CODEN [USA]: IAJPBB ISSN : 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES
SJIF Impact Factor: 7.187

Avalable online at: http://www.iajps.com *Research Article*

THE TREATMENT OUTCOMES OF TUBERCULOSIS (TB) PATIENTS REGISTERED UNDER DOTS PROGRAM IN A TERTIARY CARE HOSPITAL LAHORE

Dr Hafiza Zara Amin[1], Dr Nabil[2], Shahid Maood[3]

[1]Sir Ganga Ram Hospital, Lahore, [2]Jinnah Medical College, Peshawar, [3]Services Hospital, Lahore.

Article Received: November 2020 **Accepted:** December 2020 **Published:** January 2021

Abstract:

Objective: *The aim of our study was to find out the treatment outcomes of TB patients who were registered under DOTS program in a tertiary care hospital Lahore.*

Study Design: *A descriptive case study.*

Place and Duration*: This study was conducted at TB DOTS clinic, Services hospital Lahore for the duration of seven months starting from April, 2020 to October, 2020.*

Methodology: *In our present study we include 75 TB patients. We gathered all the data by mean of structured proforma in which demographic details of patients were registered along with information regarding site of TB, treatment outcomes and success of outcome. Patients were labeled as Cured who completed six months therapy with the result of negative sputum microscopy for Acid Fast Bacillus (AFB). Patients were labeled as Treatment Completed who completed six months therapy with the results of no sputum microscopy for AFB. SPSS version 20 was used for the analysis of data.*

Results: *In our present study we include 75 TB patients in which 61.3% patients were females and 38.7% patients were male. 65.3% patients were belonged to urban area. According to results of our study a healthy finding were observed that normal treatment resulted in complete treatment group as 65.3% of patients followed by 21.3% of cured ones and treatment failure was observed very low as 2.7 percent.*

Conclusion: *At the end of study, we conclude that most of TB patients who were registered under DOTS program were having successful treatment outcome. It is suggested that patients with unsuccessful treatment outcomes should be followed up for health education as well as treatment respectively.*

Key Words: *Tuberculosis, Outcomes, DOTS.*

Corresponding author:

Dr. Hafiza Zara Amin

Sir Ganga Ram Hospital, Lahore.

QR code

Please cite this article in press Hafiza Zara Amin et al, ***The Treatment Outcomes Of Tuberculosis (Tb) Patients Registered Under Dots Program In A Tertiary Care Hospital Lahore.,*** *Indo Am. J. P. Sci, 2021; 08[1]*

INTRODUCTION

World Health Organization (WHO) announced Tuberculosis (TB) as a worldwide "public health emergency" in 1993 [1]. Tuberculosis (TB) is one of the most debilitating diseases of the world [2]. Global Health Report of WHO, 2010 shows 9.4 million patients of Tuberculosis in overall world. MDGs target set for TB control is to "halt and reverse the incidence of TB by 2015". The most important & effective measure to control TB is early detection of TB and completing treatment of those who get diagnosed of disease and get cured. Most of TB mortality and morbidity (95%) is reported in low and middle-income countries [3]. Pakistan ranks fifth amongst "22 high burden countries (HBCs)", contributing around 63% of disease burden in Eastern Mediterranean Region (EMRO). Government of Pakistan initiated "DOTS strategy (Directly Observed Treatment Short course)" recommended by WHO for effective control of this menace in 1995 and declared TB a national health emergency in 2001 [4].

Lot of researches have been carried out globally on the TB treatment outcomes, as evident by a study conducted in Ethiopia which has evaluated pattern of Tuberculosis and its "treatment outcomes" over past few years. 64.6% were declared as treatment completed, 18% as cured, 5.1% defaulted, 5.4% transferred out. A study of India showed that with DOTS, the cure rate was 94.6%. A similar study has been carried out in Karachi on TB treatment outcomes which showed successful outcome in 47.2% patients and 47.2% were lost to follow up and defaulted, 5.6% were treatment failure [5]. A study done in Kohat showed 32.6% cure rate, 41.3% treatment completed and 25% default rate [6]. The key to control of TB includes case finding as early as possible and its prompt treatment. Monitoring of treatment outcomes is important to evaluate DOTS programmed which in turn prevents development of resistant TB [7]. The present study was aimed to evaluate the DOTS program in a tertiary care setup in terms of assessment of treatment outcomes of TB patients registered under DOTS programmed at Services hospital Lahore. This will add to the current knowledge about DOTS program efficiency in study setting in terms of treating TB patients to achieve successful treatment outcomes. This study will be helpful for public health authorities to take action accordingly as per WHO standards.

