

Application and Outcome of TB Dots Programme at Tertiary Care Health Facility (LGH) in Lahore Pakistan

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ABSTRACT

Objective: To apply TB DOTS programme in Pulmonary and Extrapulmonary tuberculous cases and to see its outcome in a three year period presenting in TB DOTS Clinic at department of Pulmonology.

Methods: A prospective study was conducted on all TB Patients (Pulmonary and Extrapulmonary) presenting at TB DOTS clinic at LGH Lahore.

Study duration: Study was conducted from January 2010 to December 2012.

Study design: It was a prospective observational study.

Results: A total 2290 consecutive patients were decided to treat for tuberculosis. Mean age of patient was 29.37 years. Among all the patients 1282 (56%) were female while 1008 (44%) patients were male. A total of 1242 (54%) patients were treated for Pulmonary Tuberculosis while 1048 (46%) patients were treated for Extrapulmonary Tuberculosis of all kinds. Among Extrapulmonary Tuberculosis TB lymphadenitis was the most common group followed by Tuberculous Pleural Effusion. 1713(74%) patients were in the productive age group of 15–54. In our study 516 patients were treated successfully in year 2010 with a success rate of 92% and 477 patients were treated successfully in year 2011 and we achieved success rate of 89%. Thirty six patients defaulted in year 2010, our default rate was 6% while 51 patients defaulted in year 2011 and default rate was 09%.

Conclusion: TB DOTS programme is effective both in pulmonary and Extrapulmonary tuberculosis. TB DOTS increase the compliance of patients and decrease the default rate. Our data suggest that number of Tuberculosis patients treated at DOTS clinic is increasing yearly. Tertiary care hospital can provide specialized health services for complicated TB cases if there is strong referral system in the periphery, with regular and uninterrupted supply of medicines with permanent trained staff.

Keywords: DOTS (Directly Observed Treatment Short course), Pulmonary tuberculosis,

INTRODUCTION

Tuberculosis is infectious disease caused by *Mycobacterium tuberculosis*. Primary organ involved by tuberculosis is lung leading to pulmonary TB. This disease can also involve pleura, lymph node, intestines, bones, meningis, skin and other tissues of the body¹. According to World Health Organization (WHO) estimates one third of the world population is infected with mycobacterium Tuberculosis and eight million people develop active disease globally every year and 95% of these cases occur in the under developed world^{2,3}.

In under developed countries tuberculosis remains one of the major health problem⁴. The estimated incidence of all forms of TB is 400,000 cases per year and in Pakistan and ranks 5th among 22 high burden countries of TB⁵. The reason behind its alarming situation in Pakistan has been lack of

proper TB control program in the past. Tuberculosis was declared global emergency in 1993 by WHO⁶. TB DOTS programme was launched in Pakistan by National Tb Control programme in 1995 and DOTS strategy was launched in the Punjab in 2000 as pilot project⁷.

Tuberculosis was declared as emergency in Pakistan in 2001. The target of DOTS is to treat TB successfully at least 85% of the registered new smear +ve cases and to detect 70% of the incident smear +ve cases⁸.

Lahore General Hospital is a tertiary care hospital. Department of Pulmonology provides outdoor and indoor facilities for all respiratory diseases like Tuberculosis, Asthma, COPD, Interstitial Lung Disease, Pleural Effusion, Bronchiectasis and Cor pulmonale. Tuberculosis is the major health problem. Although many effective drugs are available for the treatment of Tuberculosis but disease is not controlled. Low adherence to the prescribed treatment has been recognized as a major threat for TB control program. Incomplete or irregular treatment of active TB cases is considered to be one

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of the major causes of the development of drug resistance. For a successful treatment a combination of different drugs has to be taken daily for a definite period. Since year 2000 DOTS program has been started and implemented in Pakistan, DOTS clinic at LGH was started in August 2004. DOTS strategy is the only hope for controlling this serious public health problem of TB

