

A Questionnaire-Based Assessment of Awareness about National Tuberculosis Programmes and Antitubercular Drugs among Final Year MBBS Students

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Conflict of interest: Nil

Abstract

Aim: The aim of the present study was to assess the awareness about National Tuberculosis Programmes and Antitubercular drugs among final year MBBS students.

Methods: A questionnaire-based study was performed among 100 final year MBBS students in the Department of TB and Chest, Lord Buddha Koshi Medical College and Hospital, Saharsa, Bihar, India.

Results: Most of the participants were aware about the most common symptom of Pulmonary TB, first line antitubercular drugs, common side effects, and that TB is a notifiable disease. Regarding questions on newer drugs, 62% of the participants were aware about the new drug Bedaquiline but only 26% responded correctly regarding the properties of Delamanid. In case of TB- HIV co-infection, 52% were aware that Rifampicin is replaced by Rifabutin and 28% were aware about Cotrimoxazole prophylaxis to reduce morbidity. Question on Nikshay portal was answered by 89% of the participants. 85% were aware about sputum collection for AFB testing and 95% were aware about facilities provided at DOTS centre under RNTCP. Out of which, 52% were aware of the aim of NTEP, 14% were aware about new guidelines regarding the use of streptomycin, 20% were aware about the categorisation of TB treatment under NTEP, 34% were aware about the modification in INH prophylaxis guidelines for contacts.

Conclusion: It can be concluded by the present study that majority of the participants were aware about the basics of tuberculosis symptoms, diagnosis and first line drugs. Most participants are aware of the Launching of NTEP programme, but they need further updating sessions.

Keywords: Bedaquiline, Delamanid, National Tuberculosis Elimination Programme (NTEP).

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Introduction

Tuberculosis (TB) is a chronic granulomatous disease and a major health problem in developing countries. About one-third of the world's population is infected with *Mycobacterium tuberculosis*. In 2012 the government of India has declared TB to be a notifiable disease. The Revised National Tuberculosis Control Programme (RNTCP) was launched in 1997. [1] Under NTEP, the drug Streptomycin will be reserved for special cases like disseminated tuberculosis. INH prophylaxis guidelines for contacts are being changed to 10mg/kg of INH for children below five years of age. [2]

Currently, the National Tuberculosis Elimination Programme (NTEP) between 2017 to 2025, aims at the elimination of tuberculosis. There are few modifications in the diagnosis, treatment and follow up protocol as well. For drug sensitive TB, daily fixed dose combinations of first line antitubercular drugs

are given. All Rifampicin Resistant cases are subjected to baseline kanamycin and levofloxacin drug sensitivity. NTEP also aims at scale up of new drugs like Bedaquiline and Delamanid. It also aims at bidirectional screening of TB and Diabetes Mellitus. Linking of Pradhan Manthri Jan-Dhan yojana, AADHAR and Nikshay for direct cash benefits to the patient's bank account will be done. The Global tuberculosis (TB) report 2018 estimated the total incidence of TB in India to be 204/1 lakh population, contributing to 26% of worldwide burden.⁶ India continues to account for about a quarter of the world TB cases in spite of TB control activities implemented in the country for more than 50 years. The first major changes in National TB programme took place in 1997 with the launch of Directly Observed Treatment-Short course (DOTS) under the Revised National TB Control Programme (RNTCP). In spite of the improved quality of services provided by the RNTCP, there continued to

be a TB epidemic due to which significant initiatives were taken during the National Strategic Plan (NSP) 2012–2017 in terms of mandatory TB notification of all cases, integration of program under the National Health Mission, expansion of diagnostic services, programmatic management of drug-resistant TB, etc.[7] The recent NSP for TB 2017–2025 had been reframed based on the National Health Policy 2015, World Health Organization's end TB strategy, and the Sustainable Development Goals of the United Nations. [3] It has been integrated into four strategic pillars of "Detect-Treat-Prevent-Build," which aims to control and eliminate TB in India by 2025. [4]

Treating tuberculosis (TB) patients with inappropriate TB treatment regimens, i.e. regimens that are not in accordance with the World Health Organization (WHO) treatment guidelines [5-8], can result in the development of multidrug-resistant (MDR)-TB. [9]

The aim of the present study was to assess the awareness about National Tuberculosis Programmes and Antitubercular drugs among final year MBBS students.

Materials and Methods

Table 1: Symptoms, diagnosis, first line drugs

Symptoms, diagnosis, first line drugs	%
TB notifiable disease	92
Common symptom	95
First line drugs	96
Common side effects	93

Most of the participants were aware about the most common symptom of Pulmonary TB, first line antitubercular drugs, common side effects, and that TB is a notifiable disease.

