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Utility of Tuberculosis notification to assess management practices in private care in northern India

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Abstract

Revised National Tuberculosis Control Programme of India envisages mandatory TB notification since 2012. TB care in private sector in Solan town (a fast urbanizing and industrializing area) has never been studied. Nikshay, an online reporting tool, being utilized by private practitioners, was used for understanding the management practices in the region having migrant population dynamics. The objective of the study was to assess the quality of the diagnosis, treatment and supportive services given by private practitioners. The study will also identify the gaps in TB management among the private practitioners. A cross sectional study, by interviewing patients selected from secondary data of Nikshay, was conducted after obtaining informed voluntary consent and securing Institutional Ethics Committee permission. It was found that cough was most common symptom used for suspecting TB (77.65%) and Chest X ray the most commonly used diagnostic technique (69.14%). Only for about 7.44% patients two sample sputum microscopy was used. 50 % of the patients were treated with two drugs. None were on DOTS therapy. Maximum (57.44 %) number of patients had taken treatment for duration of less than 6 months. It was concluded that a large number of gaps exist between the management practices by private practitioner and National TB management guidelines, and need intervention through RNTCP.

Keywords: Microscopy, sputum, X- Rays, Tuberculosis.

Introduction

Since its inception in 1997 and covering the whole country under its ambit by the March 2006, the Revised National Tuberculosis Control Programme (RNTCP) has made significant progress in TB control ^{1,2}. This also includes the efforts to engage the private medical sector in TB care and control through various published schemes ³. Still India continues to bear the highest global burden of TB with an estimated 2.3 million incident cases per annum, accounting for more than one fourth of global TB incidence ⁴. Although data are sparse, there could be as many as TB patients seeking health care in private sector as there are in the public health sector ^{5,6,7,8,9}. Under RNTCP, significant efforts have been made to rope in the private medical health care sector to achieve the International Standards for TB Care ^{10,11}.

Many studies from India have documented that the private sector often deviates from the standard, internationally recommended TB management practices ^{12, 13, 14, 15}. In order to ensure proper TB diagnosis and case management, to reduce TB transmission and to address the problems of emergence and the spread of the multi drug resistant TB, it was essential to

have complete information of all TB cases. Therefore, as per the principles of the TB Case notification since 7th May, 2012, the health care providers in the private sector were asked to notify every TB case to the local public health authorities. This data was then entered into Nikshay, a web enabled application, which facilitates monitoring of the universal access to the data of TB patients, by all concerned ¹⁶.

As India plans towards universal access to TB care, it becomes pertinent here to understand the quality of the services being provided by private medical sector. The understanding of the TB management practices followed by private care givers has been mostly based upon the interviews with the private care givers which involves bias in the answer. We experimented this the other way round. We wished to ask the patients directly, who were treated by them. We used the TB notification tool to access the patient information notified by the private doctor. This study was proposed with the objectives of (1) To assess the quality of the diagnosis, treatment and supportive services given by private practitioners for the management of tuberculosis and (2) to identify the gaps in the implementation of RNTCP among the private practitioners.

Material and Methods

The Secondary data of the Nikshay application of RNTCP was analyzed to enumerate all the private providers, notifying TB disease. The sole private practitioner, notifying the disease, was selected for the study. The study was conducted by interviewing these patients.

Study area: The study was conducted in the resident places of the patients across the three districts namely, Shimla, Sirmour and Solan.

Study period: The study was completed in the period from 1st January to 30th November 2016.

Study population: All the notified patients w.e.f. 3rd quarter 2012 to 1st quarter 2015 were enrolled for the study.

Study Design: It was a cross sectional study with descriptive epidemiology.

Study Tools: A self-administered pre tested questionnaire was used.

An informed written consent from the patients or their attendants was obtained. The permission for the study was sought from the Ethics committee of a Medical College of the district.

Data statistics and analysis: The data was analyzed in IBM SPSS Statistics version 21 and Microsoft Excel 2010 software. The p values of lesser than 0.05 were considered significant.

Results

The Table 1 shows that out of the total respondents 77.6% were males and 22.4% females. The maximum numbers of respondents were in the age group of 31-45 years, with 60.3% and 33.3% males and females respectively. Mere 2.1% of the total respondents were of more than 60 years of age.

