The Awareness about Tuberculosis and DOTS among the Aspiring Doctors in a Tertiary Medical College Hospital, Salem, Tamil Nadu

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Abstract

Background: India is one of the major developing countries which accounts for more than 1/5th of the world’s Tuberculosis cases. The disease is rapidly developing which is resistant to multi drugs. This study aims to study the awareness about Tuberculosis and DOTS among the interns and Post Graduates in a Medical college hospital, Salem, Tamil Nadu. Materials and Methods: A questionnaire based survey was conducted amongst 150 interns and post graduates students of a tertiary care hospital. Results: Out of 150 doctors who were assessed regarding the knowledge in Tuberculosis 68 of them (45.3%) scored between 6 – 9 marks, out of 12 questions. It was found that 140 (93.3%) students answered with maximum correct answer for the primary site of tuberculosis, while 97 (64.46%) students answered with maximum incorrect answers for the dosage of anti-tubercular drugs and 23 (15.3%) students answered with maximum do not know answer for the treatment for smear negative tuberculosis and extra pulmonary, not seriously ill. Conclusion: This study shows that the knowledge among the interns and the post graduates is inadequate despite Directly Observed Therapy of Short Course (DOTS) being a regular part of the Health system. 

Key Words: Awareness, Tuberculosis (TB), Knowledge, Aspiring doctors, Directly Observed Therapy of Short Course (DOTS)

Introduction:

India is a developing nation, where tuberculosis is highly prevalent. The nation constitutes about 1/5th of the global tuberculosis incident cases and nearly 2 million people in India develop tuberculosis, of which around 0.87 million are infectious cases. It is estimated that around 3,30,000 Indians die due to tuberculosis annually. Tuberculosis still remains worldwide public health problem, despite the causative organism was discovered more than 100 years ago. Although availability of highly effective drugs and vaccines to prevent and cure the disease is present, still tuberculosis is on widespread.¹
compliance with TB treatment guidelines among practicing physicians, such data are lacking in India.³

Tuberculosis easily spreads through respiratory system, India being a very populated country, the control and prevention of tuberculosis is at query. Our government in order to put a full stop to the disease introduced the Directly Observed Therapy of Short Course (DOTS) in 1993 via The Revised National Tuberculosis Control Program (RNTCP). The RNTCP is implementing the World Health Organization’s (WHO) recommended “Stop TB Strategy”, which in addition to DOTS, addresses all the newer issues and challenges in Tuberculosis Control.⁴

Globally DOTS strategy has been recognized as the best cost effective approach to tuberculosis control. Even then, in many various places in and around India, people are unaware of medical facilities. The world health organization has implemented the DOTS which raises the level of awareness, diagnosis and treatment of TB.⁴

A very few studies have been conducted to test the awareness of tuberculosis amongst interns and Post graduate students. Hence an attempt was made to find out the knowledge and their preparedness to tackle the disease among interns and Post graduate students of VMKV Medical College, Salem, Tamil Nadu.

The objective of this study was to assess whether medicos have awareness about the disease and how well they are prepared to tackle the disease. The students, who were used to conduct the study, were the interns and postgraduates from VMKVMC Salem.

Materials and methods:

The survey was conducted among 150 interns and post graduate students of Vinayaka Mission Kirupanandha Vairav Medical College, Salem, from July2012-Sept 2012. A select 12 questions that would test basic knowledge about the disease was set by the author and distributed among the interns without allowing them for discussion. Each question was allotted one mark. The questionnaire was given to every participant, who answered the questions anonymously and the answers were kept confidential. The survey was set in a basic pattern of Multiple Choice questions. Questions that were included are diagnosis of tuberculosis, DOTS regime, its categories and the side effect of the drugs.

Results:

This study involved a tertiary care teaching hospital in which a total of 150 post graduate medical trainees and interns were surveyed regarding the level of basic knowledge about tuberculosis by giving them a questionnaire. It was found that out of 12 marks, the scores obtained by 24(16%) of them were less than 5, 68 (45.3%) scored between 6-9 and 58 (38.7%) scored between 10-12. (Table 1). The Mean score was 5.92, SD is ±2.3 and the scores ranged from 2 marks to 11 marks.

