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Awareness and practices of private medical practitioners regarding pulmonary tuberculosis in Mangalore, India

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ABSTRACT

Our aim was to assess the awareness levels of private practitioners regarding Directly Observed Treatment, Short course (DOTS) guidelines and to assess their management practices. Private practitioners in Mangalore who had treated at least one case of pulmonary tuberculosis in the previous year were included. Purposive sampling technique was used to select the participants. The participants were provided with a pre-tested, semi-structured questionnaire. The responses were analysed using SPSS v 11.A total of 112 private practitioners were included.The awareness levels were low in relation to diagnostic aspects of Pulmonary tuberculosis as 58% knew cough >2 weeks as the chief symptom of PTB and 7.1% preferred sputum microscopy. The prescription practices appeared to be good as 98.2% correctly mentioned the antibiotics that can be prescribed to a tuberculosis suspect and 67.9% followed prescribing Fixed Dose Combinations. Few participants (13.4%) knew the definition of a tuberculosis treatment defaulter, whereas most of them (76.8%) knew the category for treatment of a tuberculosis treatment defaulter.The present research shows that the awareness levels were low among the private practitioners and the practices were found to be inappropriate in cases. Hence, it is suggested to train them under the existing public-private mix of the Revised National Tuberculosis Control Programme. Their practices should be supervised through appropriate mechanism.

Keywords: Awareness; TB; private practitioners; south India.

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1. INTRODUCTION

Tuberculosis (TB) remains a major global health problem despite years of concerted efforts from various national and international organizations. It causes ill-health among millions of people each year and ranks as the second leading cause of death from an infectious disease worldwide, after HIV-AIDS. In the year 2011, there were an estimated 8.7 million new cases and 1.4 million deaths from TB (WHO Global Tuberculosis report, 2012). Indian sub-continent accounts for more number of new cases of TB annually than any other country. In the year 2009, out of the estimated global annual incidence of 9.4 million TB cases, 2 million cases were estimated to have occurred in India alone, thus contributing to a fifth of the global burden of TB (Central TB Division, Directorate General of Health Services, Ministry of Health & Family Welfare. Government of India, 2011). The Revised National TB Control Programme (RNTCP), based on the internationally recommended Directly Observed Treatment Short-course (DOTS) strategy, was launched in India during 1997 and currently covers the entire nation. The programme has already achieved its objectives of 70% case detection and 85% cure rate among those who were treated (Central TB Division, Directorate General of Health Services, Ministry of Health & Family Welfare. Government of India, 2012). The RNTCP programme is functioning for more than two decades in India, and relevant modifications and updating of the guidelines is done under RNTCP from time to time. Some of the recent changes in the guidelines include a modification in the definition of a TB suspect from cough of 3 weeks duration to 2 weeks duration, collection of 2 sputum samples from a TB suspect instead of 3 samples collected earlier, and introduction of treatment for Multi drug Resistant Tuberculosis (MDRTB) through Programmatic Management of Drug Resistant Tuberculosis (PMDT)(Revised National Tuberculosis Control Programme Guidelines on Programmatic Management of Drug Resistant TB (PMDT) in India (Central TB Division, Directorate General of Health Services, Ministry of Health & Family Welfare. Government of India, 2012). These updates are based on sound scientific evidences (Santha et al., 2005; Mase et al., 2007; Bonnet et al., 2007; Thomas et al., 2008). It is important for the practicing physicians to be aware of the changes, and include these in their routine practice during management of the TB cases.

