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Original Research Article

A study on awareness about national tuberculosis programmes and antitubercular drugs among final year MBBS students in a tertiary care hospital in Mangaluru

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ABSTRACT

Introduction: National Tuberculosis Elimination Programme (NTEP) aims at the elimination of tuberculosis. There are few modifications in the diagnosis, treatment and follow up protocol.

Objective: To assess the awareness about National Tuberculosis Programmes and Antitubercular drugs among final year MBBS students.

Materials and Methods: This is a questionnaire-based study, performed among 179 final year MBBS students. Questionnaire consisted of 15 questions framed by referring standard textbooks and official website for Tuberculosis.

Results: Most of the participants were aware about the most common symptom of Pulmonary TB, first line antitubercular drugs and their common side effects.

Only 24.58% of the participants responded correctly regarding the properties of Delamanid but 60.33% were aware about the new drug Bedaquiline.

Question on Nikshay portal was answered by 88.26% of the participants, 85.47% were aware about sputum collection for AFB testing and 94.7% were aware about facilities provided at DOTS centre.

Also, 83% of the participants responded that they are aware of the NTEP programme. But, only 51% were aware of the aim of NTEP, 12.75% were aware of new guidelines regarding the use of streptomycin, 18.79% were aware about the categorisation of TB treatment under NTEP, 32.88% were aware about the modification in INH prophylaxis.

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.

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1. 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

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

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account will be done.

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

This study intends to assess the awareness of final year MBBS students regarding Tuberculosis, its treatment and the changes in guidelines.

2. Materials and Methods

A questionnaire-based study was performed among 179 final year MBBS students 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.

2.1. Questionnaire

A study on awareness about National Tuberculosis Programmes and Antitubercular drugs among final year MBBS students in a Tertiary care hospital in Mangaluru.

1. Is TB a notifiable disease
 - a) Yes, all the cases
 - b) No, none of the cases need to be notified
 - c) Only severe cases
 - d) Only pulmonary TB
2. Most common symptom of pulmonary TB is
 - a) Haemoptysis
 - b) Persistent cough of more than 2 weeks
 - c) Fever
 - d) Weight loss
3. All are first line anti TB drugs except
 - a) Rifampicin
 - b) Ethambutol
 - c) Isoniazid
 - d) Ciprofloxacin
4. Orange coloured urine is associated with
 - a) Para amino salicylic acid
 - b) Pyrazinamide
 - c) Rifampicin
 - d) Isoniazid
5. Which one is a newer anti tubercular drug?
 - a) Audeniz
 - b) Teprotumumab-trbw
 - c) Bedaquiline
 - d) Lemborexant
6. All are true about Delamanid except
 - a) It is used for drug sensitive TB
 - b) It can be given orally
 - c) It is a newer TB drug available in few cities
 - d) It causes QT prolongation
7. In patients with TB- HIV coinfection, Rifampicin is replaced by
 - a) Nevirapine
 - b) Rifabutin
 - c) Kanamycin
 - d) Amikacin
8. Effective drug in TB- HIV co infection to reduce mortality is
 - a) Azithromycin
 - b) Ciprofloxacin
 - c) Ethambutol
 - d) Cotrimoxazole
9. Online portal for TB registration and tracking
 - a) Nischay
 - b) Nikshay
 - c) HMIS
 - d) MCTS
10. How many AFB specimens should be requested from the patient according to RNTCP guidelines?
 - a) One specimen on the spot
 - b) Two specimens, one on the spot and one next day morning
 - 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 three consecutive days
11. Facilities provided at DOTS centre
 - a) Free diagnosis
 - b) Free medicines
 - c) Uninterrupted supply of medicines
 - d) All of the above
 Are you aware of NTEP programme?
YES/ NO
12. NTEP aims at
 - a) Elimination of TB by 2025
 - b) Eradication of TB by 2025
 - c) Elimination of TB by 2030
 - d) Eradication of TB by 2030
13. According to NTEP guidelines streptomycin
 - a) Is removed from the protocol
 - b) Is given for category I
 - c) Is given for drug resistant TB
 - d) Can be given in disseminated cases
14. TB treatment under NTEP is categorised as
 - a) Category I, Category II, Category III, Category IV
 - b) Pulmonary, extrapulmonary
 - c) Category I, category II, MDR, XDR