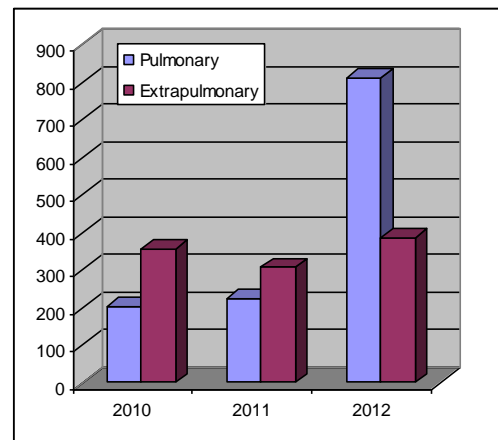
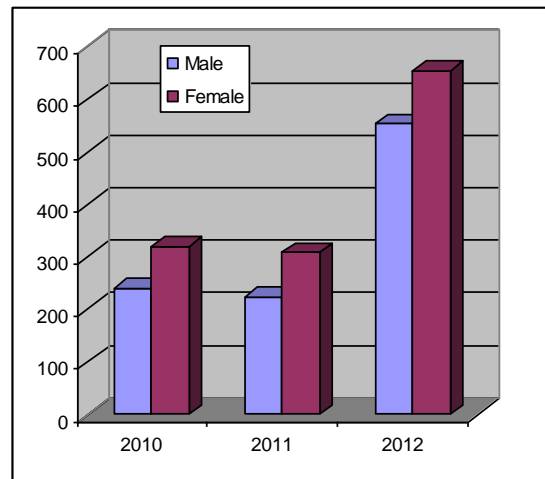
MATERIAL AND METHODS

This prospective study was done at the TB DOTS clinic of Pulmonology department of Lahore General Hospital Lahore on all adult TB patients (Pulmonary and Extrapulmonary) presenting between January 2010 to December 2012. A total of 2290 patients were enrolled to treat for Tuberculosis. The diagnosis of smear positive Tuberculosis was considered when the patient was found to be sputum smear positive at two times or when the patient sputum was positive for AFB one time along with X ray findings suggestive for PTB. The diagnosis of Smear Negative tuberculosis was considered when TB suspect on the basis of clinical ,radiological and other lab findings was found to be sputum smear negative at three times. Patients were given a course of antibiotic and consultant opinion was sought before deciding them to treat for smear negative pulmonary tuberculosis. The diagnosis for Extrapulmonary tuberculosis was considered on the basis of clinical features, Biochemistry, radiological features like X rays CT scan and MRI of the area involved and histopathology of the organ involved along with consultant opinion. AFB culture was performed in selected patients only. Among 469 patients of TB lymphadenitis, 411 were diagnosed on FNAC or histopathology of lymph node while 58 patients were diagnosed on clinical and radiological features when hilar or mediastinal lymph nodes were involved. Patients with smear positive & negavie pulmonary tuberculosis and extrapulmonary tuberculosis were included while childhood tuberculosis were excluded from the study.

RESULTS

A total of 2290 patients were enrolled. The year wise sex distribution is shown in graph 1. The mean age of patients was 29.37 year. Fifty-six% (1282 patients) of the patients were female where as 1008 patients were male 44%. Twelve Hundred and Forty two (54%) patients were treated for Pulmonary TB while 1048 (46%) patients were treated for Extrapulmonary TB as shown in graph 2. Seventy four% patients i.e., 1713 of patients were in productive age group of 15-54 years. Twelve hundred and forty two patients

were treated for Pulmonary Tuberculosis. Among them 511 patients were found to be Smear Positive Tuberculosis while 731 patients were treated for Smear Negative Pulmonary Tuberculosis graph 3. Sixty seven smear Positive patients were started anti Tuberculous treatment in year 2010 while 99 patients in year 2011 and 345 patients were diagnosed for smear Positive Pulmonary Tuberculosis and started treatment for that. One thousand and forty eight patients were treated for Extrapulmonary Tuberculosis of all kinds. The most common site of Extrapulmonary involvement was TB Lymphadenitis (469 pts) followed by Tuberculous Pleural Effusion (156 pts) (Table 1). Thirty six patients defaulted in year 2010, our default rate was 6% while 51 patients defaulted in year 2011 and default rate was 09%. Five patients died during treatment in year 2010 while 3 patients died during treatment in year 2011 (Table 2). One hundred and fifteen patients were diagnosed Tuberculosis and started treatment during September 2011 to December 2012. This was period of dengue outbreak.



