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Prevalence of cough more than two weeks among OPD attendees, and smear microscopy outcome among them

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Abstract

Tuberculosis (TB) is a public health emergency, which challenges the health indicators of India. Delayed diagnosis of TB may result in more extensive disease, more complications, and lead to a higher mortality. It also leads to an increased period of infectivity in the community. Revised National Tuberculosis Control Programme (RNTCP) of the country has modified the definition of a pulmonary TB suspect so as to include an additional proportion of people with cough of 2 weeks duration, which will help in reducing the delay in starting treatment. This study was carried out with the objective of estimating the prevalence of cough more than 2 weeks among OPD attendees, and smear microscopy outcome among them and to assess the treatment seeking behavior of patients with cough ≥ 2 weeks. The present cross-sectional study was carried out at Out-Patient Department of GianSagar Medical College and Hospital, Banur, Distt. Patiala, Punjab. All adult chest symptomatics with cough of two weeks or more than two weeks duration attending in OPD were screened for pulmonary tuberculosis by examining the two sputum smears in designated microscopy center as per RNTCP guidelines. A total of 16030 adult patients attended outpatients department (OPD) in the months of May and June 2013. Out of these, 561(3.5%) patients reported cough. Among patients who reported cough, 70(12.5%) patients reported cough ≥ 2 weeks duration. Of those who coughed for two weeks or more, 10 (14.2%) had smear positive PTB. Of the patients who had cough ≥ 2 weeks duration, only 21.4% of patients reported to a health facility for treatment within 1st week of symptoms and majority (50%) of them preferred going to private practitioners. It may be concluded that reservoir of tuberculosis infection can only be reduced by early detection and prompt and complete treatment of sputum positive cases.

Key Words: Smear-positive tuberculosis; Chest symptomatic; Cough duration; RNTCP.

Introduction

Tuberculosis infects one third of the world's population and hence at risk of developing active disease¹. It still remains to be a major public health problem among the under developed world, because of poverty, HIV pandemic, movement of displaced people and emergency of multidrug-resistant strains^{1,2}. Tuberculosis is a bacterial disease caused by Mycobacterium tuberculosis complex which includes most of the time M. tuberculosis and occasionally by M. bovis, M. africanum and M. canetti¹. The disease primarily affects lungs and causes Pulmonary TB (PTB). It can also affect intestine, meninges, bones and joints, lymph glands, skin and other tissues of the body. The disease is usually chronic with cardinal features like persistent cough with or without expectoration, intermittent fever, loss of appetite, weight loss, chest pain and haemoptysis³. TB has coevolved with humans for many thousands of years, and perhaps for several million years⁴. According to World Health Organization (WHO) 2011 report, 8.8 million new cases of TB were registered around the world. Majority (35% and 30% were reported from south East Asia and Africa respectively). Additionally, 1.1 million deaths were reported, majority was from Asia (59%) and Africa (26%)⁵. Pulmonary tuberculosis contributes around 85% of total TB cases & these cases serve as main reservoir of infection⁶. The recommended strategy in developing countries where 95% of the tuberculosis cases occur is to detect sputum positive cases and treat them promptly to reduce the reservoir, ultimately leading to control of tuberculosis⁷. India, which accounts for one-fifth of global incidence of tuberculosis and tops the list of 22 high burden countries, is implementing Revised National Tuberculosis Control Program (RNTCP). As per the program guidelines, all patients presenting with cough of ≥ 2 weeks duration are to be screened for tuberculosis by carrying out three sputum examinations.⁸

This study was carried out with the objective of estimating the prevalence of cough more than 2 weeks among OPD attendees, and smear microscopy outcome among them and to assess the treatment seeking behavior of patients with cough ≥ 2 weeks.

Aim of study

- To study the prevalence of cough ≥ 2 weeks duration among adult OPD attendees.
- To assess the sputum microscopy outcome among patients with cough ≥ 2 weeks.
- To study the treatment seeking behavior of people with cough > 2 weeks duration.

Methodology

Study design: A prospective Cross sectional study of patients attending Out Patient Department of GianSagar Medical College and Hospital.

Study Period: May 1 to June 30, 2013.

Selection of study sample and their recruitment:

All the patients visiting the OPD and suffering from cough from 1st May 2013 to 30th June 2013 were included in the study

Procedure of Data Collection: The patients on entering the OPD were informed about the study in order to obtain their consent to participate in this study. Those consenting to participate in the study were recruited in the study after obtaining their written consent and interviewed by myself, using a well validated pre-designed and pre-tested **Questionnaire** to obtain information relating to various socio-demographic details such as age, gender, marital status, Per capita income, place of residence, and employment status.

Socio-economic status was calculated using Modified BG Prasad's Classification for 2013 ¹⁵.