In spite of a significantly strengthened TB programme and its progress, 50–80% of the TB patients in India still seek care at private clinics (Uplekar et al., 2001; Satyanarayana et al., 2011). It is observed that a significant proportion of medical practitioners prescribe sub-optimal treatment for pulmonary tuberculosis (PTB) in developing countries like India (Uplekar MW and Shephard DS, 1991; Pinto LM and Udwadia ZF, 2010). Sub-optimal prescribing of drugs is one of the main causes of tuberculosis (TB) treatment failure and emergence of drug resistance. Private sectors are also responsible for a large out of pocket expenditure (OOPE) in treatment of TB (Ministry of Health and Family Welfare. Government of India: A report on national health accounts, 2004-05) as patients often prefer to approach private practitioners before seeking help at government hospitals. Despite of a large role played by private sector in management of tuberculosis, not many studies are conducted regarding the management & prescription practices of private medical practitioners in treatment of pulmonary tuberculosis (Uplekar et al., 2001; Yadav et al., 2008; Prasad et al., 2002; Nepal et al., 2012). The present study aims at finding the awareness levels of private medical practitioners regarding RNTCP-DOTS guidelines, and assesses their practices in management of TB.

2. MATERIALS AND METHODS

An approval was obtained from the Institutional Ethics Committee (IEC) of Kasturba Medical College Mangalore prior to carrying out the study. A cross sectional study was conducted during the months of August and September, 2012. The study participants included private medical practitioners providing allopathic healthcare in the coastal city of Mangalore. The city of Mangalore is a fast growing urban setting situated in South Western coast of India. The tuberculosis control activities are provided by both government and private healthcare facilities. There are nearly 400 healthcare facilities which provide different levels of healthcare. We included only those private healthcare providers who had treated at least one case of pulmonary tuberculosis in the past year i.e. 2011. A sample size of 112 private practitioners was calculated considering a proportion of interest of 55% (percentage of doctors practicing appropriate prescription practices in TB patients), (Prasad et al., 2002), a relative precision of 10%, and a power of 90%. Purposive sampling technique was used in the selection of study participants. A pre-tested, semi-structured questionnaire was used for data collection. The private medical practitioners were approached individually and the questionnaire was administered to the participants after obtaining a written informed consent. The questionnaire consisted of 4 parts containing questions in relation to general information, knowledge and practice of Pulmonary TB diagnosis and treatment, TB defaulters, and MDRTB prevention. All questions were equally weighed and given a score of 1. The collected data was entered and analyzed using SPSS version 11.0. The analysis was done in terms of descriptive statistics and association between variables was found using Chi-square test. P-value <0.05 was considered as statistically significant.

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Table 1

Profile of private medical practitioners (N=112)

S. No.	Characteristics	Number (%)
1	Male	76 (67.9)
	Female	36 (32.1)
2	Age groups (in years)	
	20-30	40 (35.7)
	31-40	37 (33.0)
	41-50	24 (21.4)
	51-60	09 (8.0)
	>60	02 (1.8)
3	Qualification	
	MD	88 (78.6)
	MBBS	24 (21.4)
4	Duration of experience (in years)	
	<10	73 (65.2)
	>10	39 (34.8)

Table 2

Correct Knowledge and practice of medical practitioners in relation to pulmonary tuberculosis and its diagnosis (N=112)

S. No.	Component	N (%)
1	Definition of PTB suspect	65 (58)
2	Preferred method of diagnosis for PTB	8 (7.1)
3	Sputum sample collection from a PTB suspect (number and timing)	65 (58)

PTB-Pulmonary Tuberculosis

3. RESULTS

The study participants constituted of 76 males (67.9%) and 36 females (32.1%). Mean age of the participants was observed to be 36.4±10.1 years. The majority of the participants (n=88, 78.6%) had post graduated in internal medicine while others (n=24, 21.4%) were MBBS graduates. Their experience as medical practitioner ranged between 1 and 40 years. The mean duration of experience was found to be 9.7±5.5 years (Table 1). Less than half of the study participants, (n= 43, 38.4%) ever attended training in relation to RNTCP. Sixty five (58%) participants correctly identified the chief symptom in a PTB suspect as cough of more than 2 weeks duration, while others (n=47, 42%) mentioned the chief symptom as cough of more than 3 weeks duration. 8 participants (7.1%) mentioned sputum microscopy alone as a preferred method for diagnosis, whereas the majority of them (n=82, 73.2%) preferred a combination of clinical findings, sputum microscopy and x-ray findings in diagnosis of PTB. Regarding the number and timing of collection of sputum samples from the patient, 65 participants (58%) mentioned correctly that two samples (one on the spot and the other being early morning sample) need to be collected from a PTB suspect, while others (n=47, 42%) mentioned the need to collect three samples (Table 2).

