

ORIGINAL ARTICLE

NEED FOR ESTABLISHING A LINKAGE BETWEEN TERTIARY CARE HOSPITALS AND PERIPHERAL DOTS CENTERS

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ABSTRACT:

Background: Despite gradual improvement in recent years, Pakistan is still lagging behind in achieving the global target of tuberculosis (TB) case detection rate. The absence of referral systems of TB patients diagnosed in wards of tertiary hospitals may be one of the reasons.

Objective: To assess the number of TB patients diagnosed in pulmonology department of a teaching hospital and refer them to their nearby treatment centers.

Methods: This was a cross sectional study conducted from March 2009 to October 2009 at pulmonology unit of Lady Reading Hospital, Peshawar. All patients diagnosed as active TB patients presented to Pulmonology department were included. Patients' data including age, sex, address, type and site of TB and sputum status were noted. On discharge the patients outside from hospital catchment area were referred to their respective nearby health centers.

Results: A total 785 patients were diagnosed as TB in a period of 8 months. One hundred and twenty two patients were suspects of drug resistance TB and were excluded from the study. Among the studied 663 patients, 227 (34.23%) diagnosis were made in chest ward while 436 (65.76%) were made in outpatient department (OPD). Among them, 638 (96.2%) were new TB cases and 364 (55%) suffered from pulmonary TB. All 227 patients diagnosed in the chest ward were from the areas outside hospital catchment area and were referred to their respective nearby DOTS centers. Out of 436 TB patients diagnosed in OPD 254 (57.3%) patients were from outside the hospital catchment area and were referred to their nearby DOTS centers.

Conclusion: The number of TB patients diagnosed and referred from ward to their respective districts is almost equal to the number of patients referred from OPD. As no integrated referral system for diagnosed TB cases exists in wards of tertiary hospitals, there is high probability of initial default.

Introduction:

Tuberculosis is a major public health challenge to the world for a very long time. Despite the availability of highly effective pharmacotherapy, TB still remains as a major public health problem globally with an estimated 8.5-9.2 million cases and 1.2-1.5 million deaths in 2010¹. Untreated pulmonary TB is found to cause death in 70% of smear positive, Human Immunodeficiency Virus (HIV) negative patients within 10 years². Unfortunately, Pakistan ranked 5th in 22 global high burden countries with incidence, prevalence and mortality (in HIV negative TB patients) rates of 231, 364 and 58 per 100000 population respectively in 2010¹.

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One of the main strategies to control TB is to find and treat people with active disease^{3,4}. Unfortunately low rates of TB detection and cases notification to National Tuberculosis control Program (NTP) in developing countries is one of the main reason for poor TB control⁵. The WHO directly observed therapy-short course (DOTS) strategy was implemented in Pakistan in year 2001. It took four years to bring DOTS coverage to all public health facilities (by mid-2005)⁶. Up till 2005 Pakistan remained far behind the global target of case detection rate of 70%.

Some of the observed and well documented reasons for poor TB case detection rate in developing countries are lack of involvement of private sector in TB control programs, non-notification of the diagnosed TB patients in private sector to NTP and ⁷⁻⁸. Private sector is used as an entry point to the health care sector by most patients in developing countries. For example in Pakistan and India, 60-80% of outpatient health care is provided by private sector⁷⁻¹¹. In order to achieve TB control by promptly diagnosing TB patients, notifying them to NTP and providing them standardized care; Pakistan NTP has engaged non-profit organizations for the implementation of Public Private Mix (PPM) DOTS pilot projects. These projects have contributed 20% (n=51563) of new notified cases in 2010¹; a remarkable achievement.

Despite gradual improvement with estimated case detection rates of 65% in 2010 as compared to 4.5% in 1995, 3.3% in 2000 and 39% in 2005¹, Pakistan is still lagging behind achieving global goal of case detection rate of 70%. This indicates the presence of some flaws in the DOTS program in Pakistan which need to be probed, addressed and properly sorted out. Two important factors which may be responsible for low case detection rate in the country are lack of involvement of private sector and teaching hospitals in the DOTS strategy.

Tertiary teaching hospitals play a vital role in TB control programs¹². These hospitals not only serve as diagnosing & treatment centers, but also provide training & research. Patients presented to these hospitals come from a vast catchment area. Most patients diagnosed as TB in these hospitals do not belong to their catchment area; hence proper follow up of these patients is not possible by the treatment center of the hospitals. In order to achieve goal of 75% case detection these patients need to be referred to their respective districts DOTS centers for registration and receiving supervised treatment.

In the present study we hypothesized that the majority in-patients who are diagnosed in such teaching hospitals do not get properly referred to the respective districts' DOTS & do not get registered with the TB control program and hence adversely affect the case detection.

Objectives:

To assess the number of TB patients diagnosed in chest ward and outpatient department (OPD) of pulmonology unit of tertiary teaching hospital, refer them to their nearby treatment centers in the periphery and compare the referrals made from OPD and chest ward.

Methodology:

This was a cross sectional study conducted from March 2009 to October 2009 at pulmonology unit of Lady Reading Hospital (LRH), Peshawar; a major tertiary teaching hospital in Khyber Pukhtoonkhwa, Pakistan. All patients diagnosed as active TB patients (pulmonary and extra-pulmonary) presented to pulmonology unit of LRH in the study period were included. Diagnosis was made according to WHO criteria for active tuberculosis cases (13). A register was maintained in the ward for patients diagnosed as tuberculosis. Patient data including age, sex, and address, type and site of TB and sputum status were noted. On discharge they were referred to their respective nearby health centers. The entries were made by the doctor on the bed concerned, DOTS facilitator from OPD or nursing staff in their absence.