Table 1-Distribution of subjects according to the scores obtained in assessing knowledge regarding Tuberculosis

<table>
<thead>
<tr>
<th>Scores</th>
<th>Number</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 5</td>
<td>24</td>
<td>16</td>
</tr>
<tr>
<td>6 – 9</td>
<td>68</td>
<td>45.3</td>
</tr>
<tr>
<td>10 – 12</td>
<td>58</td>
<td>38.7</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>100</td>
</tr>
</tbody>
</table>

Mean score=5.92, Standard Deviation(SD)=±2.3, Range 2-11

Table 2 shows various parameters evaluated to assess the knowledge of tuberculosis among the doctors and it was found that the number of doctors, who answered correctly for the primary site of tuberculosis were 140 (93.3%), while 10(6.7%) gave incorrect answer.
Table 2: Distribution of subjects by parameters evaluated and their responses in assessing the knowledge about tuberculosis

<table>
<thead>
<tr>
<th>Parameter evaluated</th>
<th>Correct response (%)</th>
<th>Incorrect response (%)</th>
<th>Did not know (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary site of TB</td>
<td>140(93.3%)</td>
<td>10(6.7%)</td>
<td>------</td>
</tr>
<tr>
<td>Mode of transmission of Pulmonary TB</td>
<td>139(92.7%)</td>
<td>11(7.3%)</td>
<td>------</td>
</tr>
<tr>
<td>Method to diagnose active pulmonary TB</td>
<td>121(80.7%)</td>
<td>29(19.3%)</td>
<td>------</td>
</tr>
<tr>
<td>Current incidence of TB</td>
<td>51(34%)</td>
<td>77(51.3%)</td>
<td>22(14.7%)</td>
</tr>
<tr>
<td>Number of sputum samples to be collected under DOTS</td>
<td>118(78.7%)</td>
<td>25(16.7%)</td>
<td>7(4.7%)</td>
</tr>
<tr>
<td>Number of treatment categories in DOTS</td>
<td>82(54.7%)</td>
<td>58(38.7%)</td>
<td>10(6.7%)</td>
</tr>
<tr>
<td>Treatment in category I under DOTS</td>
<td>73(48.7%)</td>
<td>68(45.3%)</td>
<td>9(6%)</td>
</tr>
<tr>
<td>Side effects of anti-tubercular drugs</td>
<td>91(60.7%)</td>
<td>54(36%)</td>
<td>5(3.3%)</td>
</tr>
<tr>
<td>Dosage of anti-tubercular drugs under DOTS</td>
<td>32(21.3%)</td>
<td>97(64.7%)</td>
<td>21(14%)</td>
</tr>
<tr>
<td>Treatment for smear negative and EP*TB not seriously ill patients</td>
<td>82(54.7%)</td>
<td>45(30%)</td>
<td>23(15.3%)</td>
</tr>
<tr>
<td>Type of patients for category II under DOTS</td>
<td>75(50%)</td>
<td>59(39.3%)</td>
<td>16(10.7%)</td>
</tr>
<tr>
<td>Positive Mantoux reading</td>
<td>92(61.3%)</td>
<td>53(35.3%)</td>
<td>5(3.3%)</td>
</tr>
</tbody>
</table>

For the mode of transmission of pulmonary TB as droplet infection, it was correctly answered by 139 (92.7%), while 11(7.3%) gave wrong answer. For the question of method to diagnose a patient with active pulmonary tuberculosis, it was answered correctly by 121 (80.7%), while 29(19.3%) gave incorrect answer. Regarding current incidence of tuberculosis was correctly answered by 51 (34%), while 77(51.3%) gave incorrect answer and 22(14.7%) did not give any answer as they did not know the correct answer. The number of sputum samples to be collected under DOTS was answered correctly only by 118 (78.7%), while 25(16.7%) gave incorrect answer and 7(4.7%) did not respond as they did not know the answer.