Table 2: Awareness about new drugs

Awareness about new drugs	%
New drug Bedaquiline	62
Properties of Delamanid	26

Regarding questions on newer drugs, 62% of the participants were aware about the new drug Bedaquiline but only 26% responded correctly regarding the properties of Delamanid.

Table 3: TB HIV Co- infection

TB HIV Co- infection	%
Replacement of rifampicin by rifabutin	52
Cotrimoxazole prophylaxis	28

In case of TB- HIV co-infection, 52% were aware that Rifampicin is replaced by Rifabutin and 28% were aware about Cotrimoxazole prophylaxis to reduce morbidity.

Table 4: RNTCP and awareness about new guidelines under NTEP

RNTCP	%
Nikshay portal	89
Sputum for AFB testing	85
DOTS centre facilities	95
New guidelines under NTEP	
Main of NTEP	52
Streptomycin new guidelines	14
Categorization of TB treatment	20
INH prophylaxis current guidelines	34

A questionnaire-based study was performed among 100 final year MBBS students in the Department of TB and Chest, Lord Buddha Koshi Medical College and Hospital, Saharsa, Bihar, India after obtaining clearance from the Institutional Ethics Committee.

Questionnaire consisted of 15 questions framed by referring standard textbooks and official website for Tuberculosis. It included four questions on basics of TB symptoms, first line drugs and common side effects, two questions about newer drugs, two questions on TB HIV co-infection, three questions about RNTCP (Revised National Tuberculosis Control Programme) and four questions about NTEP (National Tuberculosis Elimination Programme). Questionnaire was validated by experts from the field. Questionnaire was distributed to the willing students and they were given 20 minutes to answer. Responses were collected and data was analysed and expressed as percentage values.

Statistical Analysis: The data was entered in MS Excel and analysed using descriptive statistics.

Results

Question on Nikshay portal was answered by 89% of the participants. 85% were aware about sputum collection for AFB testing and 95% were aware about facilities provided at DOTS centre under RNTCP. Out of which, 52% were aware of the aim of NTEP, 14% were aware about new guidelines regarding the use of streptomycin, 20% were aware about the categorisation of TB treatment under NTEP, 34% were aware about the modification in INH prophylaxis guidelines for contacts.

Discussion

In 2012, a study on awareness of the Revised National Tuberculosis Control Programme and attitude to tuberculosis patients amongst medical undergraduates concluded that to ensure the successful control of TB and implementation of RNTCP, medical students need to be sensitized by conducting continuous medical education and orientation courses on RNTCP at regular intervals. [10] In 2012, another study on the knowledge about tuberculosis management and national tuberculosis programme among medical students and aspiring doctors indicated a low level of knowledge among participants despite DOTS covering the entire country. [11] In 2014, A Study on Awareness of Tuberculosis and RNTCP among Undergraduate Medical students and Interns concluded that a moderate level of knowledge about tuberculosis and RNTCP was found among study participants, and suggested towards the need of innovative, effective active learning experiences to modify the scenario. [12] In 2017, assessment of knowledge of intern doctors of a medical college hospital in Karnataka on revised national TB control programme concluded that the awareness regarding updates on RNTCP was inadequate and needed constant update with a focus on interns who are first contact health care providers in medical college settings. [13]

In the present study, most of the participants were aware of the common symptoms of Tuberculosis and also the first line Anti-tubercular drugs and their common side effects. Bedaquiline and Delamanid are the two new Anti TB drugs that are approved specially for the treatment of TB since the last 40 years, after the discovery of Rifampicin. Bedaquiline is specifically used to treat multidrug resistant tuberculosis. It is a diarylquinoline, binds to subunit c of mycobacterial ATP synthase and inhibits its activity. [14] It is given orally. Common side effects include nausea, joint pains, headaches and chest pain. Serious side effects include QT prolongation, liver dysfunction and increased risk of death. [15] Delamanid belongs to Nitroimidazole group of drugs. It acts by inhibiting mycolic acid production in the bacterial cell wall. Dose dependent QT prolongation is seen. [16] In our study 62% of the participants were aware about the new drug Bedaquiline but only 25% responded

correctly regarding the properties of Delamanid. Also, patients with TB and HIV co-infection are found to be at greater risk of treatment failure. They also have higher treatment related toxicity from Anti tubercular drugs. In case of TB- HIV coinfection, 52% were aware that Rifampicin is replaced by Rifabutin and 28% were aware about Cotrimoxazole prophylaxis to reduce morbidity.

Revised National Tuberculosis Control Programme (RNTCP) was first started in 1997. Provision of free TB drugs in the form of daily fixed dose combinations for all cases was advised with the support of Directly observed treatment. To facilitate TB notification a web-based TB surveillance system called NIKSHAY was developed. In our 88% of the participants were aware of Nikshay portal, 84% were aware about sputum collection for AFB testing and 94% were aware about facilities provided at DOTS centre under RNTCP.

