ORIGINAL ARTICLE

TB DOTS STRATEGY IN DISTRICT RAWALPINDI: RESULTS AND LESSONS

Samia Iram, Shafqut Ali*, Shahbaz Ali Khan†, Munir A Abbasi††, Syed Abbas Anwar††, Fozia Fatima††

Combined Military Hospital, Rawalpindi, *Department of Medicine, NIMS Medical College,
†Department of Pathology, ††Pulmonology, Ayub Medical College, Abbottabad, Pakistan

Background: Tuberculosis (TB) is one of the most ancient diseases of mankind. Despite newer modalities for diagnosis and treatment, unfortunately, people are still suffering, and TB is among the top 10 killer infectious diseases in the world. TB is a devastating disease due to its rapid transmission and high rate of mortality causing around 1.8 million deaths annually. This study was conducted to evaluate the effectiveness of the Directly Observed Therapy Short-course (DOTS) in the target population. **Methods:** Two Tehsils of District Rawalpindi were selected for the study. All patients under TB treatment attending Basic Health Units (BHUs) and Rural Health Centres (RHCs) were included in the study. The patients with extra pulmonary TB and children under five years of age were excluded from the study. All patients were contacted individually and asked about the DOTS program activity using a preformed questionnaire that mainly contained questions regarding knowledge of the patients about their disease and the role of health facility in treating and following the disease. **Results:** Out of the 224 patients who were included in the study, 87 (38.8%) were male, and 137 (61.2%) were female. Majority (48.8%) of the patients was in age group of 21–40 years and 62.5% patients had positive family history of TB. Among the patients, 51.8% were illiterate, 31.7% had studied till primary level, and only 16.5% had the educational qualification of Matric or above. In our study 69.2% of patients themselves or through their relatives reported to the health facilities to get treatment, while the rest were picked by community health workers, 62.9% were diagnosed by the public hospitals, 23.2% were diagnosed by general practitioners and 12.9% by the federal public hospitals. In our study 69.6% of the patients were not observed at all or were observed by the family members. **Conclusion:** TB is mainly a disease of the poor and illiterate people. Despite many achievements a bulk of patients are not picked by the community health providers nor are they properly observed. We need to improve the current working of the DOTS personnel. General practitioners are playing a big role in diagnosing the disease, so they need to be integrated in the DOTS to effectively diagnose and control TB.

Keywords: Tuberculosis, DOTS, Practitioners, Health Care Providers, Primary Health Care, Pakistan

INTRODUCTION

TB is an infectious disease caused by *Mycobacterium tuberculosis* and is commonly spread through droplet infection. TB is one of the most ancient diseases of mankind, with molecular evidence going back to over 17,000 years. Despite of newer modalities for diagnosis and treatment, unfortunately, people are still suffering, and TB is among the top 10 killer infectious diseases in the world, second only to HIV. TB is a worldwide pandemic.[1] TB is a devastating disease due to its rapid transmission and high rate of mortality causing around 1.8 million deaths annually. Majority of cases are found in low or low-middle income countries and studies in both high-income and low-income countries demonstrate significantly higher rates of TB in their poorer populations.[2] TB causes enormous social and economic burden and hampers nation's development. It is most prevalent in the age group of 15–54 years which is the highly economically productive period of an individual's life with important consequences for the household when the individual falls sick.[3]

Pakistan ranks 6th in the world among the countries with a high burden of TB. About 44% of tuberculosis patients in the Eastern Mediterranean Region reside in Pakistan. The incidence of sputum positive TB cases in Pakistan is 80/100,000 per year and for all types it is 177/100,000. TB accounts for 5.1% of the total national disease burden in Pakistan.[4] The economic consequences of poor health can be substantial. Health 'shocks', such as unexpected increases in health expenditure, reduced functional capacity, and lost income or productivity are often a primary risk factor for impoverishment.[5] In 1990 the Commission on Health Research for Development stated that 'The magnitude of the tuberculosis problem is matched only by its relative neglect by the international community'.[1] In March 2000, ministers of health and finance from 20 high burden countries of world issued the Amsterdam Declaration which stated that the global situation was 'both alarming and unacceptable', and that 'We commit ourselves to accelerate action against TB through expansion of coverage of populations with the WHO recommended strategy to combat tuberculosis Directly Observed Therapy Short-course (DOTS), providing for at least 70% detection of infectious cases by the year 2005'.[6] There are five main elements of DOTS: case detection

by sputum microscopy, political commitment, directly observed therapy of a standard short-course regimen, uninterrupted supply of all essential drugs, and a standard recording and reporting system that allows assessment of treatment results and overall programme performance.[7] Under DOTS programs, all high burden TB countries provide free first line anti-TB medication.[1]

The problem of TB is a bit complicated as most of the patients are illiterate and generally perceive TB as an incurable disease. The problem is compounded by the fact that majority of patients with TB are diagnosed and treated by the general practitioners without proper follow up of the patients. Most of these patients do not follow the treatment plan when they become symptom-free and the result is default and treatment failure in many cases.

The objectives of this study were to evaluate the five pronged DOTS strategy in Rawalpindi District in rural settings and to find out the effectiveness of DOTS strategy program among the target population.

MATERIAL AND METHODS

Two Tehsils of District Rawalpindi were randomly selected for the study. These Tehsils were Kallar Syedan and Kahuta. The approximate population of these areas is about 361,000. A total of 224 patients who were registered with these centres were surveyed to complete the study from July to October, 2011. All the patients under TB treatment attending basic health units and rural health centres were included in the study. The patients with extra pulmonary TB and children under five years of age were excluded from the study. All patients were contacted individually, and informed consent was taken. A self-made questionnaire was constructed in a language understandable to the respondents included in the study. Questionnaire mainly contained questions regarding knowledge of the patients about their disease and the role of health facility in treating and following the disease. Data were collected by surveying the individual areas.

