Highlights

1. 129 qualified private practitioners in Bangalore City were assessed on their knowledge regarding diagnosis and treatment of TB.

2. About 20% had adequate knowledge of diagnosis, 29% of treatment regimen, 54% the need for Direct Observation Treatment and 57% about role of sputum smear examination in monitoring treatment response.

3. Of 85 (68%) PPs who had diagnosed any TB case during last two years, 54 (64%) had practised notification.

4. Knowledge of PPs in TB diagnosis, treatment and notification needs upgrading.
KNOWLEDGE OF PRIVATE PRACTITIONERS OF BANGALORE CITY IN DIAGNOSIS, TREATMENT OF PULMONARY TUBERCULOSIS AND COMPLIANCE WITH CASE NOTIFICATION

Bhoomika Bajaj Bhalla$^5$, VK Chadha$^5$, J Gupta$^5$, N Nagendra$^5$, P Praseeja$^5$, SM Anjinappa$^5$, J Ahmed$^5$, RK Srivastava$^5$, P Kumar$^5$

$^5$National Tuberculosis Institute, Bangalore, Karnataka, India.

Address for correspondence:

Corresponding author:
Dr. V.K. Chadha,
Head, Epidemiology and Research Division,
National Tuberculosis Institute,
No.8, Avalon, Bellary Road,
Bangalore, India.
Email: vineet2.chadha@gmail.com

Keywords: Tuberculosis, knowledge, private practitioner, India

Word count: 1351

Figures: 0, Tables: 2

Appendix: 1
Knowledge of Private practitioners in Bangalore city in diagnosis and treatment of pulmonary Tuberculosis and compliance with case notification

Bhoomika Bajaj Bhalla, VK Chadha, J Gupta, N Nagendra, P Praseeja, SM Anjinappa, J Ahmed, RK Srivastava, P Kumar

Abstract

One hundred twenty nine qualified private practitioners (PPs) were assessed on their knowledge in diagnosis of Pulmonary Tuberculosis (PTB), treatment of a new drug sensitive PTB case and practices of case notification, using semi-structured questionnaire. About 20% had adequate knowledge of diagnosis, 29% of treatment regimen, 54% the need for Direct Observation Treatment and 57% about role of sputum smear examination in monitoring treatment response. Of 85 (68%) PPs who had diagnosed any TB case during last two years, 54 (64%) had practised notification. These findings suggest the need for upgrading knowledge of PPs in TB diagnosis, treatment and notification.

Introduction

India has the highest burden of tuberculosis (TB) with an estimated 2.8 million incident cases and 4, 80,000 deaths related to TB in the year 2015. The first point of approach for majority of TB patients, is a private practitioner (PP). However, studies in different parts of the country have revealed unsatisfactory knowledge and practices of PPs in diagnosis and treatment of TB. Bangalore, a burgeoning metropolis in South India is divided into two Revised National Tuberculosis Control program (RNTCP) districts - Bangalore city and Bangalore Urban covering populations of 7.8 million and 2.3 million respectively in 2015 with the total population of Bangalore urban conglomerate being more than 10 million. Bangalore city has a large private health care sector and a good number of patients from surrounding districts also seek health care in the city. There are 9 Tuberculosis units (TUs) in the city, each responsible for implementation of RNTCP as well as collaboration with the private sector in the respective areas. We undertook a cross sectional study among PPs practising within the geographical jurisdiction of one TU, to find out the proportions of PPs having adequate knowledge in diagnosis and treatment of a new drug sensitive pulmonary TB (PTB) case and their practices in TB case notification.

Materials and Methods
The study was carried out among PPs qualified in allopatic or indigenous systems of medicines. All such private health care facilities in geographical jurisdiction of Dasappa TU were mapped with the support of RNTCP staff, professional medical associations and chemists in the area. There were a total of 86 private health care facilities (nursing homes-10, standalone clinics-62, laboratories-14) and the number of PPs practicing in these facilities was 133. All these PPs were invited to Continuing Medical Education (CME) programmes on Standards of TB care in India (STCI). A total of six CMEs were held during September to November 2015 at National Tuberculosis Institute, Bangalore (NTI). Invitations were extended through written communication as well as personal visits by field staff of NTI. Prior to initiation of CME, PPs were asked to fill up their responses in a semi-structured questionnaire (Appendix) after obtaining informed written consent, in order to elicit their knowledge on tools for diagnosis of pulmonary TB in adults, treatment regimen and drug dosage for treating a new drug sensitive TB case, method of ensuring treatment adherence, monitoring treatment response, common adverse reactions to anti-TB drugs and their practice of TB case notification. Later, the NTI Medical Officer coded the responses for adequate knowledge (Annexure); a participant was considered to have adequate knowledge in a given aspect if the responses met the criteria as under:-

| Diagnosis | Symptoms of PTB included at least persistent cough for ≥2 weeks, mentioned sputum examination as a diagnostic tool and knew that the X-ray based diagnosis was reliable only after a course of broad spectrum antibiotics for at least 10 days |
| Treatment regimen | Mentioned at least 2 months of Isoniazid (H), Rifampicin (R), Ethambutol (E), Pyrazinamide (Z) and four months of HR or HRE, in accepted doses as per STCI |
| Method of Ensuring Treatment Adherence | Knew about the role of Direct Observation of Treatment (DOT) |
| Monitoring Treatment Response | Knew about the role of Follow-up sputum examinations |
| Adverse reactions | Was aware of at least four of the common side effects viz. Nausea, vomiting, skin rash, tingling or numbness in hands and feet, joint pains, Impaired vision, Impaired hearing, dizziness, Jaundice |
Each participant was queried whether she/he had diagnosed any TB case in last two years and if yes whether notified any case to public health authorities.