Verbal consent was taken from the patients before enrolling them in the study. This study was approved by the institutional research ethical committee.

Inclusion criteria:

- Patients diagnosed either as new cases or relapse cases but not registered for TB treatment elsewhere.

Exclusion criteria:

- Patients registered for TB treatment elsewhere but admitted to chest unit for treating TB complications or any other disease.
- Suspects of drug resistance TB.

Statistical analysis:

Data was analyzed by using Microsoft Excel. Categorical data was presented as frequencies and percentages while continuous data was presented as mean $\pm$ SD.

Results:

A total 785 patients were diagnosed as TB in a period of 8 months. One hundred and twenty two patients were suspects of drug resistance TB and were excluded from the study. Among the 663 studied patients, 342 (51.6%) were males and 321 (48.4%) were females with the mean age of 47 ± 9.8 years. Two hundred and twenty seven (34.23%) TB diagnosis were made in chest ward while 436 (65.76%) were made in OPD. Among the studied patients 638 (96.2%) were new TB cases, 15 (3.8%) were relapse, 364 (55%) suffered from pulmonary TB and 299 (45%) suffered from extra pulmonary TB. Only 182 (27.4%) patients belonged to LRH catchment area, while the majority; 481 (72.6%) were from the areas other than LRH catchment area (Table I).

All 227 TB patients diagnosed in chest ward were from the areas outside the hospital catchment area and were referred to DOTS centers in the periphery. Out of 436 TB patients diagnosed in OPD 182 (41.7%) belonged to the catchment area of the hospital and were registered in DOTS (TB 03) while remaining 254 (57.3%) patients were from outside the hospital catchment area and were referred to their nearby treatment DOTS centers in the periphery (Table II).

Table I: Patients' demographics, disease characteristics and diagnosis location

Variable	Mean $\pm$ SD	No. (%)
Gender		
Male		342 (51.6)
Female		321 (48.4)
Age (years)	47 $\pm$ 9.8	
Location of diagnosis		
Chest ward		227 (34.2)
OPD		436 (65.8)
Treatment History		
New		638 (96.2)
Relapse		15 (3.8)
TB site		
Pulmonary		364 (55)
Extra Pulmonary		299 (45)
Sputum status		
Smear +ve		222 (61)
Smear -ve		142 (39)
Catchment area		
LRH catchment area		182 (27.4)
Outside catchment area		481 (72.6)

OPD, outpatient department; SD, standard deviation

Table II: Number of patients diagnosed, registered and referred by chest ward and OPD

Variables	No. (%)
TB patients diagnosed	
Chest ward	227 (34.2)
OPD	436 (65.8)
TB patients registered in Hospital treatment centers	
By chest ward	0 (0.0)
By OPD	182 (41.7)
TB patients referred to the peripheries	
By chest ward	227 (100)
By OPD	254 (57.3)

OPD, outpatient department

Discussion:

Lady Reading Hospital (LRH) is a premier teaching hospital in Khyber Pukhtoonkhwa, Pakistan. Being the tertiary care hospital, LRH attracts patients from a very wide area i.e. most parts of the province, and nearby areas of Punjab and Afghanistan. In the present study a large number of patients (n = 663) were diagnosed as TB in the short

time period of 8 months, among which 481 (72.6%) were from the areas outside the hospital catchment area. A system exists in LRH where the TB cases diagnosed at OPD are referred to their respective district TB offices if they are not from the catchment area of the hospital. However no such organized referral system exists for patients who are admitted to various units of the hospital. Unless these patients are referred to their respective treatment centers after diagnosis of TB is made, a fairly large number of TB patients are going to miss out on registration and may receive unsupervised treatment.

There are a large number of tertiary & district general hospitals in the country & they attract a large number of TB patients, therefore NTP needs to strengthen DOTS in such institutions with special emphasis on development of linkages between District TB control offices & these hospitals. Despite the fact that in the present study the number of patients referred from chest ward (n=195) was almost equal to the number of patients (n=254) referred from OPD, TB control program and its various partners have focused all its attention on the patients diagnosed and registered at OPDs & TB control centers, but tend to overlook patients admitted to the wards. A similar observation was noted in a study from South Africa, where more number of patients were diagnosed and referred from the ward than outpatients in a given period of time¹⁴. On the basis of finding in the present we can extrapolate that due to lack of an integrated referral system in large teaching hospitals a fairly large number of patients will go missing, which can result in abortion of the initiated treatment, unsupervised therapy, poor control and emergence of resistant form of TB and increased morbidity and mortality⁴.

In the present study when patients were discharged from the hospital they were given verbal and also written instruction on discharge slip, that they are referred to their respective districts for registration and free drugs. Because no integrated system was present to trace these referred patients, it is not known that whether these patients approached their respective centers or not. This further signifies the importance of the presence and strengthening of a referral chain¹⁵.

Conclusions:

The number of TB patients diagnosed and then referred from ward to their respective districts is almost equal to the number of patients registered or referred from OPD, but since no integrated system of referral exists for ward T.B patients there is high probability of primary default or initial default of these patients. This study was done to highlight the magnitude of the problem and sensitize the concerned quarters to take appropriate actions. In order to prevent initial default, referral system of patients diagnosed as tuberculosis in ward should be established. One of the options that can be used is utilization of cellular phone for contacting these patients after their referral to develop new concept "DOTS on phone" and confirming it with DTO.

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