Clinical information (including history of tuberculosis, any history of contact with a patient of TB, previous hospitalization, and presence of other chronic respiratory diseases) was gathered and patients were asked whether they had experienced any of the following symptoms: cough, pulmonary secretion, hemoptysis, night sweats, chest pain, fever, anorexia, weakness, hoarseness, dyspnea, or adenopathy.

All patients reporting Cough > 2 weeks were subjected to two Sputum for Acid Fast Bacilli by ZeihlNeelsen sputum microscopy in designated microscopy center as per RNTCP guidelines and other relevant investigations to corroborate the findings of the treating physician.

In addition patients were also asked about their treatment seeking behaviour to gain information on what people do when diseased and factors influencing their behaviour.

Inclusion Criteria:

- Adult Patients of either sex with cough lasting ≥ 2 weeks.
- Patients who gave written informed consent

Exclusion Criteria:

- Previously diagnosed patients of Tuberculosis, currently on Anti tuberculosis treatment.
- All patients with cough < 2 weeks.
- Non co-operative and unwilling patients.

Data management and statistical analysis: Editing of data was done after each interview and in the evening of the same day it was analysed to simplify the process of data entry.

The data was entered in MS Excel & Summary output tables of percentage distributions were produced. For association of factors Chi-square test was used. If ($p < 0.05$) the test was considered statistically significant.

Ethical consideration: The study was started after obtaining ethical approval from the GSMCH Institutional Ethical Review Committee, Banur, Patiala .

An informed consent was taken from each participant before data collection. For this, before obtaining the informed consent from the patients, an information sheet indicating the purpose of the study, potential risks and benefits of participating, Procedure of maintaining confidentiality, and right to not to participate in this study, was provided to them. The consent was thereafter obtained in the consent form. This informed consent follows ethical norms and values as stated in the ICMR national ethical guidelines for biomedical research in India.

Result and Discussion

A total of 16030 adult patients attended outpatients department (OPD) in the months of May and June 2013. Out of these, 561(3.5%) patients reported cough.

Among patients who reported cough, 70(12.5%) patients reported cough ≥ 2 weeks duration.

In a study by Muthukutty et al¹⁶, the proportion of patients having cough of less than 3 weeks duration was found to be 32 %.

Consistent findings were also observed by Ngadaya et al¹⁷ in Tanzania.

There were 43 male patients and 27 female patients with cough \geq 2 weeks.

Table I: Characteristics of study population

Variable	Male (n =43)	Female (n = 27)	Total (n = 70)
AGE(In years)			
< 20	01	04	05 (7.1)
21 – 30	06	05	11 (15.7)
31 – 40	07	06	13 (18.6)
> 40	29	12	41 (58.6)
S E STATUS (Modified BG Prasad Classification 2013)			
Class 1	05	04	09(12.9)
Class 2	09	07	16 (22.9)
Class 3	06	05	11(15.7)
Class 4	04	07	11(15.7)
Class 5	19	04	23 (32.8)
RESIDENCE			
Rural	22	19	41 (58.6)
Urban	21	08	29 (41.4)

TABLE 1 gives the profile of study population characteristics of patients with cough \geq 2 weeks.

It can be observed that only 5 (7.1%) were in the age group of under 20 and 41 (58.6%) of them were above 40 years. Male gender (43, 61.4%) predominated in the study sample. Similar findings were observed in a study conducted in Thiruvananthapuram by Muthukutty et al¹⁶.

58.6% of patients were residing in Nearby villages and 41.4% of them reported from urban area.

Majority (32.8%) of the study population belonged to low socioeconomic status, males belonged to substantially lower income families as compared to females.

Table II: Age & sex-wise distribution of sputum positive patients

Variable	No. Of chest symptomatics (Cough \geq 2 wks)	No. of smear positives
AGE		
<20 years	05	02 (20%)

21-30 years	11	01 (10%)
31-40 years	13	02 (20%)
>40 years	41	05 (50%)
SEX		
Male	43	06 (60%)
Female	27	04 (40%)

Out of 70 patients who coughed for two weeks or more, 10 (14.2%) had smear positive Pulmonary TB . A sputum positivity of 10.6% among chest symptomatics with cough > 2 weeks was observed by Nimbarte SB et al ¹⁸ in Sewagram, Central India.

60% of smear positive pulmonary TB patients were males and 40% were females.