- d) Drug sensitive and drug resistant cases
15. Chemoprophylaxis of TB under NTEP is
- 5mg/kg INH daily for contacts under 5 years
 - 10mg/kg INH daily for contacts under 5 years
 - 5mg/kg INH daily for contacts under 6 years
 - 10mg/kg INH daily for contacts under 6 years

Answer key: 1) a, 2) b, 3) d, 4)c, 5) c, 6)a, 7) b, 8) d, 9) b, 10) b, 11) d, 12) a, 13) d, 14) d, 15) b.

2.2. Statistical analysis

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

3. Results

Table 1: Questions related to basic knowledge of Tuberculosis and Antitubercular drugs

S. No	Questions	Correct Responses
1.	Is TB a notifiable disease?	168
2.	Most common symptom of pulmonary TB is	174
3.	All are first line anti TB drugs except	171
4.	Orange coloured urine is associated with	170

Table 2: Questions related to Newer Antituberculosis drugs

S. No	Questions	Correct Responses
1	Which one is a newer anti tubercular drug?	108
2	All are true about Delamanid except	44

Table 3: Questions related to TB- HIV Co-infection

S. No	Questions	Correct Responses
1.	In patients with TB- HIV coinfection, Rifampicin is replaced by	94
2.	Effective drug in TB- HIV co infection to reduce mortality is	51

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. (Figure 1)

Regarding questions on newer drugs, 60.33% of the participants were aware about the new drug Bedaquiline but

Table 4: Questions related to RNTCP

S. No	Questions	Correct Responses
1	Online portal for TB registration and tracking	158
2	How many AFB specimens should be requested from the patient according to RNTCP guidelines?	153
3	Facilities provided at DOTS centre	170

Table 5: Questions related to NTEP

S. No.	Questions	Correct Responses
1	NTEP aims at	76
2	According to NTEP guidelines streptomycin	19
3	TB treatment under NTEP is categorised as	28
4	Chemoprophylaxis of TB under NTEP is	49

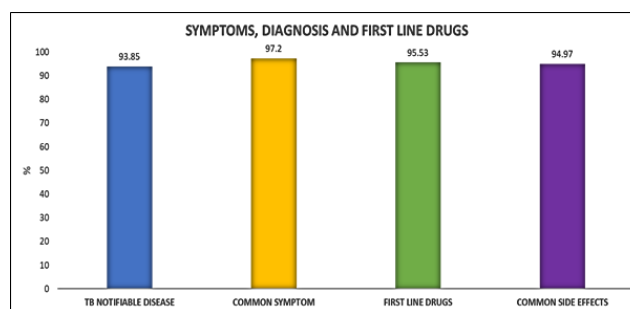


Fig. 1:

only 24.58% responded correctly regarding the properties of Delamanid. (Figure 2)

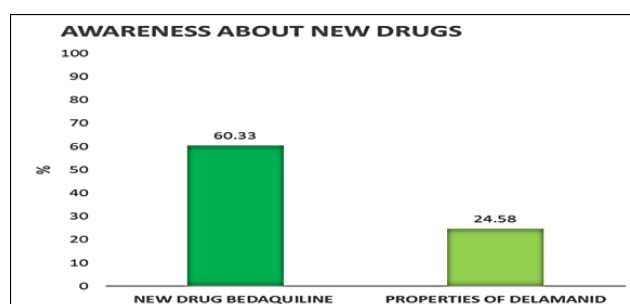


Fig. 2:

