

A STUDY ON AWARENESS OF TUBERCULOSIS AND RNTCP AMONG UNDERGRADUATE MEDICAL STUDENTS AND INTERNS

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ABSTRACT: BACKGROUND: India is the highest TB burden country accounting for nearly one fifth of the global incidence. The diagnosis and treatment of TB is made available free of cost by Government of India's Revised National Tuberculosis Control Programme (RNTCP). All TB patients registered in the RNTCP are treated under directly observed therapy (DOT). **OBJECTIVE:** To assess the knowledge and awareness of Tuberculosis and DOTS among final year medical students and interns of a Government medical college in South India. **METHODOLOGY:** A cross sectional questionnaire based survey was performed among 85 final year medical students and 76 interns. The Knowledge of participants regarding the diagnosis of TB, treatment and follow up under RNTCP was assessed and data was analyzed using descriptive statistics. **RESULTS:** Most of the students were aware of the current situation of TB in India and objectives of RNTCP. 33.5% participants could correctly state that a TB suspect with two negative smears should be subjected to chest X-ray. 57.8% participants opined that DOTS is equally effective as daily regimen. Only 37.3% students knew that family member cannot be a DOTS provider. **CONCLUSION:** This survey provides valuable information on the current levels of knowledge of undergraduate medical students. A moderate level of knowledge about tuberculosis and RNTCP was found among our study participants, which suggests innovative, effective active learning experiences to modify current scenario.

KEYWORDS: Tuberculosis, RNTCP, Awareness, Medical students.

INTRODUCTION: As per the WHO Global TB Report 2011, there were an estimated 8.8 million incident cases of TB (range, 8.5 million-9.2 million) globally in 2010. India has more new TB cases annually than any other country. In 2009, out of the estimated global annual incidence of 9.4 million TB cases, 2 million were estimated to have occurred in India, thus contributing to a fifth of the global burden of TB.¹ In India, two deaths occur every three minutes from tuberculosis but these deaths can be prevented. With proper care and treatment, TB patients can be cured.²

Revised National Tuberculosis Control Programme (RNTCP) based on the internationally recommended Directly Observed Treatment – Short course (DOTS) strategy was formally launched in 1997. The programme has covered the entire country.³ In spite of the nationwide coverage of RNTCP India still remains the highest TB burden country in the world.⁴

Despite the resurgence of tuberculosis, no information is available that evaluates the competence of undergraduate medical graduates in providing appropriate and comprehensive care for patients with tuberculosis. Therefore, we surveyed final year medical students and interns to evaluate the baseline knowledge and awareness regarding Tuberculosis and RNTCP among final year medical students and interns.

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MATERIAL AND METHODS: This cross sectional study was conducted among 161 participants (76 final year medical students and 85 interns) of Hassan Institute of Medical Sciences. The pretested self-administered questionnaires were distributed to all participants and allowed 30 minutes to complete the questionnaire under supervision. The participants were instructed to mark a single appropriate answer for each of the questions.

The questionnaire prepared based upon the one designed by National Tuberculosis Institute, for training of medical officers. The study proforma was comprised of 23 close ended questions pertaining to baseline knowledge of TB like signs and symptoms, diagnosis, TB/HIV and awareness of DOTS. The data was collected.

STATISTICAL ANALYSIS: The data was entered in MS Excel and analyzed using descriptive statistics.

RESULTS: Of 161 participants, 85 were final year medical students and 76 were interns. All correct responses were given one point and incorrect responses were given zero point. The questionnaire and responses by participants are provided in Table 1.

Table 1: Number of participants with correct responses	N	%
1. Tick the correct statement:	131	82.99
a) TB Kills more adults in India than any other disease		
b) TB Kills less adults in India than any other disease		
c) TB is one of the leading infectious causes of deaths in India*		
d) All of the above		
2. Is Tuberculosis a notifiable disease?	69	42.9
a) Yes * b) No		
3. Does BCG give complete protection from TB?	156	96.9
a) Yes b) No*		
4. Most common symptom of pulmonary tuberculosis is:	137	85.1
a) Hemoptysis		
b) Persistent cough of 2 weeks or more than 2 weeks with or without expectoration*		
c) Fever		
d) Weight loss		
5. The objectives of RNTCP are to achieve and maintain:	82	50.9
a) Cure rate of at least 60% among newly detected smear positive TB cases and case detection of at least 50% of expected new smear positive PTB cases in a community		

- b) Cure rate of at least 70% among newly detected smear positive TB cases and case detection of at least 80% of expected new smear positive PTB cases in a community
- c) Cure rate of at least 85% among newly detected smear positive TB cases and case detection of at least 70% of expected new smear positive PTB cases in a community*
- d) Cure rate of at least 90% among newly detected smear positive TB cases and case detection of at least 80% of expected new smear positive PTB cases in a community
6. Under RNTCP 'New Case' is defined as: a TB patient who has never had treatment for TB or has taken anti-TB drugs
- 57 35.4
- a) Less than 1month*
- b) Less than 2 months
- c) Less than 6 months
- d) None of the above
7. What is the definition of Smear Positive?
- 81 50.3
- a) Patient with at least two sputum specimens positive
- b) Patient with one sputum specimen positive and x-ray is suggestive
- c) Patient with at least one sputum specimen positive and culture positive
- d) Any of the above*
8. Facilities provided at DOT centre
- 142 88.2
- a) Free diagnosis
- b) Free medicines
- c) Uninterrupted supply of medicines
- d) All the above*
9. No of sputum samples required for diagnosis of smear positive cases are under RNTCP:
- 134 83.2
- a) One
- b) Two*
- c) Three
- d) Four
10. In Ziehl-Neelsen staining following reagent is not used:
- 99 61.5
- a) Carbol fuchsin
- b) Sulphuric acid
- c) Methylene blue
- d) Carbolic acid*