The question regarding number of treatment categories in DOTS was correctly answered rightly by 82 (54.7%), 58(38.7%) gave wrong answer and 10(6.7%) did not know the answer. Regarding the Treatment in category I under DOTS was answered by 73 (48.7%) of them correctly, 68(45.3%) answered incorrectly and 9(6%) gave do not know answer. Side effects of anti-tubercular drugs was correctly answered by 91 (60.7%), while 54(36%) gave wrong answer and 5(3.3%) of them did not know the answer. Regarding question on dosage of anti-tubercular drugs under DOTS, 32(21.3%) gave correct answer, 97(64.7%) gave incorrect answer and 21(14%) did not know the answer. For the question of treatment for smear negative and Extra pulmonary tuberculosis, not seriously ill patients 82 (54.7%) answered correctly,45(30%) gave incorrect answer and 23(15.3%) did not give any answer. Regarding type of patients for category II under DOTS, 75 (50%) answered correctly, 59(39.3%) gave incorrect answer and 16(10.7%) gave did not know answer. The reading values for positive Monteux test was correctly answered by 92(61.3%), while 53(35.3%) gave incorrect response and 5(3.3%) gave did not know answer.

**Discussion:**

This study reveals that there is a great inadequacy of knowledge among medicos. Ineffective diagnosis and management of tuberculosis such as unethical practices leads to development of multi drug resistant bacteria which should be avoided in a developing country like India.

In a study done by Dinesh Mehta et al on the knowledge about Tuberculosis Management and
national tuberculosis program among medical students in Haryana, India, revealed a overall low level of knowledge among the participants of a tertiary care hospital. A number of 112 interns participated in the study and the results were poor. The number of sputum specimen required for diagnosis under RNTCP responded correctly by only 57%, while in our study it is 78.7%. The time duration in which sputum specimen should be processed was told correctly by only 42.5%, while the sputum examination guidelines for extra-pulmonary tuberculosis was known to 21%, while serious form of extra pulmonary tuberculosis was known only to 33%. The correct categorization of tuberculosis patients was done by only 50% of the respondents, similar to our study, where only 54.7% knew the correct categories under DOTS treatment. Treatment of tubercular meningitis was marked correctly by 69% of the respondents.5

Similarly another study conducted by Khan JA among 460 medical interns in Pakistan of teaching hospitals showed poor awareness of and low compliance to the WHO national tuberculosis program guideline among interns. Out of which only 22 % correctly identified the estimated number of new Tuberculosis cases in Pakistan, while in our study 34% told the correct incidence of tuberculosis. 96% knew that droplet infection was the mode of transmission, which is in par with our study of 92.7%. 38% considered sputum smears for Acid—Fast Bacilli as the best test for diagnosis, while in our study it was higher of 80.7%. The recommended four drugs anti tuberculosis regime were prescribed by 56.5%, similar to our study of 54.7%. 82% were not able to identify a single component of DOTS.6

A study in China found that majority of the students knew well on signs/symptoms associated with tuberculosis, but only a few students knew the prevalence of smear-positive pulmonary tuberculosis, while 25.5% of them knew of the BCG vaccination. 33.5% of the participants understood the policy of convergence case-management of tuberculosis. Analysis showed that six of twelve items were slightly statistically different among the respondents. The study also demonstrated that 334 respondents had prescribed 80 different treatment regimens but only 16.8% were correct. 33.4% of the participants ordered sputum examination during tuberculosis treatment course. Only 4.5% had transferred the patients with tuberculosis to local tuberculosis dispensary after their discharge from hospital.7

The study in Oman investigated knowledge about tuberculosis among 142 medics (medical students, paramedics) and 133 non-medics (arts and social science students). Knowledge was assessed using a validated questionnaire with 28 statements on general knowledge, risk factors and diagnosis of tuberculosis. As expected, tuberculosis knowledge was significantly higher among medics but there was no significant difference between men and women. Although medics had better knowledge in general, some of the technical statements were answered correctly by higher proportions of non-medics.8

Medical students’ knowledge of the main characteristic features of tuberculosis and the prevention of the disease was studied by means of an anonymous inquiry examination of 84 students of the Medical College of Varna during the 2009/2010 academic year. They presented with good knowledge of the main characteristics of tuberculosis such as predisposing factors, risk groups, Source and mechanism of transmission of the infection. They were better grounded in the common preventive measures for avoiding the tuberculosis infection rather than in those towards the contact persons. Most respondents indicated the role of Mantoux test (61%) and microbiological examination of sputum,9 while in our study the role of Mantoux test and its readings for positive test was known to only 61.3%. 