In case of TB- HIV co-infection, 52.51% were aware that Rifampicin is replaced by Rifabutin and 28.49% were aware about Cotrimoxazole prophylaxis to reduce morbidity. (Figure 3)

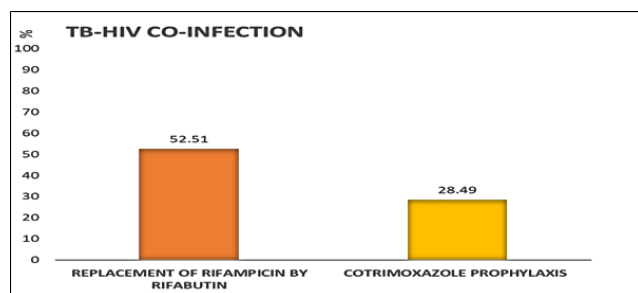


Fig. 3:

Question on Nikshay portal was answered by 88.26% of the participants. 85.47% were aware about sputum collection for AFB testing and 94.7% were aware about facilities provided at DOTS centre under RNTCP. (Figure 4)

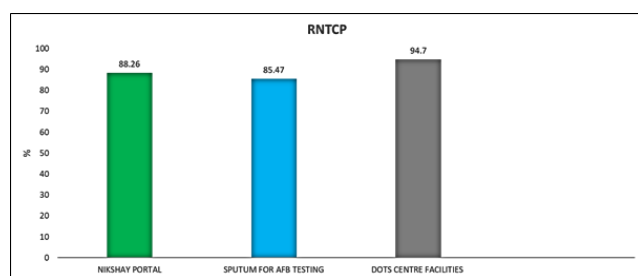


Fig. 4:

Also, 83% of the participants responded that they were aware of the NTEP programme. Out of which, 51% were aware of the aim of NTEP, 12.75% were aware about new guidelines regarding the use of streptomycin, 18.79% were aware about the categorisation of TB treatment under NTEP, 32.88% were aware about the modification in INH prophylaxis guidelines for contacts. (Figure 5)

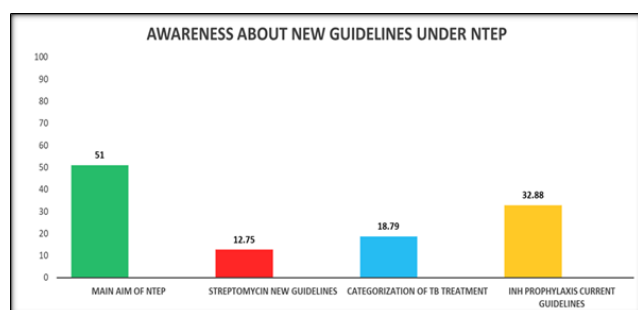


Fig. 5:

4. 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.³

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.⁴

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.⁵

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.⁶

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.⁷ 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.⁸ 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.⁹ In our study 60.33% of the participants were aware about the new drug Bedaquiline but only 24.58% 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.¹⁰ In case of TB- HIV coinfection, 52.51% were aware that Rifampicin is replaced by Rifabutin and 28.49% 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.² In our 88.26% of the participants were aware of Nikshay portal, 85.47% were aware about sputum collection for AFB

testing and 94.7% were aware about facilities provided at DOTS centre under RNTCP.

As the NTEP goals and guidelines were announced recently, students are less likely to come across the changes in the basic academic books they refer. But, 83% of the participants responded that they are aware of the NTEP programme. Out of which, 51% were aware of the aim of NTEP, 12.75% were aware about new guidelines regarding the use of streptomycin, 18.79% were aware about the categorisation of TB treatment under NTEP, 32.88% 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. These students should be considered for informative sessions on NTEP as much as the interns, post graduates and practitioners are considered. This would help in the implementation of the changes from the basic level without any confusions, as these students will soon be dealing with patients.

5. 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.

6. Source of Funding

None.

7. Conflict of Interest

The authors declare that there is no conflict of interest.

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