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11. How should AFB specimens be requested from the patient?	134	83.2
a) One specimen on the spot.		
b) Two specimens, one on the spot and one in the morning next day.*		
c) Three specimens one on the spot and two early in the morning for two consecutive days.		
d) Three specimens all should be early in the morning for 3 consecutive days		
12. A TB suspect with two -ve smears should be subjected to:	54	33.5
a) Chest X-ray		
b) If cough persists despite 10-14 days of a general antibiotic, a chest X-ray is taken		
c) If cough persists despite 10-14 days of a general antibiotic, should have a repeat 2 smear examinations performed*		
d) Should be given 10-14 days of ciprofloxacin		
13. False statement about Intermittent regimen of DOTS:	93	57.8
a) Less expensive		
b) Few adverse reactions		
c) Less effective than daily regimen*		
d) Reduction in total quantity of drug consumed		
14. Family member can be DOT provider	60	37.3
a) Yes b) No*		
15. Treatment regimen for smear positive case in RNTCP:	140	86.96
a) 2(HRZE)3/4(HR)3*		
b) 2(SHRZE)3/1(HRZE)3/5(HRE)3		
c) 2(HRZ)3/2(HR)3		
d) None of the above		
16. All are bactericidal drugs except:	98	60.9
a) Rifampicin		
b) Streptomycin		
c) Isoniazid		
d) Ethambutol*		
17. Contraindicated anti-TB drug in pregnancy	117	72.7
a) Rifampicin		
b) Streptomycin*		
c) Isoniazid		
d) Pyrazinamide		

18. Effective drug in TB-HIV confection to reduce mortality:	72	44.7
a) Azithromycin		
b) Cotrimoxazole*		
c) Ciprofloxacin		
d) Ethambutol		
19. All the following drugs are hepatotoxic except?	90	50.9
a) Rifampicin		
b) Streptomycin*		
c) Isoniazid		
d) Pyrazinamide		
20. The follow up sputum smear examination for New Case of TB will be done at:	75	46.6
a) 2, 4, 6 months*		
b) 2, 6 months		
c) 2,3,5,7 months		
d) 2, 3,4,6,8 months		
21. RNTCP policy on chemoprophylaxis is:	75	46.6
a) Give INH for 6 months to child < 6 years who are contacts of TB patient after ruling out active TB		
b) Give INH for 6 months to child < 6 years who are contacts of TB patient irrespective of BCG status after ruling out active TB*		
c) Give INH for 3 months to child < 6 years who are contacts of TB patient, then do PPD test		
d) All contacts of positive TB case receive 6 months of INH		
22. Will you advise breast feeding to a baby in a mother with sputum positive pulmonary TB?	110	68.3
a) Yes* b) No		
23. Multi-Drug resistant tuberculosis (MDR-TB) is defined as:	125	77.6
a) TB bacilli are resistant to Isoniazid & Rifampicin with or without resistance to others*		
b) Resistant to Isoniazid only		
c) Resistant to Rifampicin only		
d) All of the above		

* Indicates correct response

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DISCUSSION: Undergraduate students and interns attend postings in the Department of Pulmonary medicine as part of their curriculum. As upcoming physicians it is essential for undergraduate medical students to be aware of Tuberculosis and RNTCP.

KNOWLEDGE OF TB & RNTCP: Most of the students were aware of the current situation of TB in India and objectives of RNTCP. But, there was lack of knowledge pertaining to definitions 'New case', 'smear positive case'. It was found that few students had misconcepts on intermittent regimen of DOTS, chemoprophylaxis. In a study conducted among postgraduate medical students 50.9 % could correctly specify the objectives of RNTCP and components of DOTS.⁵

DIAGNOSIS: For the diagnosis of smear positive TB two sputum samples are required under RNTCP. Majority of the students knew the number of sputum samples required and how the specimens should be requested by the patients. 33.5% participants could correctly state that a TB suspect with two negative smears should be subjected to Chest X-ray. About 61% were unaware of the exact reagents used in ZN staining for microscopic diagnosis of TB bacilli. A study investigating factors associated with the delay in diagnosis by health providers found that rather than screening patients with standard guidelines, private practitioners usually report to symptom based treatment, followed by X-ray examination and infrequently sputum examination.⁶

RNTCP guidelines emphasize on follow up smear examination for a new case of TB should be done at 2, 4, 6 months. 46.6% students mentioned the right option. Various other studies revealed how the sputum examination is underutilized with less than 10% using sputum only for monitoring.^{7,8}

MDR TB: According to the most recent data, in 2008, among all incident TB cases worldwide, 3.6% were estimated to have MDR-TB. Almost half of the global MDR-TB cases were reported from China and India.⁹ About 77.6% students could correctly define MDR-TB.

TREATMENT: 57.8% participants opined that DOTS is equally effective as daily regimen.

According to RNTCP guidelines family member cannot be a DOTS provider. But, only 37.3% gave proper response.

CONCLUSION AND RECOMMENDATIONS: The study revealed the extent of awareness regarding TB and RNTCP among medical students was inadequate. An integral part of any successful educational program is promotion of compassionate and comprehensive care. There is a need for targeted efforts to educate students about TB since the students can be a major source of information. 'RNTCP Training' should be the part of regular activity of all medical colleges and hospitals. Apparently, lectures and knowledge are not sufficient to build good attitudes and good practices. The medical students should be involved actively in the national programme to effectively combat tuberculosis.

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