Majority of Sputum positive PTB patients (50%) were above 40 years of age.(TABLE-II)

Adding to the current findings, Chakravarthy et al¹⁹ reported that the prevalence of TB peak at 55-64 years. In consistent with the present study, studies elsewhere also report that among all ages, the prevalence was considerably higher in males than in females.^{20,21,22} The reason why prevalence of TB is higher in males is not clear but may due to combination of biological, immunological, behavioral, and social factors. Some basic studies also indicated that estrogen is immune-protective and testosterone is immunosuppressive, and these biological factors may have a role in chronic diseases like TB, in which the immunological mechanisms have a very crucial role to play ²³. Behavioral risk factors among men like tobacco usage and alcohol consumption may have also contributed to this difference.

Table III: Association between smear positives and past history of tb and history of contact

History Of:	Sputum smear Positive	Total	x²df, p-value
past H/o TB	05 (41.6%)	12	0.028, 1, >0.05
H/o contact	04 (57.4%)	07	8.09, 1, < 0.05
Total	09	19	

41.6% of patients(TABLE III) with past History of TB were found to be Sputum positive for AFB and 57.4% of patients with history of contact with TB patient were found to be Sputum positive for AFB (p< 0.05).

It was found that the contact with a known TB patient and the perceived severity of symptoms end-up in a faster diagnosis of TB. The patients as well as the treating physician may think about the possibility of tuberculosis in the above-mentioned situations.

Similar significant findings were reported in Thiruvananthapuram.¹⁶

Table IV: treatment seeking behaviour of patients

BEHAVIOUR	MALE (n = 43)	FEMALE (n = 27)	TOTAL (n = 70)
Treatment started			
< 1 week	09 (20.9%)	06 (22.2%)	15 (21.0%)
1-2 weeks	08 (18.6%)	04 (14.8%)	12 (17.5%)
>2 weeks	26 (60.5%)	17(63.0%)	43 (61.5%)
Reasons for delay			
Lack of money	08 (18.6%)	02 (7.4%)	10 (14.3%)
No one to take the patient to health facility	13 (30.3%)	05 (18.5%)	18 (25.7%)
Too far	05 (11.6%)	04 (14.8%)	09 (12.9%)
No faith in health care	04 (9.3%)	06 (22.2%)	10 (14.3%)
Trust god for healing	05 (11.6%)	03 (11.2%)	08 (11.4%)
Poor attitude of health worker	08 (18.6%)	07 (25.9%)	15 (21.4%)
Place of treatment			
Govt.	13 (30.4%)	10 (37.0%)	23 (32.9%)
Private	18 (41.6%)	17 (63.0%)	35 (50%)
Over the counter	12 (28.0%)	00 (%)	12 (17.1%)
Traditional	00 (00%)	00 (00%)	00 (00%)
Preferred system of medicine			
Allopathic	40 (93.2%)	24 (88.9%)	64 (91.4%)
Ayurvedic	03 (6.8%)	02 (7.3%)	05 (7.2%)
Homeopathic	00	01 (3.8%)	01 (1.4%)

The patients 'treatment seeking behavior was analyzed to identify delay on their part in seeking health care. The main areas that were explored included patients' health seeking through Over the counter medication and various health care providers, as well as the decision making process in selecting the type of different health care providers.

Of the patients who had cough ≥ 2 weeks duration, only 21.0% of patients reported to a health facility for treatment within 1st week of symptoms, while 61.5% of them waited for more than 2 weeks to seek medical care.

The major reasons cited for delay in treatment among males was "No one to take the patient to health facility"(30.3%) and among female patients was "Poor attitude of the health workers"(25.9%)(TABLE IV)

41.6% of male patients and 63.0% of female patients preferred going to private practitioners for treatment. It was also observed that 17.1% of all patients preferred to take treatment from Chemists/local pharmacy.

As regards the preferred system of medicine 91.4% of patients preferred Allopathic form of medicine and from among the Indigenous system of Indian medicine, Ayurveda(7.2%) was preferred over Homeopathic system(1.4%).

In a study conducted in Rawalpindi, Pakistan prior to consulting any health care provider 13% took self-medication only. Among them 3% took allopathic and 10% herbal self-medication.²⁵

Conclusion and Recommendations

TB is one of the major public health problems in India. About 40% of the total population is infected with TB, out of which 60% are in the economically productive age group.

Findings of this study suggest there is a need to improve case detection and educational programmes focussing to improve good perception and treatment outcomes.

High emphasis should be given to develop an effective mechanism for early diagnosis with good referral systems between the private and public providers including (medical colleges) with an inbuilt quality control mechanism. Greater partnership need to be established between the public and private sectors, and effective interventions should be adopted.

Delay in initiation of treatment is more on part of health care providers than on patients. Proper implementation of collaboration and continuing education of health care guidelines of TB program with public-private sector providers is necessary.

The message that needs to be conveyed to everyone is that DOTS is the best available strategy for curing TB patients and that all the elements of DOTS must be adopted in letter and in spirit. Only then India will be able to look forward to the day when it will be free from tuberculosis.

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