METHODOLOGY:

This Descriptive Case study was conducted at TB DOTS clinic, Services hospital Lahore for the duration of seven years starting from April, 2020 to October, 2020. Non-Probability Consecutive Sampling was used and sample size was 75. All newly diagnosed cases of pulmonary as well as extrapulmonary tuberculosis of both male as well as female gender aged 18-65 years were included in study. Cases transferred-in from other health facilities were excluded from the study. Data was entered in proforma. Age, sex, place of residence and site of tuberculosis were entered in proforma. All the patients underwent six months treatment for outcomes were labeled as "Successful" if it came out to be either "Cured" or "Treatment Completed"; and as "Unsuccessful" if came out to be as "Treatment Failure", "Defaulted", "Died" or "Transferred Out".

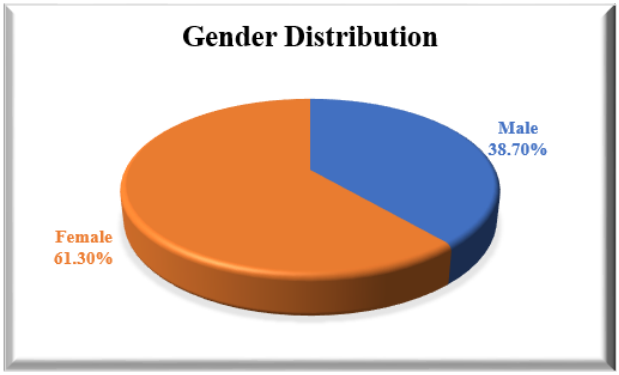
"Cured" was labeled for those patients who finished six months treatment with negative sputum microscopy result for Acid Fast Bacillus (AFB) at the end of treatment. "Treatment Completed" was labeled for those patients who finished six months treatment, but no sputum microscopy result for AFB at the end of treatment. "Treatment Failure" was labeled for those patients who remained sputum positive for AFB at five months despite correct intake of medication. "Defaulted" was labeled for those patients who interrupted their treatment for two consecutive months or more after registration. "Died" was labeled for those patients who died during the course of treatment. "Transferred out" was labeled for those patients whose treatment outcomes are unknown due to transfer to another health facility. The data was entered and analyzed in Statistical Package for Social Sciences (SPSS) version 17. Frequency and percentages were calculated for variables like gender, age categories, treatment outcomes and success of outcomes.

RESULTS:

Total of 75 patients participated in the present study, out of them 29 (38.7%) were males and 46 (61.3%) were females.

Table No 01: Gender Distribution

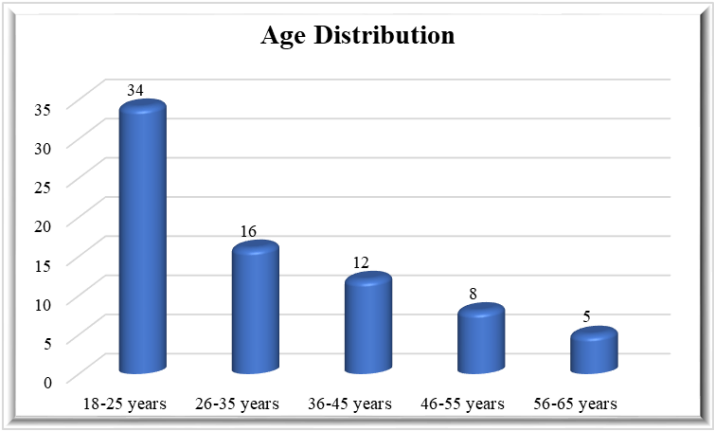
Gender	Qty	%age
Male	29	38.7%
Female	46	61.3%
Total	75	100%



Out of 75 patients, 34 patients were aged between 18-25 years as shown in Table No 02. 26 were from rural areas and 49 from urban areas. 27 patients were pulmonary sputum positive and 12 were pulmonary sputum negative and 36 were extra pulmonary cases.