Regarding prescription practices in case of PTB suspects and patients, 110 (98.2%) participants mentioned correctly the group of antibiotics (Co-trimoxazole, amoxicillin and ampicillin) that can be prescribed to PTB suspects. The majority of the participants (n=91, 81.2%) correctly knew the combination of drugs that are used under intensive phase (IP) of category-I under DOTS. Most of them (n=76, 67.9%) mentioned that they used Fixed Dose Combinations (FDCs) for the treatment. A very large number of participants (n=104, 92.9%) mentioned that they provide treatment during IP under complete supervision. However, among them 37 participants (33%) knew the appropriate duration of intensive phase under category-I of DOTS. Regarding the follow-up of patients on DOTS, 35 (31.2%) participants mentioned that they used sputum microscopy to assess the patients' response to treatment. Similarly, 50 (44.6%) participants used sputum microscopy results to declare a patient as cured at the end of treatment (Table 3).

Fifteen participants (13.4%) correctly knew the definition of a defaulter and 86 participants (76.8%) correctly mentioned the category, a defaulter should be treated. Some of the participants (n=49, 43.8%) mentioned that the defaulter action they took was to meet the patient directly if the patient misses treatment for >2 months. Nearly all of them knew the definition of MDRTB (n=97, 86.6%) and 53 participants (47.3%) could correctly mention the definition

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Table 3

Correct knowledge and prescription practices among medical practitioners regarding management of pulmonary tuberculosis (N=112)

S. No.	Component	N (%)
1	Antibiotics recommended in case of PTB suspects awaiting test results	110 (98.2)
2	Drug combination for IP of category-I ATT treatment	91 (81.2)
3	Drug formulations prescribed under RNTCP guidelines	76 (67.9)
4	Treatment of the patient under supervision during IP of ATT	104 (92.9)
5	Duration of direct supervision during IP of category-I ATT	37 (33)
6	Investigation for assessment of response to ATT during the course of treatment	35 (31.2)
7	Investigation for assessment of outcome of ATT at the end of treatment	50 (44.6)

PTB-Pulmonary Tuberculosis

IP-Intensive Phase

ATT-Anti Tubercular Treatment

Table 4

Correct knowledge of participants in relation to treatment defaulters and MDRTB (N=112)

S. No.	Component	N (%)
1	Definition of TB defaulter	15 (13.4)
2	Categorization of treatment defaulters	86 (76.8)
3	Definition of MDRTB suspect	97 (86.6)
4	Criteria for identifying MDRTB suspect	53 (47.3)
5	Best method to prevent MDRTB	74 (66.1)
6	Designated health facility for treatment of MDRTB cases	70 (62.5)

MDRTB-Multi Drug Resistant Tuberculosis

of a MDRTB suspect. Universal implementation of DOTS as the best method to prevent MDRTB was mentioned by 74 participants (66.1%) and 70 participants (62.5%) correctly mentioned that a case of MDRTB should be treated only at a designated tertiary care centre. Thirty (26.8%) participants mentioned that they have treated a case of MDRTB in the past year, and among them none of the participants had prescribed the recommended drug regimens under RNTCP (Table 4). The knowledge levels regarding different aspects of TB; its diagnosis, treatment, treatment defaulters and MDRTB were found to be significantly higher (p<0.05) among the participants with experience of less than 10 years than those with experience of more than 10 years duration as medical practitioner. However, there was no statistically significant difference between participants with post-graduation compared to those with graduation.

