



## AWARENESS OF MEDICAL STUDENTS AND INTERNS ABOUT RECENT CHANGE IN RNTCP GUIDELINE IN TUBERCULOSIS DIAGNOSIS AND MANAGEMENT

### Medicine

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### ABSTRACT

Tuberculosis control can significantly be increased if more effort is given to improve knowledge and attitudes of physicians towards prevention and control of disease. This study aimed to assess the knowledge about recent change in RNTCP guideline (2016) for diagnosis and treatment of tuberculosis among medical students and interns.

Sample size was 295, including students of 3rd Professional MBBS part 1, 3rd Professional MBBS part 2 and Interns of a Medical college in West Bengal. The study was done with the help of specially prepared questionnaires.

Mean scores of different batches did not show any significant difference. Mean score of 3rd Prof part 1 students was best. Overall response was not satisfactory as many questions had more than 50 percent wrong responses.

3rd Prof MBBS part 1 students, probably after passing microbiology and pharmacology in 2nd Prof MBBS examination fared better in the questionnaire than their senior fellows.

### KEYWORDS

awareness, guidelines, medical students, RNTCP

### INTRODUCTION

Tuberculosis (TB) is one of the most serious public health problems globally. About one third of the world population has been infected with *Mycobacterium tuberculosis*. With the growing prevalence of HIV infection, the problem of TB is likely to be increased manifold in the years to come. Approximately 4,00,000 people die from TB every year in India, more than 1,000 every day and 100 million work-days are lost.<sup>1,5</sup>

India accounts for one fourth of the global Tuberculosis burden. As per 2015 data, everyday more than 6000 people are detected with tuberculosis. More concerning fact is that around 71000 multidrug resistant tuberculosis is diagnosed per year (3% of newly detected cases).<sup>6</sup>

The National Tuberculosis Control Programme (NTCP) was reviewed in India in 1992 and Revised National Tuberculosis Control Programme (RNTCP) was formally launched in March 1997 with phased coverage in various states throughout India.<sup>7</sup>

Influenced by its achievement, the programme in 12th five year plan (2012-2017) has drafted national strategic plan with a vision of making India tuberculosis free. To achieve that, RNTCP tried to further strengthen and improve the quality of basic DOTS service. New RNTCP technical and operational guideline 2016 suggested some changes in diagnosis and management of tuberculosis, like implementation of daily therapy in place of alternate day therapy, giving ethambutol even in continuation phase.<sup>8</sup>

Poor knowledge of tuberculosis, low risk perception, social stigma and lack of adequate access to treatment facilities are some of the barriers against appropriate tuberculosis treatment. Literature indicates that TB control can significantly be increased if more effort is given to improve knowledge and attitudes of physicians and patients towards prevention and control of disease.<sup>9</sup>

Present study aims to assess the knowledge about this recent change in RNTCP guideline (2016) for diagnosis and treatment of tuberculosis among medical students and interns.

### MATERIALS AND METHODS

Study design: cross sectional, observational study.

The study was done among medical students and interns of the college regarding the Recent change in practice in management and diagnosis of tuberculosis according to RNTCP 2016 guideline and also to assess basic knowledge about tuberculosis.

### AIMS AND OBJECTIVES

To assess the level of knowledge and awareness among medical students and interns of a tertiary care teaching hospital in Eastern India about recent change in technical and operational guideline of RNTCP for tuberculosis in 2016 and also to assess basic knowledge about tuberculosis diagnosis and management.

This was an observational cross sectional study. Sample size was 295, including students of 3rd Professional MBBS part 1 batch, 3rd Professional MBBS part 2 batch and Interns of College of Medicine and JNM Hospital, Kalyani, a tertiary care teaching hospital in West Bengal.

Students of 1st and 2nd Professional MBBS students were not included in this study because they have not yet been taught about tuberculosis management in detail.

Approval of the Institutional ethics committee was taken before start of the study and informed consents were taken from each of the participants before start of the study. Their responses remained confidential.

Study duration was from 21st July 2018 to 20th September 2018.

The study was done with the help of specially prepared questionnaires which was validated by doing a pilot study. The total questions were 20 in number and included Tuberculosis knowledge, attitude and practice questionnaires.

### Statistics:

The questionnaires are of multiple choice single best response type questions. Each correct answer were given score one (1) and incorrect answer were given score zero(0). All the responses were collected, tabulated and analysis were done with the help of SPSS statistics Version 21.

Mean scores of different batches were compared by appropriate statistical analysis, by Kruskal wallis and Mann whitney U test.