The most common symptom used for diagnosis among the TB patients was cough (77.65%) followed by fever and cough with sputum. Cough with blood in sputum was amongst the least frequent symptom and nodular swellings in any part of body formed the basis of TB suspicion in about 6.38% of the total patients. The Table 2 depicts that there was no significant difference by gender in distribution of these symptoms. The Table 3 depicts that the most common investigation was Chest X ray and weight examination. This was followed by pleural fluid cytology and single sputum examination. FNAC was done in the least number of patients. Even basic investigation such as weight of the patient was not taken for all the respondents. The difference was significant by gender only in single sample sputum microscopy examination.

The Table 4 depicts that most (50 %) of the patients were treated with two drugs while only 3 (3.19 %) patients were treated with more than 4 drugs. All the patients were on daily treatment, none on DOTS therapy. Maximum (57.44 %) number of patients had taken treatment for duration of less than 6 months. Only a few (8.51 %) of the patients had taken the treatment for more than 9 months. Also there was no significant difference in symptoms by gender in the duration of treatment. In case of supportive services provided to respondents, most of the patients (73.40 %) were informed about the diagnosis of the disease. About 26.59 % of the patients were not informed about their diagnosis even. Physical exercises were advised to about half number of the total patients. The Table 5 also outlines that there was no significant difference by gender in the provision of these supportive services.

Discussion

The present study illustrates the diagnostic, treatment and supportive services provided by a private practitioner in TB management by retrieving the patient information as reported by the practitioner in Nikshay portal. Thomas BE et al had also similarly documented the understanding of the TB management practices by the private practitioners, in Chennai in 2016¹⁸. In another similar study (Hazarika, 2011), the contributory role of private practitioners in understanding TB management has been documented⁸. It was also found that the maximum number of patients were the adults in the age group of 15-44 years and with a higher male preponderance, a similar result as found in our study also. Yimer SA et al in 2012 in their study in Ehtiopia and Nagaraju A *et al* in 2015 in India documented cough as a primary symptom picked up by maximum of private practitioners for suspecting TB, similar to our findings^{19,20}. Our study found that the most common investigation followed by private practitioners was X ray and sputum examination figured fourth in hierarchy. Similarly Uplekar M in 1998 had documented the least use of sputum microscopy by private practitioners¹². Similar findings to our study, of less compliance of standard treatment regime by private practitioners has been also documented by Achanta S et al. in India in 2013²¹ and in a systematic review by Storla DJ et al. in 2008²². Munro SA et al in 2007, in a systematic review of qualitative research found that supportive services play an important role in treatment adherence. Our study also documents the private practitioner informing the patients about the treatment duration, healthy life style and physical exercise adoption along with treatment.

Conclusion

There is discrepancy in the diagnostic, treatment and support services provided, between the private practitioner and the national TB guidelines. Sputum microscopy was the least used diagnostic tool in contrast to the one being the most important tool designated under RNTCP. Standard anti tubercular treatment was not followed by the practitioner. The treatment duration practiced by the private care giver varied from two months to 12 months. The standard regimen of using 4 drugs for treatment was not followed. Mostly a combination regimen of two drug therapy was used. Follow up examination during the treatment was absent in the private practice management which otherwise is a very important tool to monitor the treatment progress in the patients, under the RNTCP regime.

Recommendations

The district health authorities were recommended for holding Modular trainings for the private practitioners and to rope in all the private practitioners to mandatorily notify their Tubercular patients.