4. DISCUSSION

The knowledge levels regarding the diagnostics aspects of TB were low, and only 58% of the participants correctly mentioned cough of more than 2 weeks as an identifying criteria in a PTB suspect. Modified guidelines regarding the diagnostic aspect of TB were introduced into the RNTCP by the Ministry of Health and Family Welfare in the year 2009 (Diagnosis of smear positive pulmonary TB New guidelines, effective from 1st April 2009. Central TB Division, Directorate General of Health Services, Ministry of Health & Family Welfare. Government of India, 2009). These have been widely circulated across all the facilities in India. Despite of the introduction of modified guidelines for more than 4 years, low level of awareness among the study participants is indicative of a lack of regular updating by the practitioners that has got serious implication in terms of delay in diagnosis and consequent delay in initiation of treatment. The knowledge levels in our study were however, higher when compared to studies from Africa (Ayaya et al., 2003) and Nepal (Dilip Kumar Yadav, 2012).

It was observed that a very few participants (7.1%) preferred sputum microscopy alone as a diagnostic method for PTB, whereas rest of the participants preferred a combination of clinical signs, chest x-rays and sputum microscopy. Similar findings were observed in studies conducted in India and abroad (Ayaya et al., 2003; Yadav et al., 2012; Shehzadi et al., 2005; Shah et al., 2003). Although sputum microscopy is recommended as a standard diagnostic test under RNTCP, the practice of using multiple tests for diagnosis of PTB raises concern as such practices may result in

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delay in diagnosis and also leads to excess out of pocket expenditure by the patient. Available evidence suggests that in India out of pocket expenditure (OOPE) by the patients accounts for more than 71% of the total health expenditure (Ministry of Health and Family Welfare. Government of India: A report on national health accounts, 2004-05) and is one of the leading causes of pushing a household below the line of poverty. Use of sputum microscopy can help in bringing down the unnecessary expenditure.

The knowledge levels regarding prescription practices were found to be good among our study participants as nearly all of them (98.2%) knew the drugs that one can prescribe in patients awaiting diagnostic test results. This finding has an important implication as inappropriate and wide-spread prescription of broad spectrum antibiotics such as fluoroquinolones, is well known in India (Agrawal et al., 2009). The fluoroquinolone groups of drugs are an important second line ATT drugs and there is a danger of development of resistance to these drugs if prescribed inadvertently (Sterling, 2004). This finding is similar to a study conducted by Prasad et al., (2002). In which only few doctors prescribed broad spectrum antibiotics inappropriately. Regarding the supervision of treatment, a large number of participants (92.9%) mentioned that they provide direct supervision during IP. However, only one third of the participants (33%) knew the correct duration of IP. Similar findings were observed among studies conducted in India and abroad (Prasad et al., 2002; Ayaya et al., 2003; Yadav et al., 2012; Udwadia et al., 2010). Here, again few participants used sputum microscopy as a tool during follow-up (31.2%) and to assess the response at the end of the treatment (44.6%). Similar findings were observed in studies conducted in India & abroad (Nepal et al., 2012; Ayaya et al., 2003; Yadav et al., 2012; Shah et al., 2003). The importance of sputum microscopy as a tool in PTB treatment is invaluable. Other methods like chest x-rays and clinical signs are shown to be non-specific and less sensitive (Cohen et al., 1996; Ito, 2005).