Table No 02: Age Distribution

Age Year	Qty	%age
18-25 years	34	45.3%
26-35 years	16	21.3%
36-45 years	12	16%
46-55 years	8	10.7%
56-65 years	5	6.7%
Total	75	100%



Frequency of treatment outcome and success of outcome is shown in Table 03 and 04 respectively.

Table No 03: Frequency of Treatment Outcomes

Treatment Outcome	Qty	%age
Cured	16	21.3%
Treatment Completed	49	65.3%
Died	2	2.7%
Treatment failure	2	2.7%
Defaulter	3	4%
Transferred Out	3	4%
Total	75	100%

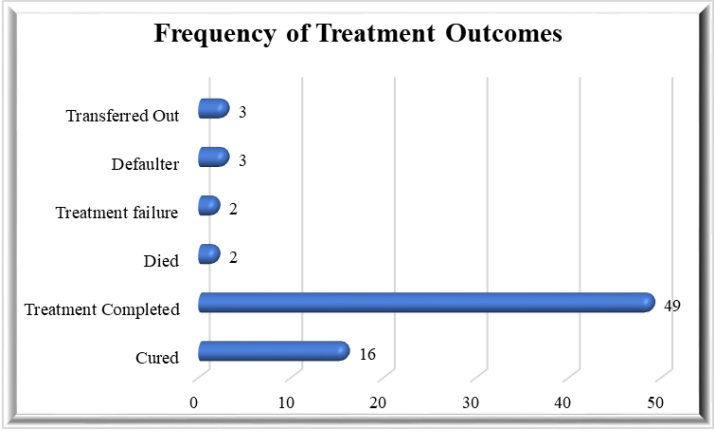
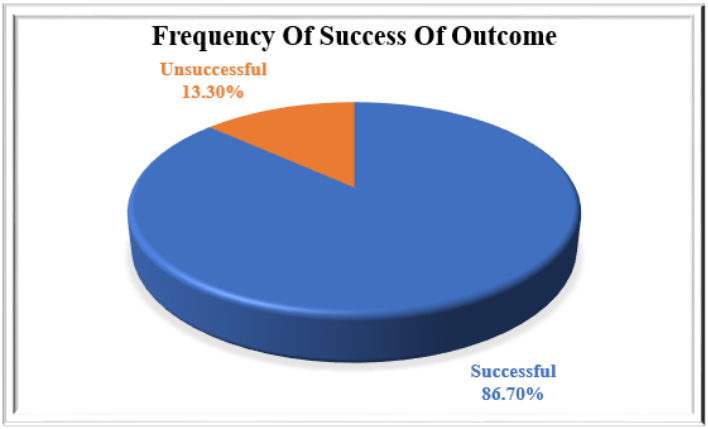


Table No 04: Frequency of Success of Outcome

Success of Outcome	Qty	%age
Successful	65	86.7%
Unsuccessful	10	13.3%
Total	75	100%



Cross tabulations of success of outcome with age category and gender is shown in Table 05 and 06 respectively. tuberculosis using Anti-tuberculosis therapy (ATT). During initial two months (Intensive Phase), four drugs namely Isoniazid, Rifampicin, Ethambutol and Pyrazinamide were given. Only two drugs Isoniazid and Rifampicin were given in next four months treatment (Continuation Phase). Patients were followed till the end of the treatment course and relevant information was entered in proforma. Finally, "treatment outcomes" were entered by the conclusion of treatment course.

Table No 05: Cross Tabula on of Success of Outcome with Age

Age Years	Success of Outcome		Total	
	Successful	Unsuccessful	Qty	%age
18-25 years	30	4	34	45.3%
26-35 years	15	1	16	21.3%
36-45 years	10	2	12	16%
46-55 years	7	1	8	10.7%
56-65 years	3	2	5	6.7%
Total	65	10	75	100%

Table No 06: Cross Tabulation of Success of Outcome with Gender

Gender	Success of Outcome		Total	
	Successful	Unsuccessful	Qty	%age
Male	26	3	29	38.7%
Female	39	7	46	61.3%
Total	65	10	75	100%

DISCUSSION:

