ORIGINAL ARTICLE

An Audit of Tuberculosis from a Private Hospital in Karachi

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Abstract

Objectives: To review the presentation, treatment and outcome of tuberculosis in our Department.

Methods: Audit was conducted at Karachi Adventist Hospital and study period was from 1st July 2007 to 30th June 2008. All new patients with tuberculosis who were admitted to the medical wards or registered at the medical outpatient clinics during the above period were included in the study. Patients with tuberculosis previously admitted to our hospital or already attending our outpatient clinics were excluded. Each file was examined in detail and the required information was transferred to a Performa. Files were reviewed after 6-12 months interval to document their outcome

Results: A total of 176 patients (104 females and 72 males) were included in this audit. Age ranged from 10 years to 104 years and 64% of patients were ≤ 40 years of age. Pulmonary disease was observed in 96 cases (55%) and extra pulmonary tuberculosis was seen in 80 cases (45%). Diabetes Mellitus was present in 26 patients (14.8%) and chronic liver disease was documented in 5 patients (2.8%). 120 patients (68.1%) completed treatment, 48 defaulted (27.3%), 7 transferred out (4%) and 1 patient (0.6%) expired.

Conclusion: A significant number of patients with tuberculosis are being treated in private sector and their default rate remains high. There is an urgent need to extend tuberculosis control program to private sector.

Key Words:
Tuberculosis, audit, private sector

INTRODUCTION

Pakistan is ranked sixth most burdened country for tuberculosis in the world.[1] a tuberculosis control program is running in the country for more than two decades but we are far from meeting our goal of controlling tuberculosis in Pakistan.

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Directly Observed Short Course (DOTS) was introduced in Pakistan in 1995 and DOTS coverage for 100 % of population was achieved in 2005[1]. The access to DOTS does not mean that majority of our population is using DOTS centers for treatment of tuberculosis.

A large segment of population in Pakistan remains unsatisfied with public sector health services and prefers to use private health care. Unfortunately; very little data about tuberculosis is available from private sector in Pakistan. Tuberculosis is not a notifiable disease in Pakistan and there is no mechanism to collect data of tuberculosis from private sector. Large number of physicians and general practitioners continue to treat tuberculosis outside the DOTS program and anti-tuberculous drugs are freely available over the counter.

Recently, there have been efforts to involve private sector in the treatment of tuberculosis under private public partnership; but this is patchy and is only on a small scale.

This audit was conducted at Karachi Adventist Hospital which is a private hospital and located in the centre of the city.

AIMS & OBJECTIVE

To review the presentation, treatment and outcome of tuberculosis in our department.

METHODOLOGY

This study was conducted from 1st July 2007 to 30th June 2008. All new patients with tuberculosis who were admitted to the medical wards or registered at the medical outpatient clinics during the above period were included in the study. Patients with tuberculosis previously admitted to our hospital or already attending our outpatient clinics were excluded. A total of 176 patients fulfilled the above criteria and were included in the audit. A Performa was filled in for each patient after detailed examination of the record. Details on Performa include; Age, Sex, Residential address, Occupation, Type of tuberculosis, Self or Company financed, History of diabetes, hepatitis & HIV, Sputum/ fluid AFB microscopy, Sputum/fluid AFB culture, Treatment received, Any adverse drug reaction, Treatment outcome, Any other relevant information.

Records of all patients were reviewed after 6-12 months interval to document their treatment outcome. The data was then tabulated in Microsoft Excel, analysed and compared with previous studies.

RESULTS

Distribution of Age and Sex

It is given in **Table 1**. Age of patients ranged from 10 to 104 years. 64% of patients were 40 years old or younger and 59% were females. Five health care workers were identified in this group.

Type of tuberculosis

Pulmonary disease was diagnosed in 96 patients (55%) and extra pulmonary tuberculosis in 80 patients (45%) as shown by table 2.

Results of AFB smears & cultures

AFB smears were examined in 121 patients; the rest did not produce any sputum or had extra pulmonary disease. 64 patients had positive sputum smears and one patient had positive pleural fluid smear. AFB cultures on sputum and other tissue material were done in 40 patients. 29 AFB cultures were positive (25 sputum, 3 pleural and 1 urine). Five cultures confirmed MDR tuberculosis.

Distance between residence & hospital

These patients came for treatment from all towns of Karachi and few of them came from outside the city (Table 3). About 40% of patients came from two adjacent towns, within 5 km of hospital.

Adverse Drug Reactions

18 patients had side effects from anti-tuberculous drugs. Hepatitis/disturbed LFT's was the commonest side effect which was observed in 13 patients. Others side effects were skin rashes (3), gastrointestinal disturbance (1) and joint pains (1). All patients with disturbed LFT's were able to continue the treatment after re-introduction of ATT.

Fixed Dose Combination

129 cases (73%) were treated with fixed dose combination treatment.

Association with diabetes/ hepatitis and HIV

Diabetes mellitus was present in 26 patients (16 females & 10 males). Diabetes was associated with 17 cases of pulmonary tuberculosis and 9 cases of extra-pulmonary tuberculosis.

Five patients had associated chronic liver disease. All of them tolerated anti-tuberculous treatment and completed their treatment.

Outcome & Default Rate

It is summarized in Table 4. The mortality was < 1% but default rate was around 27%.

