Symptoms in Patients Attending DOTS Center for Diagnosis of Tuberculosis in Kanchanpur District of Far Western Nepal

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Abstract

Introduction Tuberculosis is top ten cause of global mortality in human and also major public health problem in South Asian Association for Regional Cooperation (SAARC) region. It is one of the most significant health problem faced by Nepal today, causing more deaths than other single infectious disease. Every year 44,000 people develop active tuberculosis of whom 20,000 have infectious disease and annual death is 8,000-11,000. Directly Observed Treatment Short Course (DOTS) is one of the most cost-effective strategies available for the tuberculosis control.

Objective To determine the variation in clinical features of individuals presenting to a government DOTS facility with chest symptoms according to their ultimate diagnosis.

Methods The study was conducted in DOTS clinic of Kanchanpur district. A total of 208 patients with the respiratory tract symptoms and cough more than 3 weeks were considered as tuberculosis suspects by doctors in hospital and referred to DOTS centre for routine sputum microscopy were interviewed with a structured questionnaire during February 2002 to August 2003.

Results A more 208 patients, 110 (52.9%) were tuberculosis cases. Of 110 cases, 85 (77.3%) had pulmonary tuberculosis 62 (72.9%) were sputum smear positive and 23 (27.1%) were sputum smear negative, 25(22.7%) were extra-pulmonary tuberculosis cases. Non-tuberculosis cases were 98. The pulmonary tuberculosis patients were more likely belonged young age group between 15-25 years and most often from poor neighbourhood. They were different in distribution according to age, sex, socioeconomic condition and occupation.

Conclusion Tuberculosis patients had a constellation of presenting symptoms, with the principal symptom being cough more than three weeks. The accompanying symptoms with greatest predicted significance were fever, tiredness and night sweats.

Key words Tuberculosis, Symptoms, DOTS; Diagnosis, Kanchanpur district, Nepal.

Introduction

The global epidemic of tuberculosis (TB) is increasing. The breakdown of health services, the spread of human immunodeficiency virus and acquired immune deficiency syndrome (HIV/AIDS) and emergence of multi-drug resistant of TB are contributing to the worsening impact of the diseases[1,2].

TB is among the top ten cause of global mortality in human. It is major public health problem in SAARC countries. Every year 2.5 millions of new TB cases appear with 0.6 millions of death[3,4]. In Nepal, TB is an immense problem causing great suffering and death. About 45 percent of total population is infected with tuberculosis; out of 60 percent is productive age group[5]. Every year, approximately 44,000 people develop active tuberculosis; among them approximately 20,000 have infectious (smear) positive cases[6]. Among the total infectious cases registered with the National

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Tuberculosis Program (NTP), only one-third has reported to complete treatments[7]. It is one of the important facts accountable for high morality due to tuberculosis. Other factors contributing for high morality are lack of awareness among people about tuberculosis and other socio-economic causes. National Tuberculosis Program was launched in 1962 and DOTS strategy was adopted in 1995 under NTP with the main aim of reducing morality, morbidity and breaking the chain of transmission[8].

Smear examination of sputum specimens obtained from the patients representing with respiratory symptoms suggestive of TB remains the cornerstone of diagnosis of TB in most of locations with a high burden TB. The sensitivity of smear microscopy to identify all the cases of TB, even in the good centers, is only about 60 percent [9-11]. and patients whose smears are negative for acid fast bacilli (AFB) represent a diagnostic dilemma. This study aims to describe the variation in clinical features of individuals presenting to a government health facility with chest symptoms according to their ultimate diagnosis.

Materials and Methods

Study area

Kanchanpur is located in far western terai region of Nepal. It is headquarter of Mahakali zone. The district is composed of 19 VDCs and a Mahendra Nagar municipality. According the data of 2001 population census a total of 3,77,899 (50.8% males and 49.2% females) living in the entire district. Health care delivery system has undergone in one government hospital and 10 integrated health posts, run by District Public Health Office (DPHO). The DPHO in this district has a laboratory with microscope for malaria control program and diagnosis of pulmonary tuberculosis (PTB) patients has been done in the same. The radiological findings are performed in the government hospital. TB patients are getting treatment from the DOTS facility run under the NTP.

Methods

Persons between 15 and 49 years of age with respiratory symptoms seen consecutively at government zonal hospital by doctors were considered as TB suspects and referred to DOTS clinic of health centre for routine laboratory procedures of smear microscopy as recommended by National Tuberculosis Program (NTP). According to the WHO definition TB suspects are those with cough more than 3 weeks[12]. The age range 15-49 was selected because of high proportion of TB cases lie in this range, clinical picture of disease is different in children, and this is the range in which differentiation for other diseases are most difficult.

