% but the association was statistically insignificant.

Majority of study subjects were Hindu by religion and sputum positivity was also maximum among Hindus i.e. (40.1%). The sputum positivity among Muslims and Sikhs was (37.8%) & (10%) respectively. No sputum positive case was found among Christians.

Sputum positive results were maximum among schedule caste i.e. (50%), followed by 37% in general category subjects and 36.1% in OBC subjects. A statistically significant difference was not found between caste & sputum result.

Majority of the study subjects (52.5%) belong to joint family. In relation to sputum results, sputum positivity was found more amongst subjects belonging to joint family i.e. 44.2% as compared to nuclear family (29%).

A highly significant statistical association was found between type of family and sputum result.

Sputum positivity had shown increasing trend with increase infamily size i.e. sputum positive results were maximum amongst subject of family size more than 10 members (44.5%), followed by 41.3% in family size 8 to 10 members, 40.3% in family size of 5 to 7 members and least i.e. 29% amongst subject with family size of less than equal to 4 members.No statistical association was found between the family size and sputum positivity.

Table 1: Association of sputum sample results with Demographic Variables

Variables	Result after standard regimen		Total (%)	'p'Value
	Positive (N=134)	Negative(N=228)	(N=362)	χ^2, df
Age group				
18-29	17(37%)	29(63%)	46(12.7%)	**0.52**
30-39	27(40.2%)	40(140.2%)	67(18.7%)	χ^2=3.18, df=4
40-49	30(44.2%)	38(55.8%)	68(18.7%)	
50-59	20(30.7%)	45(69.3%)	65(17.9%)	
>=60	40(34.5%)	76(65.5%)	116(32%)	
Sex				
Male	108(39.8%)	163(60.2%)	271(74.8%)	0.05
Female	26(28.5%)	65(71.5%)	91(25.2%)	χ^2=3.71, df=1
Religion				
Hindu	108(40.1%)	161(59.9%)	269(74.3%)	**0.008***
Muslim	23(37.8%)	38(62.2%)	61(17%)	χ^2=11.71, df=3
Sikh	3(10%)	27(90%)	30(8.2%)	
Christian	0(0%)	2(100%)	2(0.5%)	
Caste				
General	110(37%)	187(63%)	297(82%)	**0.85**
OBC	22(36.1%)	39(63.9%)	61(17%)	χ^2=0.31, df=2
SC	2(50%)	2(50%)	4(1%)	
Family				
Nuclear	50(29%)	122(71%)	172(47.5%)	**0.003***
Joint	84(44.2%)	106(55.8%)	190(52.5%)	χ^2=8.87,df=1
Family Size				
≤4	36(29%)	88(64%)	124(34.2%)	0.14
5-7	58(40.3%)	86(59.7%)	144(39.8%)	χ^2=5.37, df=3
8-10	24(41.3%)	34(58.7%)	58(16%)	
>10	16(44.5%)	20(55.5%)	36(10%)	

(Parenthesis given in bracket is proportion)

It was observed that sputum positivity was maximum in literate people i.e. 41% as compare to illiterate i.e. 32.1.0% people and with increasing level of literacy the sputum positivity has increased implying that educated persons were more aware to seek early health care advice.But the association was not found to be significant.

Out of total 362 study subjects maximum were farmers by occupation i.e.43.9% and minimum (8.3%) were in professional jobs.

It was observed that maximum sputum positive cases were reported in subjects who were in Government job i.e. 41.1% and minimum sputum positive yield was among housewives and students i.e. 24.5%. The association was not found to be significant.

It was observed that sputum positivity was maximum in lower socioeconomic class (B.G.Prasad).i.e. 37.3% followed by 36.4% in middle class. No sputum positive case was observed in upper class category. No significant association was found between sputum sample result and social class

Table 2: Comparison of presenting complaints with the sputum sample result

Presenting complaints	Sputum positive	Sputum negative	Total (N)	'p' value
Cough	134(37)	228(63)	362(100)	
Expectoration	132(37.1)	224(62.9)	356(100)	0.85
Breathlessness	124(36.3)	217(63.7)	341(100)	0.30
Chest pain	121(39.1)	189(60.9)	310(100)	0.05
Haemoptysis	22(26.8)	60(73.2)	82(100)	0.30
Fever	122(37.6)	203(62.4)	325(100)	0.54
Anorexia	115(41)	165(59)	280(100)	0.003*
Weight loss	125(40.9)	180(59.1)	305(100)	0.0003#
Night sweats	26(38.3)	42(61.7)	68(100)	0.81

(Parenthesis given in bracket is proportion) χ^2= 8.71* ,13.07#, df=1

Table 3: Distribution of study subjects according to the Clinical Findings

Variable	Subjects (n=362) (%)
Blood pressure (in mm of Hg)	
Normal	286 (79.0)
Hypotensive	69 (19.1)
Hypertensive	7 (1.9)
Pallor	
Present	228 (63.0)
Absent	134 (37.0)
Respiratory Rate (per minute)	
Normal (12-20)	29 (8.0)
Tachypnoea (more than 20)	333 (92.0)
Pulse(per minute)	
Normal	345 (95.3)
Tachycardia	13 (3.6)
Bradycardia	4 (1.1)
B.M.I(Body Mass Index)	
Undernourished	175 (48.3)
Normal	169 (46.7)
Over nourished	18 (5.0)

The sputum positive results were observed maximum in subjects with presenting complaints of cough with anorexia and weight loss i.e. 41% in each followed by cough with chest pain i.e. 39.1%, cough with night sweats i.e. 38.3%, cough with fever 37.6% and least positivity was seen in subjects having cough with haemoptysis i.e. 26.8%. Cough with anorexia and weight loss has shown statistically significant association with sputum result.

