

Management and outcomes of suspected pulmonary tuberculosis in a resource-poor setting

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Citation

O Busari, O Olarewaju, O Busari. *Management and outcomes of suspected pulmonary tuberculosis in a resource-poor setting*. The Internet Journal of Pulmonary Medicine. 2008 Volume 11 Number 2.

Abstract

Objective: The objective of the study was to determine the management and outcomes of suspected pulmonary tuberculosis admitted to the medical wards of a tertiary and referral hospital in Nigeria **Methods:** It was a retrospective study of the case records of all suspected pulmonary tuberculosis patients on admission in the medical wards of the hospital between July 2003 and June 2007 **Result:** 166 (9.9%) of 1680 admissions were pulmonary tuberculosis suspects, with 97 (58.4%) males and 69 (41.6%) females. 92 (55.4%) had pulmonary tuberculosis diagnosis confirmed. Other diagnoses made were: pneumonia, 48 (28.9%), bronchogenic carcinoma, 6 (3.6%), congestive heart failure, 7 (4.2%), chronic obstructive pulmonary disease, 15 (9.0%). Median length of time between admission and institution of antituberculosis drugs was 11 days **Conclusion:** The study shows that the tuberculosis control in Nigeria is in a crisis state. There is need for all stakeholders to find lasting solutions to failure of tuberculosis program in Nigeria and, by extension, sub-Saharan Africa.

INTRODUCTION

Tuberculosis (TB) remains a public health burden to the global community with the highest impact in the developing countries of the world. More than eight million people develop active TB every year, and about two million die. ¹ Almost two decades after the initiation of DOTS strategy, there seems to be no end to an infection that is one of the world's leading causes of death; no thanks to the fueling impact of HIV pandemics. However, HIV alone can not take all the blames for the failure of the global TB control. This is because in some developing countries like Nigeria, the DOTS strategy has largely not been well implemented. ^{2,3,4,5} The Federal Medical Centre, Ido-Ekiti, Nigeria, is a tertiary hospital that serves the whole of Ekiti and other adjoining states in the southwestern zone of the country. It is a referral centre for primary and secondary health institutions. Although this hospital manages a large number of PTB suspects, the management and outcome of these patients have not been previously documented. The objective of the study was to determine the management procedures and the outcomes of suspected PTB suspects admitted to the medical wards of a tertiary hospital in Nigeria.

METHODS

The case records of all the admissions into the medical wards between July 2003 and June 2007 were

retrospectively studied. The study protocol was approved by the Ethical and Research Committee of the hospital. The case records were scrutinized for information which indicated that a patient was a PTB suspect. These are: 'PTB', 'AFB' (acid fast bacillus), 'rule out or keep in view PTB', 'sputum smear examination', 'chronic cough', 'chronic cough with haemoptysis' or 'Koch's disease'. Other data extracted from the case folders included age; gender; the processes of sputum collection, transportation to the laboratory, and examination for Mycobacterium tuberculosis; request for chest X-rays (CXR); prescription of antibiotics; and request for HIV voluntary counseling and testing (VCT). Patients' outcome was classified as death, discharged against medical advice or absconded, discharged home, or transferred to other hospitals. Data were entered and analysed using Epi Info 6.4 software package. Descriptive statistics were used to summarize data.

RESULTS

A total of 1680 admissions were made during this period. 892 (53.1%) and 788 (46.1%) were male and female respectively. There were 166 (9.9%) PTB suspects comprised of 97 (58.4%) males and 69 (41.6%) females. The mean (\pm SD) age was 32.6 ± 12.7 years. The major diagnoses in PTB suspects were PTB in 92 (55.4%) and pneumonia in 48 (28.9%) patients. The most common key words or statements in the case files indicating that patients

were PTB suspects were 'PTB' and 'rule out or keep in view PTB' in 107 (64.5%) and 40 (24.1%) patients respectively.

The details of the processes of sputum smear and CXR request and examination are highlighted in table 1. Although sputum smear examination was requested in the majority of the patients (91.6%), the sputum samples were not collected and analysed in all of them (as shown in table 1). In 73 (89.0%) patients, there was record in their case folders of sputum smear results. The median time between admission and the written request for sputum examination was 1 day (range was 1-6 days), while the median time between admission and the availability of result of sputum examination was 7 days (range was 3-13 days). There was a written request for CXR examination in 89.8% of PTB suspects and was performed in more than four-fifths of the requests (table 1). CXR examination was carried out without sputum smear for AFB in 28.3% of the suspects. Antibiotics were prescribed for all the patients during admission. In 90 (54.2%) patients, there was a written request in their case files for VCT. However, less than a quarter of them agreed to VCT. PTB was diagnosed in 69 (41.6%) patients with 28 and 41 smear positive and smear negative respectively. The median time between admission and diagnosis of PTB was 8 days, with a range of 2-14 days. Of all the 69 diagnosed PTB cases; 7 (10.1%) died and 5 (7.2%) discharged against medical advice or absconded. However, the remaining 57 (82.6%) patients were registered for antiTB treatment. There was a median of 3 days (range was 1-12 days) between diagnosis and commencement of antiTB treatment. Thus, patients with PTB had a median of 11 days between admission into the wards and commencement of antiTB drugs. After one month, two months, four months and six months after hospital discharge, 46 (80.7%), 37 (64.9%), 31 (54.4%), and 24 (42.1%) of the treatment-registered patients attended the follow-up out-patient clinic for clinical review and drug refills

Figure 1

Table 1: Processes of sputum smear and chest X-rays request and examination in PTB suspects