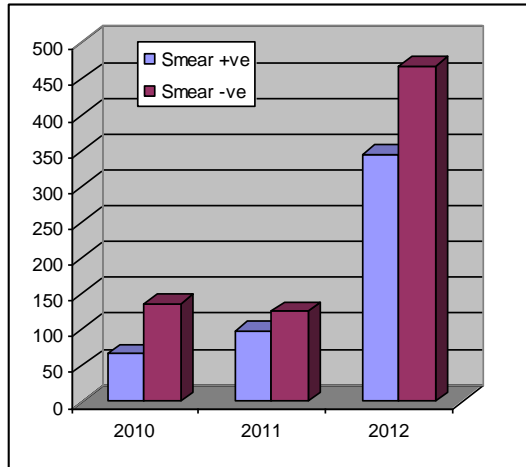


Table 1: Distribution of sites in extrapulmonary tuberculosis

Site	Year 2010	Year 2011	Year 2012
Lymph node	160	142	167
Intestine	33	42	53
TB meningitis	29	13	13
Pleural effusion	31	33	92
TB bone joint	17	13	10
TB spine	31	36	23
Cold Abscess	29	13	15
TB skin	5	5	4
Abdominal TB	6	-	-
Tuberculoma brain	13	5	5
Military TB	2	4	3
TB breast	-	1	-

Table 2 Treatment outcome

Treatment outcome	Year 2010	Year 2011
Cured	62	44
Treatment completed	454	433
Died	5	3
Defaulter	36	51
Transfer out	3	-

DISCUSSION

This prospective study was carried out over a period of three years at tertiary care hospital. Treatment of Smear positive Pulmonary Tuberculosis is the most important component of any TB control program because in society these are mainly smear Positive TB patients which spread disease to the other healthy members in community. In present study 67 patients in year 2010, 99 patients in year 2011 and 345 patients in year 2012 Smear Positive TB patients were diagnosed and started treatment. In this study we observed that Extrapulmonary Tuberculosis was more common in females than males. Our results are consistent with other studies⁹. In developing countries like Pakistan due to poor socio economic status, male dependency, poor family planning and

poor nutritional status seems to play an important role in female preponderance¹⁰.

In our study 516 patients were treated successfully in year 2010 with a success rate of 92% and among them 62 patients were also labeled cured by documenting smear negative at the end of treatment while 477 patients were treated successfully in year 2011 and we achieved success rate of 89% and among them 44 patients were also labeled cured. In DOTS strategy we can label cure only when a patient who is smear positive take treatment regularly and is converted to smear negative during and at the end of treatment. 516 patients in year 2010 and 477 patients in year 2011 which were treated successfully also included extra pulmonary TB. 115 patients were diagnosed Tuberculosis and started treatment during September 2011 to December 2011 (Dengue out break period). Our number of TB patients decreased during this time as hospital mobilized its routine services to manage emergent dengue epidemic.

Thirty six patients defaulted in year 2010, our default rate was 6% while 51 patients defaulted in year 2011 and default rate was 09%. Five patients died during treatment in year 2010 while 3 patients died during treatment in year 2011.

Treatment outcome of different studies are different depending upon the quality of DOTS. Menkey B et al investigated 494 patients, 76.1% had successful treatment¹² while 23.9% had no documented treatment success.

Diel R et al has seen 83.3 % cure rate in 518 culture positive TB patients¹³. Study by Wazir et al seen cure rate of 81.5% out of 65 smear positive patients while 77.1% completed treatment among smear negative patients¹⁴. Zeelweger JP et al has observed 70% success rate, 14% died while 16% were considered as defaulters¹⁵.

Extrapulmonary TB is defined as patients with TB of organs other than lungs such as Lymph nodes, Serous cavities, Abdomen Genitourinary system Musculoskeletal system and Meninges. In our study among Extra Pulmonary Tuberculosis TB lymphadenitis was the most common presentation followed by tuberculous pleural effusion¹⁵. These findings are consistent with other studies done at Lady Reading Hospital Peshawer¹⁶ and at Manipal Teaching Hospital Thailand¹⁷.

CONCLUSIONS

1. TB DOTS programme is effective both in pulmonary and Extrapulmonary tuberculosis.
2. TB DOTS increase the compliance of patients and decrease the default rate.

3. Our data suggest that number of Tuberculosis patients treated at DOTS clinic is increasing yearly.
4. Tertiary care hospital can provide specialized health services for complicated TB cases if there is strong referral system in the periphery, with regular and uninterrupted supply of medicines with permanent trained staff.
5. TB- DOTS programme is running successfully and should continue.

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