Diagnosis of smear-negative pulmonary tuberculosis among TB suspects presenting to health centres in Zomba district

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Abstract

A study was carried out in 19 health centres in Zomba district to determine what happens to pulmonary tuberculosis (PTB) suspects who submit sputum specimens at health centres and whose sputum smears are found to be negative for acid-fast bacilli (AFB). Of 307 PTB suspects with negative sputum smears during the third quarter of 1999, 34 (11%) were referred for chest x-ray. Of these, 25 (74%) were registered with smear-negative PTB. The mean number of days between sputum submission and registration for smear-negative PTB was 15 days. Further research needs to be done to determine what happens to the majority of patients who are not referred for further investigation.

Introduction

Patients with chronic cough in Malawi may present to hospitals or health centres for treatment. At these visits, they may be asked to submit sputum specimens for smear microscopy for acid-fast bacilli (AFB). A country wide study conducted in 1997 showed that nearly 80% of patients submit sputum specimens directly to hospitals while the remaining 20% submit at health centres[1]. If sputum smears are positive for AFB, the patient is referred to the district TB officer for registration and treatment of smear-positive pulmonary tuberculosis (PTB). If sputum smears are negative, the patient is given antibiotics and, if there is no response, a chest radiograph is performed. The diagnosis of smear-negative PTB is made on the basis of cough > 3 weeks, no response to antibiotics, negative sputum smears and a chest x-ray compatible with tuberculosis[2]. An important determining factor is the chest x-ray, and patients therefore have to be referred to a facility where there is a functioning x-ray machine. We have no information about what happens to patients who submit sputum specimens at health centres and whose sputum smear results are found to be negative. We conducted an audit of health centres in Zomba district to determine the diagnostic outcome of PTB suspects whose sputum smears were negative.

Methods

Zomba district had a population in 1999 of 640,000 (source: National Statistics Office). There is one central hospital, one mission hospital and 30 health centres. The hospitals are the only health facility where sputum specimens can be examined for AFB and chest x-rays performed. 19 health centres collect sputum specimens from PTB suspects and submit these to Zomba Central Hospital for smear microscopy. All these health centres were visited, and chronic cough registers at each health centre were inspected. The following information was obtained on patients who had been entered into the register during the third quarter of 1999 and whose sputum smears were negative: name, sex, date of sputum submission, and whether the patient had been referred to the central hospital for chest x-ray. Names of patients were taken back to the central hospital and compared with the names in the TB register for the third and fourth quarter of 1999 to determine i) whether the patient was registered as smear-negative PTB and ii) the date of registration.

Results

There were 307 PTB suspects, 131 men and 176 women. 34 (11%) patients were referred for chest x-ray: 16 (12%) men and 18 (10%) women. Of those referred for chest x-ray, 25 (74%) were registered with smear-negative PTB: 12 (75%) men and 13 (72%) women. The mean number of days between sputum submission and registration for smear-negative PTB was 15 days.

Discussion

This study shows that just over 10% of patients who had negative sputum smears at health centres were referred for chest x-rays, and of those referred about 75% were diagnosed with smear-negative PTB. There were no gender differences. The average length of time between sputum submission and registration in those diagnosed with smear-negative PTB was 2 weeks.

The reasons why the majority of patients with negative sputum smears are not investigated are speculative, and require further research. Further studies are needed to determine a) what criteria are used at health centres for requesting sputum submission and b) the clinical status and outcome of those sent home. The National TB Control Programme believes that there are many patients in rural areas with PTB who remain undiagnosed. Quantifying the magnitude of this problem and finding appropriate solutions are important tasks that lie ahead.

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