136
In a study conducted among Nigerian interns by O Busari et al., of 118 medical interns, none could correctly state the estimated number of new TB cases per year in Nigeria. 88.1% knew that droplet infection was the usual mode of TB transmission. Only 27.1% could state correctly the definition of MDR-TB while none new the definition of XDR-TB. 62.7% identified Ziehl-Neelsen staining for acid fast bacilli as the best diagnostic procedure for pulmonary TB. Only 46.6% recognized that streptomycin should not be used in pregnancy while 22.9% would isolate a child from a mother with smear positive pulmonary TB to prevent transmission. The recommended 4-drug anti TB regimen was prescribed by 56.8% in the initiation phase and the recommended 2-drug combination in the continuation phase by 62.7%. 

A study on Medical interns’ knowledge of tuberculosis and DOTS strategy in northern Islamic Republic of Iran by A.R. Charkazi, et al found that knowledge about TB and the DOTS strategy among medical students in a high incidence area of the Islamic Republic of Iran, a questionnaire designed around the national TB programme guidelines was given to 80 interns in Golestan and Mazandaran medical schools in December 2007. The overall mean knowledge score was 1.80 (SD 1.61) items correct out of 15, while in our study the mean score was 5.92 , SD is ±2.3 and the scores ranged from 2 marks to 11 marks out of 12 marks.

Knowledge about diagnosis, treatment and monitoring was especially poor. There were no significant differences between the knowledge of interns who had completed their internships in the infectious diseases or community health departments compared with those who had not. In this study interns working in 7 medical centre’s in Gorgan and Sari had very weak knowledge of TB.

Our results are consistent with the findings of studies in other regions and countries, in which most interns and GPs had insufficient knowledge. Two studies in India and the Philippines showed poor knowledge about the mode of transmission, with about 4% of interns and 21% of physicians aware that droplet infection was the only route of transmission.

Knowledge, attitude and practices regarding tuberculosis and DOTS among interns in Delhi, India by Rajpal S et al, found that after giving a pre-tested semi-structured questionnaire consisting of 30 items was administered to the young medical graduates/interns posted in different departments. The questions covered mode of transmission, symptoms of pulmonary TB, investigations, short course chemotherapy including DOTS as well as conventional antitubercular treatment, special situations, health education and chemoprophylaxis. A total of 287 interns were surveyed. Majority of the study subjects (92.7%) ranked DOTS strategy as more successful for treating tuberculosis in comparison to self-administered therapy. However, a mere 4.2% study subjects were aware of all modes of transmission. One hundred and eighty-nine (65.9%) correctly chose sputum examination for acid fast bacilli as the single most confirmatory test for diagnosing pulmonary TB, while in our study it was 80.7%. The rest either gave incorrect responses (including ELISA-17.0%, PCR-9.8%, X-ray chest-4.2%, ESR-1.7%) or did not respond (1.4%). Only 2.1% marked pyrazinamide and rifampicin as the agents to be avoided in patients with liver disease. One hundred and forty-one different treatment regimens were mentioned in the responses received and of those only 11(7.8%) were scientifically acceptable.

This study brought out results that were very concerning as the knowledge about tuberculosis and DOTS therapy was fairly low among aspiring doctors. In order to control the prevalence and the spread of the disease, medics should be thorough with the disease and its management.
It must be mandatory for interns and post graduates to get a hand on experience in DOTS centers as a routine during their medical and speciality courses. The government also must take measures to provide health education on tuberculosis at various educational levels. Medical practitioners must also account CME’s to update their knowledge about the disease and its prevalence.

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References