The study was conducted in February 2002 to August 2003. For the purpose of this study, a structured questionnaire was used to collect information on demography, type and duration of symptoms, and the result of smear microscopy and chest radiography. A total of 208 patients with history of respiratory tract symptoms were interviewed before going to routine smear microscopy. TB cases were categorized into four groups according to standard procedures as pulmonary with positive sputum smear, pulmonary with negative sputum smear, extra- pulmonary and non-TB cases. To confirm the sputum-smear negative patients were indeed PTB cases, as bacteriological and cultural facilities were not available. Therefore, they were subjected for radiological investigation for X-ray in zonal hospital and diagnosed from the TB lesions seen on lungs by doctors. The category of the patients was recorded as per registered in the clinic or hospital on the basis of either laboratory or radiological findings. Oral consent was obtained from all the subjects. Sputum smear microscopy was done for AFB by using Ziehl-Neelsen staining according to International Union Against Tuberculosis and Lung Diseases and WHO recommended standards[13-15]. Cases with a history of previous treatment for TB were not included in the study. All the completed questionnaires were edited, coded accordingly, for the quantitative information, SPSS version 10.1 was used for data entry, processing and analysis.

Results

During the period of study, a total of 208 patients complaining chest symptoms were interviewed. Among them 63 percent were males and 37 percent were females. Of these 208 patients, 110 (52.9%) were diagnosed as TB cases. A total of 110 TB cases, 85 (77.3%) had PTB with (62 (72.9%) sputum smear positive and 23 (27.1%) were sputum smear negative), 25(22.7%) were extra-PTB cases. Non-TB cases were 98.

Table 1: General demographic characteristics of diagnosed TB patients attended in DOTS main clinic of Kanchanpur district

Characteristics	Non-TB n (%)	Pulmonary TB n (%)	Smear+ve n (%)	Smear-ve n (%)	Extra pulmonary n (%)
Total	98 (100)	85 (100)	62 (100)	23 (100)	25 (100)
Age group					
15-25	15 (15.3)	25 (29.4)	19 (30.6)	6 (26.1)	6 (24)
25-35	43 (43.9)	23 (27.1)	21 (33.9)	2 (8.7)	7 (28)
35-45	32 (32.6)	20 (20)	13 (21)	7 (30.4)	9 (36)
45-50	8 (8.2)	17 (23.5)	9 (14.5)	8 (34.8)	3 (12)
Sex					
Male	63 (64.3)	54 (63.5)	44 (71)	10 (43.5)	14 (56)
Female	35 (35.7)	31 (36.5)	18 (29)	13 (56.5)	11 (44)
Living in neighbourhood					
Poor	69 (70.4)	68 (80)	51 (82.3)	17 (73.9)	18 (72)
Hygiene	29 (29.6)	17 (20)	11 (17.7)	4 (26.1)	7 (28)
Occupation					
Unemployed	10 (10.2)	17 (20)	13 (21)	4 (17.4)	6 (24)
Farmer	64 (65.3)	41 (48.2)	28 (45.2)	13 (56.5)	9 (36)
Student	8 (8.2)	14 (16.5)	11 (17.7)	3 (13)	6 (24)
Business	16 (16.3)	13 (15.3)	10 (16.1)	3 (13)	4 (16)

Table 1 shows about the general diagnostic characteristics of diagnosed patients. The patients were different in distribution of age, sex, socio-economic condition and occupation. The number of tuberculosis patients was greater than the number of non-tuberculosis patients.

The PTB cases were more likely to be young age group of between 15-25 and living in the poor neighbourhood as compared to non-TB, were more likely to age group of 25-35. Compared with the PTB patients to the non TB patients, the result was significantly different (P= -.437, 95% Cl, Paired t test). Extra-PTB cases were more likely from the age of 35-45 years. In contrast, to the PTB cases, this age group was also significantly different (P=-.533, 95% Cl, Paired t test).

The majority of TB and non-TB cases were occupationally dependent on farming and cases followed by businessmen in non-TB patients but least number of TB cases were businessmen.