PPs who attended the CMEs were credited with credit points by the Karnataka Medical association.

Data was digitised and analysed using Epi-info statistical package, version 3.5.4.

Results

Of 129 PPs who attended the CMEs and participated in the study; 121 (93.8%) had allopathic qualification; 62 (48%) had more than 15 years of professional experience, 38 (30%) between 5-15 years, 12 (9%) less than 5 years; the remaining 17 did not provide the information (Table 1). One hundred and thirteen (88%) knew about the role of sputum examination, however, only 25 (20%) mentioned all the three criteria for being considered as having adequate knowledge in diagnosis. The proportions of PPs having adequate knowledge on different aspects are given in table 2.

Eighty Five (68%) PPs had diagnosed one or more TB cases during last two years. Of them, 54 (64%) had notified at least one case in last 2 years; others were unaware that TB is a notifiable disease.

Discussion

In the present study, only about 20% of PPs had adequate knowledge of diagnosis. Majority were aware of the role of sputum examination but most did not know about the role of antibiotic treatment before X-ray based diagnosis. Similar observations had earlier been made in a PPM project in Hyderabad city. Studies elsewhere in India revealed low awareness of symptoms suggestive of TB though there was an improvement in awareness about the role of sputum microscopy in recent studies.

In our study, only about 30% had adequate knowledge of treatment regimen for drug sensitive TB. Similar observations were made in Delhi in a study carried out about 20 years back. No improvement was observed in the knowledge of standard treatment regimen in Mumbai over a period of two decades. Similarly, poor knowledge of treatment regimen and guidelines has been observed in other studies in India and some high burden countries though providers in South Africa had adequate knowledge.
A little more than half of PPs in our study were aware of the role of DOT, in our study compared to about 70% observed in North Gujarat\textsuperscript{20}. These differences really reflect the efforts made by the local RNTCP official in sensitizing PPs regarding notification.

About 57% of our study participants knew about role of sputum examination for monitoring response to treatment which was encouraging, as compared to 25% in West Bengal\textsuperscript{11}.

Only a minority (23%) of our participants knew about the common side effects of anti-TB drugs. This is worrisome as side effects are a known risk factor for default and their inadequate management further accentuates the problem\textsuperscript{21}.

About 32% of PPs in our study had not diagnosed any TB case in last 2 years. This was not unusual as also observed in other studies; many PPs either might not suspect TB or refer presumptive TB patients to RNTCP\textsuperscript{22,23}. Of the PPs who had diagnosed any TB case in last 2 years, 54% reported having notified any TB case. However, this data being self-assessed may not be a true representation of the practice.

The differences in knowledge between allopathic doctors and those with qualifications in indigenous systems of medicine was not analysed as very few of the latter practiced in the area. Similarly, the differences by years of qualification was also not analysed as that was not the objective and the study was not powered to find that out. Studies conducted in other high TB settings have revealed no association of age, sex, level of qualification or years of practice with recognition of TB symptoms while association of level of qualification was observed with respect to treatment guidelines\textsuperscript{9,24-27}.

Subsequent to data collection, we trained the study participants in STCI, diagnostic tools including molecular methods, standard treatment regimen for drug susceptible as well as drug resistant TB, patient support systems and different modes of case notification.

Though the study was carried out in limited geographical area and may not be generalizable to entire city or other parts of the country, the study results confirm the findings in other studies that not much has changed over the years as far knowledge of PPs regarding TB is concerned except a greater level of awareness about role of sputum examination. This is further substantiated by a recent study which reported poor adherence to standards of TB care by PPs in Andhra Pradesh\textsuperscript{28}. Indeed, much intensified efforts need to be made by the public health authorities to reach out to PPs and impart the necessary knowledge and skills in order to achieve universal access to quality TB care.
Source of Funding: In-house Institutional funds

References


12. Personal Communication. Dr Deepak, RNTCP Consultant, Karnataka state, India.


Table 1: Profile of PPs (N=129) including in the study

<table>
<thead>
<tr>
<th>By Qualification</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAMS</td>
<td>6 (4.7)</td>
</tr>
<tr>
<td>MBBS</td>
<td>59 (45.7)</td>
</tr>
<tr>
<td>P.G</td>
<td>62 (48.1)</td>
</tr>
<tr>
<td>Not Known</td>
<td>2 (1.6)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>By years of experience</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;5 year</td>
<td>12 (9.3%)</td>
</tr>
<tr>
<td>5-15 year</td>
<td>38 (29.5%)</td>
</tr>
<tr>
<td>&gt;15</td>
<td>62 (48.1%)</td>
</tr>
<tr>
<td>Not Known</td>
<td>17 (13.2%)</td>
</tr>
</tbody>
</table>

Figures in parenthesis denote percentages

Table 2: Proportions of PPs having adequate Knowledge

<table>
<thead>
<tr>
<th>Number of PPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnosis</td>
</tr>
<tr>
<td>Treatment regimen</td>
</tr>
<tr>
<td>Ensuring Treatment Adherence</td>
</tr>
<tr>
<td>Monitoring Treatment Response</td>
</tr>
<tr>
<td>Adverse reactions</td>
</tr>
</tbody>
</table>

Figures in parenthesis denote percentages