TABLE 1 (Age & Sex Distribution)

AGE GROUP	MALE	FEMALE	TOTAL	Percentage
Up to 20 YRS	19	28	47	26.70
21-30	18	24	42	23.86
31-40	8	15	23	13.07
41-50	9	13	22	12.50
51-60	5	10	15	8.52
61-70	6	11	17	9.66
Above 70YRS	7	3	10	5.68
TOTAL	72 (40.91%)	104 (59.09%)	176	

TABLE 2 (TYPES OF TUBERCULOSIS)

Total cases	**176**
Pulmonary Tuberculosis	**96**
Smear positive	64
Smear negative	32
Extra pulmonary TB	**80**
Lymphadenitis (Meditational)	15
Lymphadenitis (others)	12
Pleural	19
Abdominal	15
Genitourinary	7
Meningitis	4

	Skeletal	5
	Skin	1
	Disseminated (Miliary)	2

TABLE 3 (Catchment Area)

City Town	Number of Patients
Saddar	51
Jamshed town	20
Gulshan	16
Lyari	13
Site	8
Gulberg	8
New Karachi	8
Shah Faisal	7
Nazimabad	5
Landhi	5
Korangi	5
Kemari	5
Liaquatabad	4
Malir	4
Baldia	3
Gadap	3
Orangi	3

Bin Qasim	1
from outside Karachi	7
Total	176

TABLE 4 (Outcome of Treatment)

Outcome	Pulmonary			Extra-Pulmonary	Total	Percentage
	P+ *	P- *	Total			
Completed treatment	45	19	64	56	120	68.18
Defaulted	12	13	25	23	48	27.27
Expired	0	0	0	1	1	0.57
Transferred out	7	0	7	0	7	3.98
TOTAL	64	32	96	80	176	

**P+ Smear positive P- Smear negative*

Discussion

In our study 64% of patients are 40 years old or younger and 59% are women. Age distribution is in line with previous studies but incidence of tuberculosis in women (59%) is much higher than previously reported in Pakistan[3-6]. This may be just by chance or suggest that more females are now reporting for treatment. This needs to be confirmed by further studies.

We have much higher incidence of extra-pulmonary tuberculosis (45%) than reported by World Health Organisation (17%) [7]. This discrepancy may be due to fact

that WHO data is mostly collected from DOTS centres in Pakistan. These centres mainly deal with pulmonary and pleural disease. Two previous studies from Pakistan has reported the incidence extra-pulmonary tuberculosis at 50% and 33% respectively.[3&8] Studies Kruijshaar et al from UK and Peto et al from USA suggest that the incidence of extra-pulmonary tuberculosis is increasing.[9-10]

In our studies, tuberculosis is associated with diabetes mellitus in 15% of cases. Both pulmonary and extra-pulmonary tuberculosis was associated with diabetes mellitus, but the incidence of pulmonary tuberculosis was higher in diabetics. A recent meta-analysis of 13 studies from all over the world has shown increase incidence of tuberculosis in diabetics.[11] Similar association has been reported from Pakistan.[12]

Five cases of chronic liver disease (CLD) were documented and all of them tolerated anti-tuberculous medication. Chronic liver disease is a very common problem in Pakistan due to high prevalence of hepatitis B & C. Treatment of tuberculosis in these cases is very challenging as most anti-tuberculous drugs are hepatotoxic and tolerance of these drugs is poor in CLD.

Our default rate was about 27% which looks high as compared to default rates at DOTS centers in Pakistan. But similar default rates have been reported for treatment of tuberculosis in Pakistan in conventional outpatient clinics[6, 13]. The initial default rate at a DOTS centre in Karachi was also reported at 27%[14]. Most private setups including our own do not have a re-call system for defaulters. Previous studies have shown that it can increase the compliance and reduce default rates[13-14] . The default rates were lower in patients who lived close to the hospital. Default rate was also marginally higher in self financed patients (29%) than company financed patients

(25%). There is a possibility that some of these patients switched to general practitioners, other physicians or DOTS centers and completed their treatment.

Most poor /low income countries including Pakistan have a very large private sector[2]. It is now increasingly recognised that involvement of private sector will be necessary to control tuberculosis in poor countries and for this Public Private Mix (PPM) strategy has been recommended[15-16]. Several of these projects have been reported from different regions of India[17-23]. PPM has shown marked improvement in case detection and cure rates. Similar ventures have been reported from other low income countries like Nepal, Myanmar, Uganda, Nigeria and Philippines.[24-28] Two published studies of PPM in Pakistan have shown encouraging results.[29-30]

In our opinion following measures will be very helpful for control of tuberculosis in Pakistan

- Tuberculosis should be declared a notifiable disease in Pakistan; so that we can obtain reliable tuberculosis data from all segments of health sector. Health Department has shown that it can successfully collect HIV, Swine flu and Dengue fever data from private hospitals. We are confident that it is capable of collecting data about tuberculosis from private hospitals, laboratories and general practitioners.
- There is an urgent need to extend PPM at a large scale. We will not be able to control tuberculosis unless we engage our general practitioners, physicians and specialists in private sector in tuberculosis control program.
- To make the DOTS program universally acceptable, we need to improve facilities and image of our public health facilities /DOTS centres and make them patient friendly.

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