Most of the participants were aware about the most common symptom of Pulmonary TB, first line antitubercular drugs, common side effects, and that TB is a notifiable disease. Regarding questions on newer drugs, 62% of the participants were aware about the new drug Bedaquiline but only 26% responded correctly regarding the properties of Delamanid. In case of TB- HIV co-infection, 52% were aware that Rifampicin is replaced by Rifabutin and 28% were aware about Cotrimoxazole prophylaxis to reduce morbidity. Question on Nikshay portal was answered by 89% of the participants. 85% were aware about sputum collection for AFB testing and 95% were aware about facilities provided at DOTS centre under RNTCP. Out of which, 52% were aware of the aim of NTEP, 14% were aware about new guidelines regarding the use of streptomycin, 20% were aware about the categorisation of TB treatment under NTEP, 34% were aware about the modification in INH prophylaxis guidelines for contacts. This could be an indication that the information has successfully reached most of the undergraduate students. But the students are yet to grasp the changes in detail. This could be successful if the students involve themselves in exploring various online journals and official websites. Also, an informative session on the updates would be helpful. Updating the information to final year undergraduate students is very important as they may not come across the changes in the academic books.

Conclusion

It can be concluded by the present study that majority of the participants were aware about the basics of tuberculosis symptoms, diagnosis and first line drugs. Guidelines in case of TB-HIV co infection need to be focused on. They are aware

about the newer drugs but need further detailing. Majority of them are aware of the RNTCP guidelines. Also, most participants are aware of the launching of NTEP programme. But as they are not aware of the changed guidelines, further updating sessions should be considered.

References

1. Tripathi KD. Essentials of Medical Pharmacology. 8th ed. New Delhi: Jaypee Brothers Medical Publications(P) Ltd.; 2019.
2. National strategic plan for Tuberculosis: 2017-25 elimination by 2025.
3. Central TB Division. Revised National TB Control Programme. India TB Report; 2018.
4. National Health Portal (NHP) India. Revised National TB Control Programme.
5. World Health Organization. Treatment of tuberculosis. Guidelines for national programmes. 1st Edn. Geneva, World Health Organization, 1993.
6. World Health Organization. Treatment of tuberculosis: guidelines for national programmes. 2nd Edn. WHO/TB/97.220. Geneva, World Health Organization, 1997.
7. World Health Organization. Treatment of tuberculosis: Guidelines for national programmes. 3rd Edn. WHO/CDS/TB/2003.313. Geneva, World Health Organization, 2003.
8. World Health Organization. Treatment of tuberculosis: guidelines. 4th Edn. WHO/HTM/TB/2009.420. Geneva, World Health Organization, 2009.
9. van der Werf MJ, Langendam MW, Huitric E, Manissero D. Multidrug resistance after inappropriate tuberculosis treatment: a meta-analysis. *European Respiratory Journal*. 2012 Jun 1;39(6):1511-9.
10. Chennaveerappa PK, Rajashekar HK, Nagara J, Halesha BR, Prasad KUR, Vinaykumar MV. A study on awareness of tuberculosis and RNTCP among Undergraduate Medical Students and Interns. *J Evol Med Dent Sci*. 2014;3(29):8115–21.
11. Baveja SM, Dalal PJ. Awareness of the revised national tuberculosis control programme and attitude to tuberculosis patients amongst medical undergraduates. *J Acad Med Sci*. 2012;2(2):68.
12. Mehta D, Singh M, Bassi R, Mehta C. To study the knowledge about tuberculosis management and national tuberculosis program among medical students and aspiring doctors in a high tubercular endemic country. *Ann Trop Med Public Health*. 2012;5(3):206.
13. Raghavendra L, Babu PS, Shivakumar KM. Assessment of knowledge of intern doctors of a medical college hospital in Karnataka on revised national TB control programme. *Int J Adv Med*. 2017;4(4):1123.
14. Koul A, Dendouga N, Vergauwen K, Mollenberghs B, Vranckx L, Willebrords R, et al. Diarylquinolines target subunit c of mycobacterial ATP synthase. *Nat Chem Biol*. 2007;3(6):323–4.
15. U.S. Food and Drug Administration. SIRTURO Prescribing Information.
16. Gler MT, Skripconoka V, Sanchez-Garavito E, Xiao H, Cabrera-Rivero JL, Vargas-Vasquez DE, et al. Delamanid for Multidrug-Resistant Pulmonary Tuberculosis. *New Engl J Med*. 2012;366(23):2151–60.