Research Article

Study of various characteristics of Pulmonary and extra pulmonary tuberculosis patients enrolled for DOTS under RNTCP

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Abstract

Introduction: India has nearly 30% of global tuberculosis burden. With an estimated burden of new smear positive tuberculosis of 85 per 1 lakh population, nearly one million new smear positive case and about 2 million total new cases are added every year. More adults die from tuberculosis than from any other infectious disease in India, one every minute more than 1,000 every day. **Aims and objective:** To study of various characteristics of Pulmonary and extra pulmonary tuberculosis patients enrolled for DOTS under RNTCP. **Material and method:** All the newly diagnosed cases of pulmonary and extra pulmonary tuberculosis attending OPD/IPD of Govt. Medical College Nanded and residing in area under coverage of RNTCP centre of GMC Nanded were included in this study. Name, age, sex, address, occupation, income, number of family members, presenting complaints in chronological order, past history, personal history, through general and systemic examinations, investigations were carried out and the findings were recorded. All the standard definitions defined by Central TB division of Directorate General of Health Services were used. **Results:** 57.01% patients were having pulmonary Tuberculosis and 42.99% patients were having extra pulmonary tuberculosis. Among the cases of extra pulmonary tuberculosis TB Lymph Nodes contributes 23.08%, followed by pleural effusion 13.57%. It was seen that 84.13% parinets were subjected to category I (sputum positive and seriously ill sputum negative) and only 15.87%patients i.e. sputum negative and not seriously ill were subjected to category III. Maximum number of patients enrolled in present study were between15- 44 i.e. economically productive age group of life. Cough was the most common symptom observed and next was fever **Conclusion:** Sputum positive pulmonary tuberculosis was the most common type of tuberculosis as compared to extra pulmonary and sputum negative pulmonary tuberculosis. Young male belonging to lower socioeconomic class was most common group suffering from tuberculosis.
Key words: Sputum positive pulmonary tuberculosis, category I, cough, RNTCP.

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Received Date: 30/10/2014 Accepted Date: 07/11/2014

Access this article online

Quick Response Code:

Website: www.statperson.com

DOI: 09 November 2014

INTRODUCTION

As one of the signatory of UN Millennium declaration (2000) India carries great responsibility of combating tuberculosis (TB), HIV and malaria. Presently two of every five Indians are infected with the TB bacillus. Of them 10% will develop TB disease during their lifetime; every day about 5,000 people develop the disease.[1] More adults in India die from TB than from any other infectious disease -one every minute and more than 1000 every day a grim statistics that has changed very little over the past two decades[2]. In the view of such a high disease burden it really needs exhaustive efforts to achieve Millennium Development Goals. With the challenging target of halving the prevalence and death rates of tuberculosis by 2015 it seems to be like climbing the mountain bare footedly. India has nearly 30% of global tuberculosis burden. With an estimated burden of new smear positive tuberculosis of 85 per 1 lakh population, nearly one million new smear positive case and about 2 million total new cases are added every year. More adults die from tuberculosis than from any other infectious disease in India, one every minute more than 1,000 every day[2]. Major progress in global tuberculosis (TB) control followed the widespread implementation of the DOTS strategy. The Stop TB Strategy, launched in 2006, builds upon and enhances the achievements of

How to site this article: Sanjiv Zangde, Anjali Deshmukh. Study of various characteristics of Pulmonary and extra pulmonary tuberculosis patients enrolled for DOTS under RNTCP. *International Journal of Recent Trends in Science and Technology* November 2014; 13(1): 81-84 http://www.statperson.com (accessed 10 November 2014).

DOTS. New objectives include universal access to patient-centred treatment and protection of populations from TB/HIV and multidrug-resistant TB (MDR-TB). The Stop TB Strategy and the Global Plan to implement the new strategy make it necessary to revise the third edition of Treatment of tuberculosis: guidelines for national programmes, published in 2003.[3] Tuberculosis presents with various symptoms. Fever and cough is the most common presenting symptom. Nanded is the holy city blessed by holy feet of Shri Guru Gobind Singhji. The RNTCP was implemented and started functioning since 24th March (World TB day) 2003. Present study was carried out to study various cases of Pulmonary and extra pulmonary tuberculosis enrolled on DOTS under RNTCP.

AIMS AND OBJECTIVE

To study of various characteristics of Pulmonary and extra pulmonary tuberculosis patients enrolled for DOTS under RNTCP.

MATERIAL AND METHOD

The present cross sectional study was conducted in the department of TB and chest of Govt. Medical College and Shri Guru Gobind Singhji Memorial hospital Nanded. The study was conducted during July 2006 to June 2008. All he newly diagnosed patients of tuberculosis were selected for the study.

Following inclusion and exclusion criteria was used to select the study patients.

Inclusion criteria

All newly diagnosed cases of pulmonary and extra pulmonary tuberculosis diagnosed microscopically, histopathologically and /or radiologically and attending OPD/IPD of Govt. Medical College Nanded and residing in area under coverage of RNTCP centre of GMC Nanded were included in this study.