### Questionnaire

1. Most common symptom of pulmonary tuberculosis is:

- Hemoptysis
- Persistent cough of 2 weeks or more than 2 weeks with or without expectoration\*
- Fever

2. ATB suspect with two negative sputum smears should be subjected to:
  - a) Chest X-ray
  - b) CBNAAT
  - c) Sputum examination after 2 weeks of antibiotic
3. No of sputum samples required for diagnosis of smear positive cases are:
  - a) One
  - b) Two
  - c) Three
4. Under RNTCP 'New Case' is defined as: a TB patient who has never had treatment for TB or has taken anti-TB drugs
  - a) Less than 1 month
  - b) Less than 2 months
  - c) Less than 6 months
5. Family member can be DOT provider:
  - a) True
  - b) False
6. Recent guideline of RNTCP suggests tuberculosis drug therapy should be taken
  - A) Daily
  - B) Thrice per week
  - C) Daily in intensive phase, thrice weekly in continuation phase
7. Drugs to be given for newly diagnosed tuberculosis in continuation phase
  - A) Isoniazid Rifampicin
  - B) Isoniazid Rifampicin Pyrazinamide
  - C) Isoniazid Rifampicin Ethambutol
8. Contraindicated anti-TB drug in pregnancy
  - A) Rifampicin
  - B) Streptomycin
  - C) Isoniazid
9. If sputum smear is positive after 2 months of intensive phase in newly diagnosed tuberculosis, then
  - A) Intensive phase should be extended for one month
  - B) No extension, continuation phase should be started
10. RNTCP policy on chemoprophylaxis is:
  - 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) All contacts of positive TB case receive 6 months of INH
11. Multi-Drug resistant tuberculosis (MDR-TB) is defined as:
  - a) TB bacilli are resistant to Isoniazid & Rifampicin with or without resistance to others\*
  - b) Resistant to Isoniazid only
  - c) Resistant to Rifampicin only
12. How many combinations are made available in recent RNTCP guideline?
  - a) HRZE and HRE
  - B) HRZE and HR
  - C) HRZE, HRE, HR
13. Resistance to which first line drug should be treated like a multidrug resistant case?
  - A) Rifampicin
  - B) Isoniazid
  - C) Pyrazinamide
14. Which test is still recommended in diagnosis of suspected TB?
  - A) Chest Xray
  - B) Interferon gamma releasing assay
  - c) Serological test
15. Nearest centre where CBNAAT is done
  - a) Medical college, Kolkata
  - b) Burdwan medical college and hospital
  - c) College of Medicine and JNM Hospital, Kalyani
16. Which sample is not ideal for acid fast bacilli detection normally?
  - A) Blood
  - B) Pleural Fluid
  - C) C.S.F.

17. Patients are divided into different weight bands for receiving different doses of antitubercular drugs. How many weight bands are there?
  - a) 3
  - b) 4
  - c) 5
18. For pregnant patient with newly detected TB, regimen is
  - a) 2 HRZE+4 HRE
  - B) 2 HRZ+7 HR
  - C) 2 HRE+7 HR 16
19. among first line antitubercular drugs which one is most hepatotoxic?
  - a) Rifampicin
  - B) Isoniazid
  - C) Pyrazinamide
20. Effective drug in TB-HIV confection to reduce mortality:
  - a) Azithromycin
  - b) Cotrimoxazole
  - c) Ciprofloxacin

**RESULTS**

In this study, 295 medical students participated and submitted their response. Among them, 99 students were from 3rd Prof. MBBS part1, 99 students were from 3rd Prof MBBS part 2 and 97 were interns. Total score in the questionnaire (out of 20) were calculated for all students. Mean score and standard deviations were calculated for each batch. (table 1)

**Table 1: Mean, standard deviation, standard error of mean and 95% confidence interval of responses of students of 3 different batches**

	3rd Prof. MBBS part1	3rd Prof. MBBS part2	Interns
Sample size	99	99	97
Mean score (out of 20)	10.333	9.667	10.319
Standard deviation	2.836	3.087	3.121
Standard error of mean	0.285	0.310	0.317
95% confidence interval	9.767-10.900	9.050-10.283	9.690-10.950
Normality test passed?	No	No	Yes

We then compared the means of 3 different batches. Since the data did not pass the normality test, nonparametric test was applied. We used Kruskal Wallis tests to compare means of 3 batches and p value obtained was 0.1017, which is considered non significant.

Kruskalwallis statistic KW was 4.571.

Then Mann Whitney test was used to separately compare means of 2 different groups. The result is as follows (table 2).

**Table 2: comparison of means of different groups by Mann whitney U test**

Mann whitney U test	3rd prof MBBS part1 vs 3rd prof MBBS part 2	3rd prof MBBS part 2 vs Interns	3rd prof MBBS part 1 vs Interns
P value	0.0614	0.0686	0.9052
Mann whitney U statistic	4150	4081.5	4754
Interpretation	Not significant	Not significant	Not significant

We also calculated number of correct responses for each question and then calculated the percentage of correct responses for each question. The data is presented in the following bar chart.

**Percentage of correct response to different questions**

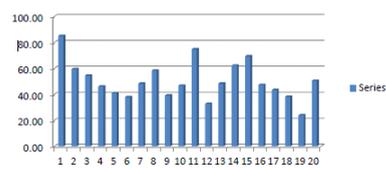


Figure 1: percentage of correct responses to each questions

It shows that 85 % students made the correct response to question number 1 but only 23 percent students knew the correct answer of question number 19. The bar diagram shows that more than 50% students did not give the correct response to question numbers 4,5,6,7, 9,10,12, 17, 18, 19.