In our study, majority (61.3%) of patients coming to TB centers were females showing increased incidence of women having tuberculosis in the settings. Risk of tuberculosis in females may be clarified by the difference in exposure to mycobacterium tuberculosis which in turn may be related to gender specific differentiation of labor, traditional seclusion practices and socialization arrangements. Higher frequency of advanced disease might be observed due to poorer quality of health of females compared to males with respect to nourishment. According to World Health Organization (WHO), at few places, for example Iran, Afghanistan and areas of Pakistan bordering Afghanistan, higher number of females in comparison to males are diagnosed as TB patients, however worldwide, considerably higher number of males in comparison to females develop the disease and expire due to TB per annum [8]. Similar results were seen in the province of Yazd, in Iran, where average yearly rate of TB was higher in females being 31.0 per 100,000 [9]. Demographics of tuberculosis in district Mansehra also showed that most of the patients registered at the District Tuberculosis Control Office (DTO) were females (57%) as compared to males (43%) [10].

In our research work, most of the study population belonged to urban area i.e., 65.3%. This portrayal is alike to most countries with low-incidence and selected high-incidence countries [11]. Certain social conditions may have an effect on urban localities, for instance, homelessness or those conditions that make other residents prone to tuberculosis, like high population density and deteriorating public health infrastructures. Health facilities in city localities may be in somewhat easy range. In rural localities, patients have to move from far flung areas every so often. Another positive result was found in a study conducted in USA where frequency in big metropolises stayed greater than double, compared to what was stated for other areas of USA. Insistently, more frequency of TB in big cities was linked to presence of risk factors in people, for advancement to tuberculosis [12]. Another finding portrayed by our investigation was site of tuberculosis where the most common site was extra pulmonary tuberculosis (48%). This is line with another research conducted in USA on extra pulmonary tuberculosis (EPTB) depicting that though there is a decline reported in the occurrence of pulmonary tuberculosis in the U.S.A. but it has not been supplemented by a drop-in prevalence rate of extra pulmonary tuberculosis [13]. So EPTB is contributing to the burden of infection and does not obtain explicit responsiveness in global control strategies resulting in certain diagnostic challenges. In Australia, EPTB counts for more than forty percent of cases and it turns to greater than 50%, if coexisting Pulmonary TB is also taken into consideration. These figures have been purportedly cumulating in Western countries & Australia.

Moreover, extra pulmonary tuberculosis manifests different presentations that renders it perplexing as for as diagnosis is concerned, quite often connected to delay in diagnosis, leading to higher possibility of severe disease and death, predominantly “TB meningitis” [14]. From a public health standpoint,

there is thus a necessity to address this set of patients, as they do add to the total problem of disease and they do have a substantial influence on available resources of national health systems. In our study, a healthy finding was observed that the commonest treatment outcome was treatment completed (65.3%) followed by 21.3% of cured ones and treatment failure was very low (2.7%). It shows that national government is trying to fulfill its obligation for treating TB patients and to control the spread of the disease. Other contributory factors are political commitment by government, better-quality laboratory facilities, an uninterrupted provision of medicines, and a monitoring system for documentation & evaluation. Finally, the direct observation of treatment has resulted in effective treatment completion and cure rates. Similar results were found in a research conducted in Northwest Ethiopia where the outcomes were categorized as cured 19.9%, treatment completed 50.3%, lost to follow up 05%, treatment failure in 1.7% and died 0.6% [15]. Likely outcomes were seen in researches conducted at Bangalore with cure rate of 65.7%, and Tamil Nadu with cure rate of 75%. For purpose of understanding, WHO recommends to achieve "85% cure rate" [16]. In contrast to our results, a study conducted at South Africa reported 30% of failed treatment, died and lost to follow up in their patients [17]. The core reason for the high failed treatment may be the non-compliance of the cases in the study settings. Therefore, frequency of failed treatment in TB cases having pulmonary disease, getting treatment at DOTS clinics differs from one place to another and reveals the level of threat posed to close contacts of the patients as well as development of multidrug-resistant TB.

It is clear in our findings that the overall success rate of outcome was 86.7% in the study participants which is quite satisfactory, though room for improvement is still there. The reason for reasonable success rate might be "Directly Observed Treatment Short Course (DOTS) strategy" that makes TB cases to ingest anti-TB medicines under the surveillance of liaison persons. Improved compliance to the treatment leads to better TB cure rate. Such outcomes were observed in a research conducted at Southern Ethiopia, where 85.2% "treatment success rate" was documented. The main reason behind this improved success rate may be the improved compliance of TB patients to the treatment in the study setting under "DOTS" which highlights the significance of the strategy [18]. As this study has been conducted in a limited context of only one hospital setting so the results of this study are not generalizable.