Exclusion Criteria

- Already diagnosed and on treatment patients of Anti tubercular drugs.
- All cases of Defaulter, Failure and Relapse.
- All cases below 15 years of age group.
- All cases with deranged Liver function test and kidney function tests were excluded.

Data Collection was carried out on predesigned questionnaires. Name, age, sex, address, occupation, income, number of family members, presenting complaints in chronological order, past history, personal history, through general and systemic examinations, investigations were carried out and the findings were recorded. All the standard definitions defined by Central TB division of Directorate General of Health Services were used.

RESULTS

Table 1: Distribution of patients according to the type of tuberculosis

Type of patients		No of patients	%
Pulmonary Tuberculosis		126	57.01
Extra Pulmonary Tuberculosis	TB Lymphadenopathy	51	23.08
	Pleural Effusion	30	13.57
	Abdominal TB	04	1.81
	Hydropneumothorax and Pyopneumothorax.	10	4.52
	Total	**221**	**100**

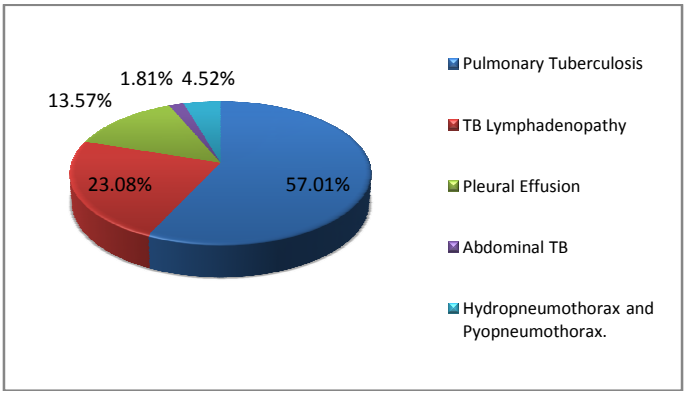

Figure 1: Distribution of patients according to the type of tuberculosis

Out of the total 221 patients, 126(57.01%) patients were having pulmonary Tuberculosis and 95(42.99%) patients were having extra pulmonary tuberculosis. Among the cases of extra pulmonary tuberculosis TB Lymph Nodes contributes 23.08%, followed by pleural effusion 13.57%.

Table 2: Age and Sex wise distribution of Tuberculosis patients

Variable (n=221)		Total (%)
Age Group	15-24	41(18.55)
	25-34	64(28.95)
	35-44	49(22.17)
	45-54	32(14.47)
	55-64	15(6.78)
	65+	20 (9.08)
Sex	Male	136 (61.54)
	Female	85 (38.46)
Education	Illiterate	88 (39.81)
	Primary	34 (15.38)
	Middle	38 (17.19)
	Secondary	18 (8.14)
	Higher Secondary	18 (8.14)
	Graduate and more	25 (11.34)
SE Class	I	0 (0.00)
	II	2 (0.90)
	III	9 (4.07)
	IV	68 (30.78)
	V	142 (64.25)
Symptoms (n=126)*	Cough >3 wks	106 (84.12)

	Fever	92 (73.01)
	Loss of Appetite	80 (63.49)
	Dyspnea	68 (53.96)
	Chest pain	59 (46.82)
	Haemoptysis	10 (7.93)
Duration of illness in days	< 10 days	16 (7.23)
	11 - 20 days	10 (4.52)
	21 - 30 days	154 (69.68)
	31 - 40 Days	39 (17.67)
	41- 50 days	02 (00.90)

It was observed that majority of the patients (28.95%) in the study were between 25-34 years. Huge bulk of cases 154(69.68%) were concentrated in 15-44 years age group. Among those 136 (61.54%) were males and 85(38.46%) were females. Male to female ratio was observed to be 1.60:1. It was seen that 39.81% patients were illiterate. In EPTB respective symptoms were predominant as per organ involvement. Above table demonstrates symptomatology in cases of pulmonary TB, Cough was the most common presenting symptom (84.12%) of total presentation and fever was next most common (73.01%) and Hemopatysis was least common i.e. 7.93%. it was observed that maximum number of cases i.e. 154 (69.68%) presented within 21-30 days.

Table 3: Distribution of patients according to Different treatment categories

Category	PTB (%)	EPTB (%)	Total (%)
Category-I	106 (84.13)	30 (31.58)	136
Category-III	20 (15.87)	65 (68.42)	85
Total	**126 (100.00)**	**95 (100.00)**	**221**

It was observed that out of 126(84.13%) were subjected to category I (sputum positive and seriously ill sputum negative) and only 20(15.87%) i.e. sputum negative not seriously ill were subjected to category III. Amongst 95 patients of extra pulmonary tuberculosis, 30(31.58%) patients (seriously ill EPTB i.e. 16 cases of bilateral pleural effusion and 10 cases of Hydropneumo and Pyopneumothorax and 4 cases of abdominal tuberculosis) were subjected to category I and rest 65(68.42%) were subjected to category III. As per study criteria only newly diagnosed cases of Tuberculosis were included which comes under category I and category III.

