

Tuberculosis

Control

Yemen

A multicountry study in 7 Eastern Mediterranean countries: Egypt, Islamic Republic of Iran, Iraq*, Pakistan, Somalia, Syrian Arab Republic and Yemen

Case-finding in tuberculosis patients: diagnostic and treatment delays and their determinants

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Nationwide

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Abstract

A cross-sectional study was conducted in all tuberculosis centres implementing directly observed treatment, short-course (DOTS) strategy for tuberculosis control across Yemen, to determine the extent and determinants of delay in diagnosis and treatment of pulmonary tuberculosis patients. Using a structured and pre-tested questionnaire, 598 new smear-positive patients were interviewed regarding their health seeking behaviour and other determinants of delay in getting timely and appropriate care.

Results The mean diagnostic delay, defined as the interval between onset of symptoms and diagnosis, was 57.4 days. Patient factors constituted the main component of delay, rather than health system factors. The mean treatment delay, defined as the time interval between diagnosis and treatment, was 1.7 days and approximately half the patients were treated immediately following diagnosis.

The mean total delay, defined as the duration between onset of symptoms and treatment was 59.2 days for all patients and approximately half the patients were treated within 35 days. The significant risk factors for total delay were female sex, spending over 30 minutes to reach the health facility, and a high degree of stigma.

Conclusion A long time interval between onset of symptoms and treatment was reported, mainly attributed to patient rather than health care system factors.

Background

The global targets of tuberculosis control are to achieve 70% case detection and 85% cure rates by 2005. According to the WHO global report in 2001, directly observed treatment, short-course (DOTS) programmes in 2000 successfully treated 80% of all registered new smear-positive patients, but detected only 27% of the world's estimated tuberculosis patients. The report indicated that the target of 70% case detection might not be reached until 2013, unless interventions are implemented to increase the case detection rate. In Yemen, the case detection rate in 2000 was 60.1%, while the treatment success rate was 79%. Although this case detection rate is relatively higher than other countries of the Region, it is still below the global target.

A study was therefore undertaken of case-finding activities, with an in-depth analysis of the various types of delay and their determinants.

Materials and methods

Within the framework of a multicountry study, a cross-sectional study was conducted in all tuberculosis centres implementing DOTS in the country. 598 newly diagnosed smear positive pulmonary tuberculosis patients were enrolled using the cluster sampling technique based on probability proportionate to size sampling. Patients with longer diagnostic or treatment delays were compared to those with shorter delays. The median was used as a cutoff point for the different types of delay. **Definitions** Diagnostic delay is the time interval between onset of symptoms and pulmonary tuberculosis diagnosis. Treatment delay is the time interval between pulmonary tuberculosis diagnosis and onset of treatment. Health care system delay is the time interval between seeking care at a health care

Conclusions and implications of the study

■ The main health seeking behaviour with onset of symptoms is to visit a health care provider (88.8%). The majority of patients initially seek care at public or private health facilities (31.6% and 32.1%, respectively) but an increasing proportion then seek care at tuberculosis centres. The majority of patients (63.1%) are initially diagnosed in tuberculosis centres.

■ The first action after suspecting tuberculosis disease is to request a sputum smear examination (72.6%). Diagnosis is rarely based on chest X-ray only (1.6%), and referral accounts for 2.4% of cases.

■ Half the patients are treated within 35 days from the onset of symptoms. This is mainly attributed to patient rather than health care system factors. The significant risk factors for delay are female sex, spending more than 30 minutes to reach the health facility and high degree of stigma.

provider and pulmonary tuberculosis treatment. Total delay is the time interval between onset of symptoms and pulmonary tuberculosis treatment. This duration is therefore the sum of two previously calculated durations: patient delay (determined by health seeking behaviour) and health care system delay.

■ Main study findings

More than two-thirds of all newly diagnosed tuberculosis patients were aged < 35 years old, with a male to female ratio of 1.36.

Cough was reported by almost all patients, followed by fever and chest pain. Cough with any other complaint was the main symptom motivating patients to seek health care. The mean socioeconomic score was significantly lower in females compared to males, while there was no significant difference between them regarding knowledge of the disease, stigma or satisfaction with care.

Health seeking behaviour before diagnosis
The first health seeking behaviour for 88.8% of patients was to visit a health care provider, while the second was to self medicate, take traditional medicine or seek advice from a health worker at home. Before diagnosis, half the patients had spent US\$ 8, with an average amount spent of US\$ 20. At first, the majority of patients seek care at public (31.6%) or private (32.1%) health facilities, but afterwards an increasing proportion seeks care at tuberculosis centres. Patients first seek care mainly at chest specialists (34.7%), specialists in internal medicine (38.0%) and general practitioners (25.2%). Half the patients visited 1 health care provider before diagnosis, with a mean of 1.16 (0.92), ranging from 0–6.

A high level of tuberculosis stigma was recorded among tuberculosis patients, and the majority of patients (80%) had previously heard about tuberculosis. The source of information was friends/relatives with the disease (39%), friends and relatives (27.1%), and Ministry of Health campaigns (23.9%).

Half the patients were satisfied with the availability of services and the promptness of action from health care providers, but there was suboptimal satisfaction with the availability of free drugs, coverage of health services, workloads and waiting times. Almost 60% of patients reported that their reasons for consulting the tuberculosis centres were their accessibility and confidence in getting a cure.

Initial tuberculosis diagnosis The majority of patients were diagnosed in the tuberculosis centres (63.1%), and diagnosis was mainly done by chest specialists (66.6%). The first action after suspicion of tuberculosis was to request sputum smear examination (72.6%), but X-rays were infrequently performed.

Access to public health facilities More than

half the patients were able to reach the health facility in less than 30 minutes, 29.9% in 30 minutes to 1 hour and 19.2% in more than 1 hour.

■ Types of delay

The mean patient-related diagnostic delay was 39 days and approximately half the patients took 28 days to seek health care. The significant risk factors for patient-related diagnostic delay were: female sex (2-fold increased risk) and inadequate knowledge regarding the disease (1.1-fold increased risk of delay for each unit of poor knowledge).

The mean diagnostic delay was 57.4 days and approximately half the patients were diagnosed within 35 days. The mean treatment delay was 1.7 days and approximately half the patients were immediately treated. The mean health care system delay was 20 days with a median of 4 days.

Total delay The mean duration between onset of symptoms and treatment was 59.2 days and approximately half of the patients were treated within 35 days. The significant risk factors for total delay were: female sex (2.3-fold increased risk); spending more than half an hour to reach the health facility (1.8); and high degree of stigma (1.7).

■ Conclusions and recommendations

The long time interval between onset of symptoms and treatment reported in this study was mainly attributed to patient-related diagnostic delay rather than delay within the health care system. Detection, follow-up and treatment of cases should be improved by: integrating the tuberculosis programme into other existing health services at all levels; involving outreach community workers and other agencies working in health service provision; and increasing community awareness through health education, using appropriate channels.