DISCUSSION

In present study maximum subjects were reported in the age group of more than 60 years i.e. 31.5% while least was in age group 18 to 29 years (12.7%).Maximum subjects belonging to the age group 60 and above indicates that with advancing age the immunity decreases.

In index study sputum positivity was highest (39 %) in age group of20-40 years followed by 37.6% in 40-60 years and 34.5% in more than 60 years of age that was comparable to study conducted by S Gupta et al "Underlying risk factors in TB patients"at a Tertiary Hospital setting at Manipal in which they observed that maximum cases (41.5%) were in age group 21-40 years followed by 38.2% in 41-60 years and 11.6% in age group of >60 years[5]. Contrary to these studies Q H Khan reported maximum prevalence rate (63.83/1000) in age group 60 years and more[6]. Raviglione et al had also reported maximum cases in >65 years of age[7].

Present study reveals that maximum study subjects were male i.e.74.9% as compared to 25.1% female. Similar male dominance for pulmonary tuberculosis was found in studies conducted by AartiKaulagekar and Anjali Radkar (57.8% males v/s 42.2% females)[8], Phalke Deepak Baburao et al, at DOTs centreLoni, from 2006-08, (66% males v/s 34% females)[9] and Q H Khan[6] Susan E et al[10]. In all these studies including present study the results were insignificant.

In present study 74.3% of subjects were Hindus, 16.9% were Muslims. NFHS III data for Uttarakhand has reported 92.1% Hindus and 6.2% Muslims[11]. This discrepancy in our study might be due to additional patients visiting our DOTs centre from the Western Uttar Pradesh.

In our study sputum positivity was observed more in Hindus (40.1%) as compared to Muslims (37.8%) and Sikhs (10%) and it was similar to observation by N Shetty et al who also reported higher number of cases in Hindus (72%)[12]. In our study this association was found to be statistically significant.

On the contrary Jha et al observed higher prevalence among Christians (12.71/1000) followed by Muslims (3.96/1000) and Hindus (2.56/1000)[11].

Among the 362 study subjects, 82% subjects were from general category while 16.9% subjects belonged to OBC category whereas NFHS 3 data on population distribution of Uttarakhand had revealed 64.9% general category and 12.9% of OBC category [11].

In this study sputum positive results were maximum among schedule caste i.e. 50%, followed by 37% in general category subjects and 36.1% in OBC subjects.

This association was statistically insignificant.AartiKaulagekar and Anjali Radkar in their study "Social status makes a difference: tuberculosis scenario during National family health survey – 2", conducted at Pune(1998-99), reported a descending order of prevalence among different casts i.e. scheduled tribes 1.85%, scheduled castes 0.64%, other backward castes 0.54% and other advanced caste groups 0.43%[8].

The higher sputum positivity in scheduled casts in present study could be due to living conditions, ignorance and lack of health advice seeking behaviour among this class.

In this study sputum positivity was minimum (36%) amongst married followed by 40% in widowers, 42.8% in widows, 44.8% in unmarried and 50% in divorcee[14]. Bhatt et al showed maximum i.e. 55 % sputum positivity amongst married subjects while minimum in unmarried group. The reason behind high rate of tuberculosis in single group could be cited as they tend to seek early care because burden of responsibilities may be less as compared to the married couples.

The study shows maximum subjects were from joint family i.e.52.5% similar to as reported by Q H Khan[6] in his study (94.74%) while rest of the subjects were from nuclear family i.e. 47.5% .

In our study sputum positivity was found more among subjects from joint family (44.2%) that was comparable to the study by Jha et al and Q H Khan who observed higher percentage of cases in joint family but their results were statistically insignificant[13,6]. In index study association of family type and sputum positivity was statistically highly significant (p=0.003).

In our study weight loss was present in quiet a high number of subjects (84.3%) contrary to 30.32% reported by Jha et al. 85.6% subjects presented with Chest pain in our study contrary to 39.3% recorded by Q H Khan. Similar observations were made by Chattopadhyay (1986) in his study at registered villages of RHTC, Jawan, Aligarh, in which they reported the presenting symptoms of pulmonary tuberculosis as follows: Cough 97.05%, Fever 89.5%, haemoptysis 38.23% and chest pain 23.52%[15].

CONCLUSION

Sputum positivity i.e. pulmonary tuberculosis was high among productive age group especially in males. Sputum positive results were maximum among joint family or family size. Proper understanding of these epidemiological correlates is desirable to curtail down the prevalence of tuberculosis.

The sputum positive showed statistically significant associationwith presenting complaints of cough with anorexia and weight loss while other associated symptoms viz. cough with chest pain or night sweats or fever or haemoptysis were less.

Clinical findings like Hypotension, anemia, tachypnoea and undernourished were more common among cough symptomatic. Similar studies are required to arrive at definitive conclusion nevertheless diagnostic algorithm adopted through DOTS is corner stone in reducing the disease burden in society.

Acknowledgment

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