Investigation	No (%) of PTB suspects
Sputum smear	
(a) PTB suspects	166
(b) Sputum smear requested	152 (91.6% of a)
(c) Sputum specimen collected	138 (89.6% of b)
(d) Sputum specimen examined	97 (70.3% of c)
(e) Number of sputum specimen examined per patient	
Three	53 (54.6% of d)
Two	26 (26.8% of d)
One	18 (18.6% of d)
(f) Sputum smear results recorded or kept in case folders	78 (89.0% of d)
Chest X-rays	
(g) Chest X-rays requested	140 (89.8% of a)
(h) Chest X-rays performed	116 (82.9% of g)
(i) Chest X-rays reports recorded or kept in case folders	92 (79.3% of h)

Pneumonia was the diagnosis in 48 (28.9%) of the PTB suspects. The median number of days from admission to diagnosis was 4 days (range was 1-10 days). The outcomes were shown in table 2 below.

Figure 2

Table 2: Outcomes of PTB suspects with pneumonia

Outcome	Frequency (%)
Discharged	38 (79.2%)
Transferred to other hospitals	2 (4.2%)
Discharged against medical advice/absconded	3 (6.3%)
Dead	5 (10.4%)

Other diagnoses made were: 6 (3.6%) bronchogenic carcinoma, 7 (4.2%) congestive heart failure, 15 (9.0%) chronic obstructive pulmonary disease (table 3). The remaining 16 (9.6%) patients had no documented definitive diagnosis in their case folders.

Figure 3

Table 3: Diagnoses made from PTB suspects

Diagnosis	Frequency
Bronchogenic carcinoma	6 (3.6%)
Congestive heart failure	7 (4.2%)
Bronchial asthma	5 (3.0%)
Chronic obstructive pulmonary disease	15 (9.0%)
No documented definitive diagnoses	16 (9.6%)

DISCUSSION

This study shows that about 10% of admissions into the medical wards of a referral tertiary hospital were PTB

suspects. This result confirms the previous reports that TB remains a major health issues in sub-Saharan Africa.⁶⁷⁸ This figure is however lower than findings of similar studies conducted in Malawi.⁷⁹ But while the Malawian studies focused on TB suspects (including extrapulmonary TB), we studied the PTB suspects only. Our study also reveals that gross inadequacies characterized the processes of sputum specimen collection, transportation to the laboratory and sputum smear examination. This is similar to the findings of the Malawian study⁷. A situation where only a fraction of PTB suspects had three sputum smears examined during a medical admission paints a gloomy picture of the TB control in a country with one of the highest numbers of new cases of TB per year.² The very poor status of TB control in Nigeria may be due to some of the recurrent factors such as: deplorable state of health infrastructure; poor government commitment and official corruption; paucity of well-skilled human resources in health services; and near non-existence of DOTS in many parts of the country. Lack of quality-assured TB laboratory services is a major obstacle to the control of this disease in most developing countries. Where TB laboratory services exist at all, there is little or no quality control which purpose is to improve the efficiency and reliability of smear microscopy, recording and reporting.¹⁰

There is much underdiagnosis and delay in diagnosis of PTB in this study. This is a risk factor for nosocomially-acquired TB among healthworkers and other patients on admission.¹¹ Contact with TB patients, especially those who are smear positive, constitutes a significant risk factor for acquiring TB in Nigeria where there is ravaging poverty and undernutrition, overcrowding from poor housing policies and population explosion, and escalating new HIV/AIDS infections. Measures are therefore needed to protect healthworkers and patients from nosocomial TB transmission. A small proportion of patients registered for treatment turned up for follow up visits after the initial discharge from the hospital. The DOTS strategy dictates that patients should be directly observed while taking all their antiTB drugs.¹²¹³ But, this is not the case in our hospital. We run an appointment-based follow-up system where patients come to the facility for clinical visits and drug refills at intervals ranging from one to four weeks. This is also the system in most tertiary hospitals in Nigeria where DOTS often exist only at the level of theory. In Nigeria, the implementation of DOTS by the national TB control programme is chaotic with less than 10% of TB cases using it and case detection and cure rates below 50%.¹⁴

Our reports also show that little efforts were made by the managing doctors to know the HIV status of the PTB patients. This is evident by the fact that there was no written request for VCT in many patients' case folders. This finding is similar to that of the Malawian study where a similar deficiency was obtained.⁷ It also bring to fore the failure of various efforts and programmes aimed at integrating TB and HIV services in the country. A review of TB services by UNAIDS in selected Southern African countries revealed that neither HIV education nor VCT were offered to TB patients. However, implementing VCT for TB patients could be successful as it has been shown in Cote d'Ivoire, Malawi and Thailand where more than 80% of TB patients consented to HIV testing.¹⁵¹⁶

Our study is an eye-opener to the inherent deficiencies in all processes and stages from diagnosis to institution of treatment and follow-up of patients. While some countries have made progress in the implementation of DOTS,²⁴⁵ that can not be said of Nigeria. The situation of TB control in Nigeria has reached a crisis state. The disease has become a "public health emergency". There is need for all the stakeholders including the development partners to come to the drawing board to chart a new course for TB control in Nigeria and Africa at large. The following recommendations may be useful: establishment of a National Action Committee on TB which is autonomous from the Federal Ministry of Health and receives direct funding from the Presidency; strict implementation of DOTS policy at all levels of healthcare delivery system; institution of home-based care and antiTB drug delivery to strengthen DOTS systems; practice-oriented capacity building for healthcare workers on TB diagnosis, treatment and control; and adequate motivation of healthcare workers by better remuneration and provision of conducive and productive work environments.

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