RESULTS

Out of the 224 patients that were included in the study 87 (38.8%) were male and 137 (61.2%) were female. Majority (48.8%) of the patients were in age group of 21–40 years. Majority of the patients (62.5%) patients had positive family history of TB. Among the patients 51.8% were illiterate, 31.7% had studied till primary level and only 16.5% had completed at least high school education or above (Table-1). In our study 69.2% of patients themselves or through their relatives reported to the health facilities to get treatment, while 30.4% cases were picked in community by the Lady Health Workers (LHW), Lady Health Visitors (LHV) and Community Health Workers (CHW) as shown in Table-2. The public hospital diagnosed 62.9%, while 23.2% were diagnosed by the general practitioners, and 12.9% by the federal public hospitals (Table-3). The 89.3% of the patients were confirmed cases of TB, diagnosed by sputum microscopy and 8.5% were diagnosed clinically. Our study showed that 93% of the patients had uninterrupted supply of anti-tuberculosis drugs while 6.7% didn't get the medicines regularly. Some 69.6% of the patients were not observed at all, or were observed by the family members, 24.1% were followed by LHWs and 4.5% by LHVs (Table-4). Out of the 224 patients 187 (83.5%) regularly followed the treatment while 16.5% did not.

Table-1: Demographic data of TB (n=224)

Variables	Numbers	Percentage
Age groups Yrs		
0–20	35	15.5
21–40	109	48.8
41–60	80	35.5
Education Level		
Illiterate	116	51.8
Primary	71	31.7
Matric	25	11.1
FA	8	3.6
Graduate	4	1.8
Post graduate	0	0

Table-2: Case detection of TB through healthcare tiers (n=224)

Healthcare tiers	Number	Percentage
Family	98	43.8
Self	57	25.4
LHW	52	23.2
LHV	9	4.0
CHW	7	3.1
Sanity	1	0.4

Table-3: Diagnostic History of TB from various resources

Resources of Diagnosis	Number	Percentage
Federal public hospitals	30	13.4
General Physicians	52	23.2
Public Hospital Punjab	142	63.4

Table-4: Percentage of treatment observation of TB

Observation on Patients	Number	Percentage
Self/Family members	156	69.6
LHW	54	24.1
LHV	10	4.5
CHW	4	1.8

DISCUSSION

The incidence of TB is aided by poor awareness of masses, illiteracy and lack of health education. TB is mainly the disease of the people in economically productive age. This shows a tragic scenario of the disease as the economy of the country depends on the economically productive population. Our study demonstrated the same fact that more than of patients in our study were in a productive age group with a poor literacy rate.[2,3] In our study 61.2% of patients were women, one of the main reasons being the

malnourishment which is more common among females due to repeated pregnancies and ignorance.[8] In 1991, Styblo and Bumgarner quantified the expected effect of detecting and treating cases of TB and found that TB incidence could be reduced by 5–10% annually by detecting at least 70% of TB cases and successfully treating 85% of the cases detected.[9]

In Afghanistan, despite the destruction of the National Tuberculosis Program (NTP) and basic health services by war and an uncertain security situation, the NTP, with assistance has increased the number of patients receiving DOTS by 136% in 4 years (from 9,261 cases in 2001 to 21,851 in 2005), with an 86% treatment success rate.[10] In Pakistan DOTS program has also proved to be very beneficial in controlling TB.[8] Our data showed that 69.4% of the patients in the two districts either presented themselves or they were taken to the health facility by their relatives, this shows inadequacy of the proper services that need to be provided by the community health service providers. Our study also showed that 69.6% were not observed by the health service providers.

Both these aspects which are neglected in the settings of our target population in specific and in whole of the country in general need to be addressed. Moreover, 23.2% of patients were picked by the general physicians. Kapoor *et al* also demonstrated that the informal providers and retail chemists were the first point of contact and source of clinical advice for two-third of the patients in their study conducted in India.[11] Ullah ANZ and colleagues concluded that partnership with private medical practitioners yielded significantly increased case finding of sputum smear-positive TB cases. In their study 703 participating private medical practitioners referred 3,959 sputum smear-positive TB cases to the designated DOTS centres, contributing about 36% of all TB cases in the project areas and there was a steady increase in case notification rates in the project areas following implementation of the partnership.[12] Other studies also found an increasing trend of government collaborating with NGOs in implementing TB control programs, indicating that Government-NGO collaboration is an effective way of improving access to and quality of TB and other health care services.[13] So in Pakistan we need to collaborate with private practitioners, NGOs and chemist to effectively reach the goals of DOTS program. But for that we need to upgrade the existing knowledge of private medical practitioners about DOTS and TB, as only 37 (33.0%) of the private practitioners were able to precisely list the correct treatment regimens for all categories in one of the study conducted in Ethiopia.[14]

CONCLUSION

TB is mainly a disease of poor and illiterate people. A bulk of patients is not picked by the community health providers nor are they properly observed. Improvement of the current working of DOTS personnel is needed. General practitioners also need to be integrated in the DOTS to effectively diagnose and control TB.

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Address for Correspondence:

Dr. Samia Iram, Combined Military Hospital, Rawalpindi. **Cell: +92-334-7758301**
Email: drsamiairam@hotmail.com