More than three-fourth of our participants correctly knew that a defaulter should be treated under category-II of RNTCP. However, the correct definition of a TB defaulter was known to only 13.4% of our participants. Similar findings were observed in a study conducted in Africa (Ayaya et al., 2003). These findings are of concern as the treating physicians who do not have a correct working knowledge of identifying a defaulter may misclassify cases and subsequent treatment categories. The impact of such a treatment in terms of morbidity arising out of adverse effects and outcome of treatment can be unfavorable and may lead to further complications such as patient defaulting again or MDRTB (Arora and Gupta, 2004). Hence, refresher trainings /Continued Medical Education (CMEs) play a significant role regarding maintenance and update of knowledge level among the doctors concerned. The majority of our study participants mentioned they would meet the patient directly if the patient defaults from the ongoing treatment. This is in contrast to studies conducted in Pakistan (Shah et al., 2003) and India (Uplekar et al., 1996) where the majority of the doctors mentioned that no action needs to be taken for treatment defaulters. Tracing of defaulters is an essential part of tuberculosis treatment as untreated patients are associated with a danger of development of MDRTB among the patient and spread of the resistant organism to others.

More than one fourth of our study participants (26.8%) had treated a case of MDRTB in the previous year (2011). The guidelines provided under PMDT of RNTCP clearly suggest that a case of MDRTB should be treated at a DR-TB (Drug Resistant Tuberculosis) centre, which is usually a tertiary care centre equipped with required facilities and personnel to foresee and treat any adverse drug reaction or sickness in the course of treatment for MDRTB. The drug regimens prescribed by the subset of doctors were not in accordance with the standard regimens prescribed under national programme. Similar findings were observed in studies conducted elsewhere in India (Yadav et al., 2012; Udwadia et al., 2010). The emergence of drug resistance is a great threat to tuberculosis control activities in India, as the available evidence suggests the prevalence of MDRTB to be ranging between 1% to 3% in new cases and around 12% in re-treatment cases (Mahadev et al., 2005). Hence, it is very essential to practice the recommended drug regimens to reduce the morbidity among the patient as well as to prevent the occurrence of more dangerous extensively drug resistant tuberculosis (XDRTB).

It is important to note that there was a significant difference ($p<0.05$) between the knowledge levels of participants with more than 10 years versus less than 10 years experience. Those were having less than 10 years of experience fared better than the much experienced participants. This could be because in India, the practicing physicians may not update their knowledge once they start to practice in their private clinics as there is no system of licensing or periodic re-registration of doctors based on objective criteria. Also, this fact was evident from the participant response itself as only 38.4% of the participants ever attended a training activity in relation to PTB prevention and treatment. Hence, those who have recently completed their degree in medicine are more likely to know about the latest guidelines than who procured their degrees many years ago. Thus, our finding stresses on the importance of frequent training and re-training of doctors in relation to PTB prevention and treatment.

Although the present research has thrown light on some important aspects of TB prevention and control activities, our study has some limitations in terms of non-assessment of some important aspects such as detailed assessment of regimens prescribed by the private practitioners, sputum sample collection techniques used by participants and detailed appraisal of MDRTB regimens used by them. Also, our study setting consists of a large

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number of private practitioners which might not be similar to other settings; hence our findings may not be generalized per se to other settings.

5. CONCLUSION

The present research observes a low level of knowledge among the private medical practitioners in relation to diagnostic and management aspects of pulmonary TB. The practices employed them were observed to be inappropriate in relation to various aspects such as duration of treatment, follow-up aspects of both new and old cases and treatment of MDRTB cases. Hence, there is a need to train the private medical practitioners under the existing public-private mix of RNTCP. It is also essential to develop and strengthen a mechanism to supervise the practices of these practitioners to help control the menace of TB in India. Future research needs to be conducted in this direction probably with a multi-centric study from various settings.

SUMMARY OF RESEARCH

112 private medical practitioners were surveyed about their knowledge regarding Pulmonary Tuberculosis in Mangalore City of Karnataka. The findings of this study strongly suggest the following:

1. Private General medical practitioners both those with graduate and postgraduate qualifications, should be trained in the National TB Control Programme guidelines.
2. A functional collaboration needs to be established between private medical practitioners and the National TB Control Programme to provide quality TB care services.
3. Mass public awareness should be raised to identify the main symptoms of pulmonary TB.

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