CONCLUSION:

At the end of study, we conclude that most of TB patients who were registered under DOTS program and were having successful treatment outcome. It is suggested that patients with unsuccessful treatment outcomes should be observed for health education as well as treatment.

REFERENCES:

1. Assessing tuberculosis under-reporting through inventory studies. Geneva: World Health Organization; 2012.
2. Panigatti P, Ratageri VH, Shivanand I, Madhu PK, Shepur TA. Profile and outcome of childhood tuberculosis treated with DOTS--an observational study. Indian J Pediatr. 2014; 81(1):9-14.
3. Getahun B, Ameni G, Medhin G, Biadgilign S. Treatment outcomes of tuberculosis patients under directly observed treatment in Addis Ababa, Ethiopia. Braz J Infect Dis. 2013;17(5):521-528.
4. Chughtai AA, Maclntyre CR, Wang YA, Gao Z, Khan W. Treatment outcomes of various types of tuberculosis in Pakistan, 2006 and 2007. EMHJ. 2013; 19(6):535-541.
5. Waheed Z, Irfan M, Haque AS, Khan MO, Zuberi A, Ain N et al. Treatment outcome of multi-drug resistant tuberculosis treated as out-patient in a tertiary care Centre. Pak J Chest Med. 2011;17(3):4-10.
6. Tahir NB, Uddin QT, Sajid M, Khattak AM. Treatment outcomes of tuberculosis patients registered at DOTS Centre Kohat. Khyber Med Univ J. 2014;6(3): 131-134.
7. Park K. Epidemiology of Communicable Diseases. Preventive and Social Medicine. 22nd ed. Bhanot. India. 2013:166-83.
8. [Internet]. Who.int. 2017 [cited 25 January 2017]. Available from: http://www.who.int/tb/challenges/hiv/tb women factsheet pdf? ua=1
9. Salarri MH, Kalantari AB. Characteristics of tuberculosis patients in Yazd province, Islamic Republic of Iran, 1997-99. East Mediterr Health J. 2014; 10(1-2):175-9.
10. Kamal M, Ali S, Hussain SJ, Abbasi MA. Demographics of Tuberculosis in District Mansehra. J Ayub Med Coll Abbottabad. 2015;27(4):890-3.
11. Abubakar I, Crofts J, Gelb D, Story A, Andrews N, Watson J. Investigating urban–rural disparities in tuberculosis treatment outcome in England and Wales. Epidemiol Infect. 2018;136(01):122-27.

12. Oren E, Winston C, Pratt R, Robison V, Narita M. Epidemiology of Urban Tuberculosis in the United States, 2015;109(2):205-17.
13. Farer LS, Lowell AM, Meador MP. Extrapulmonary Factors Affecting Outcome in Southern Ethiopia: A Five tuberculosis in the United States. Am J Epidemiol. Year Retrospective Study. PLOS ONE. 2016;11(2): e0150560.
14. Pollett S, Banner P, O'Sullivan M, Ralph A. Epidemiology, Diagnosis and Management of Extra-Pulmonary Tuberculosis in a Low-Prevalence Country: A Four-Year Retrospective Study in an Australian Tertiary Infectious Diseases Unit. PLOS ONE. 2016;11(3): e0149372.
15. Moges B, Amare B, Yismaw G, Workineh M, Alemu S, Mekonnen D et al. Prevalence of tuberculosis and treatment outcome among university students in Northwest Ethiopia: a retrospective study. BMC Public Health. 2015;15(1).
16. Yasin M, Ahmad Z, Suleman A. Prevalence of Treatment Failure among Pulmonary Tuberculosis Patients in a Tertiary Care Teaching Hospital. J Bacteriol Mycol Open Access. 2016; 3(4): 273-276.
17. Peltzer Klouw J. Prevalence and associated factors of tuberculosis treatment outcome among hazardous or harmful alcohol users in public primary health care in South Africa. African Health Sciences. 2014;14(1):157-166.
18. Gebrezgabiher G, Romha G, Ejeta E, Asebe G, Zemene E, Ameni G. Treatment Outcome of Tuberculosis Patients under Directly Observed Treatment Short Course and 2000–2007. Am J Public Health. 2011;101(7):1256-1263.