## DISCUSSION

In our study, 2 different batches of MBBS students and intern batch participated. The overall response to 20 question set was not satisfactory as the mean score for all 3 batches were below 11 and there was no significant difference among response among different batches. Rather the mean score was highest for the junior most batch, i.e., 3<sup>rd</sup> Prof MBBS part 1 batch, and 3<sup>rd</sup> Prof MBBSpart2 batch students had lowest mean score among these 3 groups. This suggests that knowledge of the medical students on tuberculosis is not improving with years, probably due to lack of adequate continuous medical education and lack of interdisciplinary teaching on tuberculosis.

In a cross-sectional study, performed among final-year medical students from three main undergraduate medical universities in Hunan Province, Poor TB knowledge was observed among medical students, which implied a need to improve their current infectious disease curriculum to promote TB knowledge and practices among medical students.<sup>10</sup>

A cross-sectional survey was performed on fifth-year medical students at the Catholic University of Rome (Italy) in 2013, using a self-administered questionnaire on attitude, experience and knowledge about epidemiology, diagnosis, and treatment of tuberculosis and it showed 56% correct response.<sup>11</sup>

In an Indian study in 2017, a self-administered pre-tested questionnaire was completed by 200 final year undergraduate medical and nursing students at a teaching medical college hospital, it showed that there is a considerable scope for improving knowledge in areas relating to disease transmission and the preventive aspects of TB among healthcare staffs and students. Since the present curriculum was deemed as adequate by the students, newer learning methods may be needed to disseminate any additional knowledge.<sup>12</sup>

3<sup>rd</sup> Prof part 1 students, probably due to reading community medicine at that time and just after passing microbiology and pharmacology in 2<sup>nd</sup> Prof MBBS examination fared better in the questionnaire than their senior fellows. This scenario need to be changed and 3<sup>rd</sup> Prof part 2 and interns should have more knowledge on current status on tuberculosis diagnosis and management to ensure proper care to the huge burden of tuberculosis patients. This can be done by regular training and CME where updates on RNTCP guideline should be discussed and it should be followed whether the interns and junior doctors are following the current guidelines.

When we assessed percentage of correct response to each question, it was found that many questions had more than 50 percent wrong response. Important among them are question no. 4, seeking RNTCP 'New Case' definition, question number 5, asking whether Family member can be DOT provider or not, question no. 6, asking frequency of drug therapy as per Recent guideline- Daily or thrice per week, question no. 7, asking which Drugs to be given for newly diagnosed tuberculosis in continuation phase, question number 17, asking How many weight bands Patients are divided into for receiving different doses of antitubercular drugs, question number 18, asking appropriate regimen for pregnant patient with newly detected TB, and question no. 19, asking which 1st line antitubercular drug is most hepatotoxic. So knowledge on these matters need to be increased.<sup>8</sup> On the contrary most students answered correctly about the most common symptom of pulmonary tuberculosis, which test to do in a suspected tuberculosis patient with two negative sputum smears, number of sputum samples required for diagnosis of smear positive cases. Most of the students knew that their medical college is a centre where CBNAAT is done routinely. Also most of them answered correctly that chest X ray, not the serological test has a role in diagnosis of tuberculosis.

In a recent study at Nasik, Maharashtra, it was revealed that a significant number of physicians in private practice did not adhere to the standard norms for prescribing anti-TB treatment, did not know about the regimen recommended by the NTCP, and often prescribed wrong regimens.<sup>13</sup>

Therefore, information should be conveyed to them to make them aware that TB is a common disease in India and we should be cautious and very much careful regarding the appropriate prescription and appropriate tools for diagnosis of tuberculosis.

The interns are many times a first contact physician of patients in teaching hospitals and needs to be oriented towards RNTCP policies and recommendations to reduce TB burden in India. Unless they know about the most recent guideline, tuberculosis morbidity and mortality cannot be reduced. By assessing knowledge of interns and 3<sup>rd</sup> Professional MBBS students, methodologies like role play, group discussions, printed handouts, Posters, etc can be used for giving information for better understanding of the problem so that tuberculosis patients can be given appropriate management and thus having less mortality and less risk of developing multidrug resistance.<sup>13</sup>

## CONCLUSIONS

Study on medical students awareness on recent change in RNTCP guideline is lacking.

The overall response of 300 students of 3 different batches were not satisfactory.

There is no significant difference of response to 20 item questionnaire in 3 different batches.

Rather, the junior most batch, i.e., 3<sup>rd</sup> Prof MBBS part 1 Batch had the highest mean score among the 3 batches.

This necessitates the need of continuous medical education for MBBS students and interns for updating their knowledge on important diseases like tuberculosis to ensure proper patient care and prevention of multidrug resistance.

New changes in guideline like inclusion of ethambutol in continuation phase, recommendation of daily therapy rather than thrice weekly therapy, dosing according to the weight band need to be stressed on.

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**Conflict of interest-** Nil

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