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Tables

Table 1 General attributes of the study participants

Age group (years)	Male	Percentage	Female	Percentage
0-15	4	5.5	3	14.3
16-30	12	16.4	5	23.8
31-45	44	60.3	7	33.3
46-60	12	16.4	5	23.8
61-75	1	1.4	1	4.8
Total	73	100	21	100
chi-square = 5.74 , degrees of freedom = 4, probability = 0.219				

Table 2 Symptom wise distribution of the Respondents

Age Group (years)	Distribution of symptoms amongst the respondents (N=94)																	
	Cough		Cough with sputum		Cough with blood in sputum		Fever		Weight loss		Nodular swelling		Loss of appetite		Shortness of breath		Chest pain	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
0-15	4	2	4	2	1	0	3	2	2	2	0	1	2	2	3	1	1	1
16-30	8	2	5	2	2	0	6	2	3	0	3	0	5	1	5	0	2	0
31-45	40	4	31	2	4	1	31	3	12	3	1	1	26	4	20	1	12	1
46-60	9	2	5	2	0	0	5	2	1	1	0	0	3	2	2	1	2	0
61-75	1	1	1	1	0	0	1	1	0	1	0	0	1	0	1	1	1	1
Total	62	11	46	9	7	1	46	10	18	7	4	2	37	9	31	4	18	3
%	77.65		57.44		8.51		59.57		26.59		6.38		48.93		37.23		22.34	
P value	0.290		0.136		0.710		0.215		0.226		0.153		0.320		0.155		0.258	

Table 3 Diagnostic services provided as per the Respondents (N=94)

Age group (years)	Single sample-sputum microscopy		Two samples - sputum microscopy		Repeat Sputum examination		Chest X ray		Blood investigations		Pleural fluid cytology		FNA C		Weight		Any other investigation	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
0-15	3	2	1	0	0	0	4	2	4	2	2	1	0	0	4	3	0	1
16-30	4	2	1	0	0	0	8	2	6	2	6	2	1	0	5	1	1	0
31-45	28	1	3	1	1	0	35	3	30	2	32	3	0	1	35	6	2	3
46-60	4	2	1	0	1	1	7	2	7	2	6	2	0	0	7	2	1	0
61-75	1	1	0	0	0	0	1	1	0	0	1	1	0	0	1	1	0	0
Total	40	8	6	1	2	1	55	10	47	8	47	9	1	1	52	13	4	4
%	51.06		7.44		3.19		69.14		58.51		59.57		2.12		69.14		8.51	
P value	0.040		0.831		0.386		0.244		0.203		0.311		0.157		0.377		0.362	

Table 4 Treatment services provided to the patients (N=94)

Age group (years)	Treatment with single drug		Treatment with two drugs		Treatment with three drugs		Treatment with 4 drugs		Treatment with more than 4 drugs		Treatment with DOTS		Treatment on daily basis		Duration of treatment (< 6 months)		Duration of treatment (6 to 8 months)		Duration of treatment (> 9 months)	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
0-15	1	1	2	2	1	0	0	0	0	0	0	0	4	3	3	3	1	0	0	0
16-30	4	4	7	0	1	1	0	0	0	0	0	0	12	5	8	0	4	0	0	0
31-45	12	3	25	2	4	1	1	1	2	0	0	0	44	7	25	4	15	2	4	1
46-60	4	1	6	1	1	3	0	0	1	0	0	0	12	5	7	3	3	1	2	1
61-75	0	0	1	1	0	0	0	0	0	0	0	0	1	1	0	1	1	0	0	0
Total	21	9	41	6	7	5	1	1	3	0	0	0	73	21	43	11	24	3	6	2
%	31.91		50.00		12.76		2.12		3.19		0		100.00		57.44		28.72		8.51	
P value	0.414		0.05		0.312		1.000		-		-		0.219		0.032		0.820		0.673	

Table 5 Supportive services provided to the patients (N=94)

Age group (years)	Diagnosis informed		Diagnosis not informed		Dietary advice given		Follow ups advised during treatment		Follow ups advised only at the end of treatment		Physical exercises advised	
	M	F	M	F	M	F	M	F	M	F	M	F
0-15	3	1	1	2	4	3	3	1	1	2	1	1
16-30	10	3	2	2	7	4	7	3	5	2	2	0
31-45	34	4	10	3	28	4	28	4	16	3	28	5
46-60	8	4	4	1	8	4	5	4	3	1	6	3
61-75	1	1	0	0	1	1	1	1	0	0	1	0
Total	56	13	17	8	48	16	44	13	25	8	38	9
%	73.40		26.59		68.08		60.63		35.10		50.00	
P VALUE	0.299		0.383		0.221		0.242		0.290		0.485	