Table 2: Frequency and nature of symptoms among the diagnosed patients in DOTS main clinic of Kanchanpur district

Symptoms	Non-TB n (%)	Pulmonary TB n (%)	P-value	Smear+ve n (%)	Smear-ve n (%)	Extra pulmonary n (%)	P-value
Total	98 (100)	85 (100)		62 (100)	23 (100)	25 (100)	
Major symptoms							
Cough	86 (87.8)	81 (95.3)		58 (93.5)	17 (73.9)	14 (56)	
Chest pain	31 (31.6)	31 (36.5)	0.157	37 (59.7)	15 (65.2)	9 (36)	0.001
Shortness of breath	15 (15.3)	61 (71.8)		41 (66.1)	13 (56.5)	8 (32)	
Haemoptysis	3 (3.1)	20 (23.5)		14 (22.6)	2 (8.7)	1 (4)	
Systemic symptoms							
Weight loss	8 (8.2)	77 (90.6)		53 (85.5)	18 (78.3)	17 (68)	
Tiredness	15 (15.3)	75 (88.2)		51 (82.3)	17 (73.9)	14 (56)	
Fever	17 (17.3)	58 (68.2)	0.001	49 (79)	15 (65.2)	13 (52)	0.001
Night sweats	5 (5.1)	49 (57.6)		31 (50)	9 (39.1)	12 (48)	
Loss of appetite	4 (4.1)	39 (45.9)		46 (74.2)	11 (47.8)	10 (40)	

Table 2 displays the distribution of symptoms according to diagnostic patients. Cough was found to be frequent in TB as well as non-TB patients. Majority of PTB patients' complained the shortness of breath (71.8%), followed by chest pain (36.5%), and haemoptysis (23.5%). Systemic symptoms among PTB patients were very frequent (weight loss-90.6%, tiredness-88.2%, fever-68.2%, night sweats-57.6% and loss of appetite-45.8%). These symptoms were similarly frequent among smear positive and smear negative TB patients. But the positive responses by extra-pulmonary tuberculosis patients on systemic symptoms was lower than the responses from pulmonary tuberculosis patients. The symptoms among non-TB patients were infrequently distributed with those of TB patients.

Discussion

In developing countries, the diagnosis of active TB is largely clinical suspicion and radiographic findings where applicable. Direct smear microscopy is the most reliable diagnostic tool for sputum positive cases of TB[1,9,15]. It is cheap, accessible and useful[17] in the most developing countries culture is not available for routine diagnosis.

Reducing the transmission of *Mycobacterium tuberculosis* depends crucially on prompt diagnosis and treatment, and every effort is necessary to reduce the diagnostic delay[16]. It is important a clear understanding of clinical characteristics that differentiates TB patients from other cases presenting to the health services, primarily with the respiratory symptoms. Few scientific researches have compared the clinical characteristics of confirmed TB cases and non-TB cases those complained chest symptoms. Because of this reason, although the tuberculosis suspect has been defined for operation purposes, this definition is not based for confirmation of non-tuberculosis patients[17, 18].

In this study, patients were selected on the basis of constellation of symptoms related with tuberculosis and these were termed as major symptoms (as cough from more than 3 weeks and others) while cough was very frequent among all the patients attended in the clinic. Therefore it was difficult to predict the suspects might be as tuberculosis patients only on the basis of cough and other systemic symptoms whose were most likely to have tuberculosis were selected. The accompanying symptoms of greatest predictive significance were fever, tiredness and night sweats. This was particularly the case among patients studied if the symptoms were long duration. Further the chronic cough was a frequent symptom amongst the people in terai of Nepal. There may be the several reasons for this as cigarette smoking and exposure to smoke from cooking fires in the poorly ventilated rooms' results in high rates of chronic bronchitis. Making a service more accessible to the population may mean that those who have a chronic cough, but are subjectively less unwell, are more likely attend on health facilities.

In the study setting, it was not possible to confirm that the sputum smear negative patients were indeed TB patients, as bacteriological cultural facilities were not available in hospital and public health clinic. Thus, it is not possible to certain that these patients were TB patients. The only tool used for their diagnosis is chest X-ray. But clinical course of patients' diagnosis suggests that they were TB patients: those designated as TB improved on treatment, while the state of those designated non- TB did not progress in the absence of specific anti-tuberculosis chemotherapy. Similar findings reported in the study conducted in Kolar district of Karnataka, India and out patients departments and chest clinics at the health centres in Sudan[19,20] . In addition, the results of this study can not necessarily be applied to the communities where HIV infection is frequent. Similar studies must be undertaken in such communities to determine the complex of symptoms among such patients and ability to distinguish TB from other diagnosis in such setting.

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