Table 4: Distribution of cases according to type of disease and category

Category	Pulmonary TB		EPTB (%)	Total (%)
	Sputum +ve (%)	Sputum -ve (%)		
I	96 (70.60)	10 (7.35)	30 (22.05)	136 (100)
III	N.A.	20 (23.52)	65 (76.48)	85 (100)
Total	**96**	**30**	**95**	**221**

It was observed among the patients receiving category I treatment 70.60% were sputum positive at the time of study. The proportion of new smear positive to smear negative was found to be 3.2:1.

DISCUSSION

Present study was conducted on 221 patients attending OPD and IPD of TB and chest department of Govt. Medical College and Shri Guru Gobind Singhji Memorial hospital Nanded. All newly diagnosed cases of pulmonary tuberculosis (PTB) and extra pulmonary Tuberculosis (EPTB) were included in this study. It was observed that amongst 221 patients registered 126 (57.02%) patients were having pulmonary tuberculosis and 95 (42.98%) patients having extra pulmonary tuberculosis. Among extra pulmonary cases 51 patients were having Tuberculous lymphadenopathy, 30 patients were having Tuberculous pleural effusion, 10 patients were having tuberculous hydropneumo and pyopneumothorax and 4 patients were having abdominal tuberculosis. A review of RNTCP implementation[4] between 1993 to 1999 at different sites showed new smear positive 37.68%, new smear negative 33.10% and extra pulmonary cases 11.19%. Corresponding proportions of PTB and EPTB cases in New Delhi in 2006[5] were 62.4% and 37.59% respectively. Among pulmonary cases 63.25% were smear positive and 36.75% were smear negative. Similarly Md. Shamim Akhtar *et al*, study conducted at JN Medical College at Aligarh[6] showed 76% were pulmonary cases and 24% were extra pulmonary cases. Among pulmonary 64.30% were sputum positive and 35.70% were sputum negative. In present study it was observed that there were large proportion of extra pulmonary cases and chances of incorrect diagnosis. Majority of EPTB cases were tuberculous lymphadenopathy and most of them were diagnosed at GMC, Nanded on the basis of fine needle aspiration cytology and lymph node biopsy results. A course of antibiotics was usually prescribed but it was withdrawn as soon as laboratory results of FNAC were received suggestive of tuberculous lymphadenitis. To avoid over treatment for tuberculosis, extra pulmonary cases must be thoroughly evaluated and a course of antibiotics must be prescribed for at least 2 weeks before diagnosis of tuberculosis is confirmed[7]. Also maximum number of suspected cases of EPTB were referred from periphery to GMC Nanded and being tertiary care centre they were diagnosed here as the facilities for FNAC, pleural fluid examination, lymph node biopsy etc available. 69.68% cases were less than 44 years of age. Similar findings were also observed by Kolappan.[8] It was observed that majority of the patients (28.95%) in the study were between 25-34 years. At national level also it was contributing maximum (23.52%) number of

patients[9]. In the present study Male to female ratio of patients was 1.60:1. Chadha SL and RP Bhagi[10] observed it to be 2.02:1 while Balsubramanian[11] observed it to be 2.78:1. Hill P.C.[12] observed that in Gambia (2005) male to female ratio of Tuberculosis patients was 1.92:1. Thus the male predominance in the present study was comparable with the other studies. It was observed that 39.81% of patients were illiterate in the study. Similar observation was also reported by SL Chadha *et al*[10] where 39% of patients were illiterate. Majority (64.25%) of the cases were belonging to Class V of B.G. Prasad socio economic scale. Similar observation was found by S.L.Chadha *et al*[10]. So we could state that tuberculosis is common in individuals with lower socioeconomic class. While studying the symptomatology of pulmonary tuberculosis it was observed that cough and fever were commonest symptoms accounting for 84.12% and 73.01% respectively. Haemoptysis was found to be least common symptom. Berger *et al*[13] also stated that cough and fever were the most common symptoms in tuberculosis in their study. In the present study 84.13% were subjected to category I (sputum positive and seriously ill sputum negative) and only 20(15.87%) i.e. sputum negative not seriously ill were subjected to category III. According to RNTCP guidenlines[7] proportion of smear negative seriously ill patients prescribed category I regimen should not exceed 20% of all category I patients. Thus principle of prescribing category I regimen to only seriously ill patient was meticulously followed in this study. Out of 126 patients of pulmonary tuberculosis 96(76.02%) were sputum Positive and 30 (23.80%) were sputum negative. Percentage of sputum positive that were put on category I was 70.58% and percentage of sputum negative that were put on category I was 7.35%. Ratio of smear positive patients to smear negative patients was found to be 3.2: 1 and is above the expected ratio of RNTCP i.e. 1.2:1. Khatri4 reported ratio of 1.14:1 and Bhat *et al*[14] carried out study in urban area of New Delhi and ratio was found to be 2:1.

CONCLUSION

Thus from the above results and discussion we conclude that sputum positive pulmonary tuberculosis was the most common type of tuberculosis as compared to extra pulmonary and sputum negative pulmonary tuberculosis. Young male belonging to lower socioeconomic class was most common group suffering from tuberculosis.

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Source of Support: None Declared
Conflict of Interest: None Declared