ORIGINAL ARTICLE

Examine the Successful and Unsuccessful Treatment Outcomes of Patients with Tuberculosis

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ABSTRACT

Objective: To determine the successful and unsuccessful treatment outcomes of tuberculosis patients.
Study Design: Retrospective/Observational
Place and Duration: DHQ Teaching Hospital KDA, Kohat from 1st January 2018 to 31st December 2019.
Materials and Methods: 400 patients of both genders with ages 18 to 75 years seeking treatment for tuberculosis were enrolled in DOTS program were analyzed in this study. Patients detailed demographic including age, sex, socio-economic status, residence and smoking status, type of TB and treatment outcomes were recorded.
Results: 244 (61%) were males while 156 (39%) were females. Majority of patients 195 (48.75%) were ages 41 to 60 years. 250 (62.5%) had pulmonary tuberculosis (145 had sputum smear positive, 105 were sputum smear negative) and 150 (37.5%) patients had extra-pulmonary tuberculosis According to the treatment outcomes; 162 (40.5%) patients were cured, 210 (52.5%) patients had treatment completed, 12 (3%) were defaulted, 10 (2.5%) were died, 3 (0.75%) patients had treatment failure and 3 (0.75%) were transfer out. The overall treatment successful rate was 93%.
Conclusion: Majority of patients got cured and completed treatment. The overall treatment success rate in our study was 93% which is above the MDG target of 85% treatment success rate.
Keywords: Tuberculosis, Pulmonary, Extra-pulmonary, Successful treatment outcomes, Unsuccessful treatment outcomes

INTRODUCTION

Tuberculosis (TB) is one of the most genuine general wellbeing challenges around the world. Internationally, around 10.4 million individuals create TB and 1.8 million individuals kick the bucket from it (0.4 million of these additionally have HIV).[1] As indicated by 2016 assessments, 56% of individuals experiencing TB were living in five nations (in diving request); India, Indonesia, China, the Philippines and Pakistan.[1,2] Pakistan shares 61% of the TB trouble in the WHO Eastern Mediterranean Region[3]. In 2016, 356,390 new and backslid instances of TB were informed in Pakistan, demonstrating an expansion in the quantity of told cases contrasted and 2015 (323,856 cases).[1,4] Among all informed cases in 2016, 80% were pneumonic tuberculosis (PTB) cases, and 4% cases had known HIV contamination [2]. In spite of the fact that patterns in TB death rates in Pakistan from 2012 to 2016 exhibit a considerable decrease in related passing running from 34 to 23 cases for every 100,000 populace, TB stays a critical executioner in this nation.[4–6]

Early determination and sufficient treatment of irresistible patients with aspiratory TB are important to lessen transmission of M. tuberculosis and eventually to accomplish disposal of TB. On the off chance that TB is identified early and appropriately rewarded utilizing a mix of prescriptions for 6 to 9 months, the patients immediately become noninfectious and are in the long run restored. Significant difficulties for TB control are human immunodeficiency infection (HIV) coinfection and medication opposition.[7,8] The effective TB treatment inclusion is one of ten need pointers in accomplishing the achievements and focuses of the End TB procedure. Universally, in 2000 TB treatment inclusion was 36% (30–43%), however noteworthy improvement has been accounted for in 2015; almost 60% (50–70%).[9]

Observing the result of treatment utilizing normalized approach is basic so as to assess the viability of the intercession and for correlation. World Health Organization related to International Union against Tuberculosis and Lung Disease (IUATLD) gave proposals on the most proficient method to assess treatment results utilizing normalized classes.[10]

The present study was conducted to examine the treatment outcomes of tuberculosis patients in term of successful and unsuccessful outcomes.

MATERIALS AND METHODS

This retrospective study was conducted at DHQ Teaching Hospital KDA, Kohat during from the period Jan 2018 to Dec 2019. A total 400 patients of both genders with ages 18 to 75 years seeking treatment for tuberculosis were enrolled in DOTS program were analyzed in this study. Patients detailed demographic including age, sex, socio-economic status, residence and smoking status were recorded. Patients with ages <18 years, patients with psychiatric illness and renal failure patients were excluded. Site of tuberculosis and registration status such as new patients and relapsed were recorded. Treatment outcomes were examined according to the WHO guideline. Outcomes were divided into six categories such as cured, treatment

failure, treatment completed, died, transfer out and defaulted. Cured and completed treatment defined as successful treatment outcomes while unsuccessful treatment outcomes contains treatment failure, died, transfer out and defaulted. All the data was analyzed by SPSS 24.

RESULTS

There were 244 (61%) males while 156 (39%) were females. 120 (30%) patients were ages ≤40 years, 195 (48.75%) were ages 41 to 60 years and 85 (21.25%) patients were ages above 60 years. 238 (59.5%) had urban residency while 162(40.5%) patients had rural residence. 158 (39.5%) patients had low socio-economic status, 190 (47.5%) had middle and 52 (13%) patients had high socio-economic status. 185 (46.25%) patients were smokers while 215 (53.75%) were non-smokers (Table 1). According to the registration status, 340 (85%) patients were newly diagnosed and 60 (15%) were relapsed. As per type of TB, 250 (62.5%) had pulmonary tuberculosis among pulmonary TB patients 145 (58%) had sputum smear positive, 105 (42%) were sputum smear negative. 150 (37.5%) patients had extra-pulmonary tuberculosis (Table 2).

Table 1: Baseline details of all the TB patients

Variable	No.	%
Gender		
Male	244	61.0
Female	156	39.0
Age (years)		
<40	120	30.0
41 – 60	195	48.75
>60	85	21.25
Residence		
Urban	238	59.5
Rural	162	40.5
Socioeconomic status		
Low	158	39.5
Middle	190	47.5
High	52	13
Smoking status		
Smokers	185	46.25
Non-smokers	215	53.75

Table 2: Clinical findings of TB patients

Variable	No.	%
Registration Status		
New	340	85
Relapsed	60	15
Type (Pulmonary)		
Sputum smear positive =145 Sputum smear negative =105	250	62.5
Extra-pulmonary	150	37.5

Table 3: Treatment outcomes of TB patients

Outcome	No.	%
Successful		
Cured	162	40.5
Treatment completed	210	52.5
Unsuccessful		
Defaulted	12	3.0
Died	10	2.5
Treatment Failure	3	0.75
Transfer Out	3	0.75

According to the treatment outcomes we found 162 (40.5%) patients were cured, 210 (52.5%) patients had treatment completed, 12 (3%) were defaulted, 10 (2.5%) were died, 3 (0.75%) patients had treatment failure and 3 (0.75%) were transfer out (Table 3). The overall treatment successful rate was 93% while 7% patients had unsuccessful treatment outcomes. (Fig. 1)

Fig. 1: Frequency of successful treatment outcomes
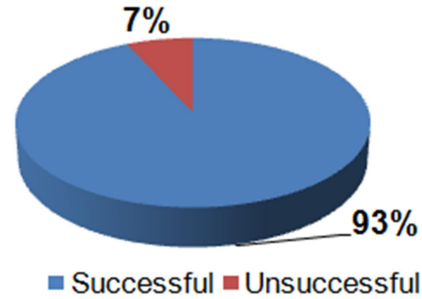
DISCUSSION

Pulmonary tuberculosis is one of the most common life threatening disorders with high rate of mortality and morbidity.[11] In Pakistan tuberculosis is one of the major health concerns with high morbidity rate. The present study was conducted to examine the treatment outcomes of patients presented with tuberculosis. In this regard 400 patients were enrolled. In our study 244 (61%) were males while 156 (39%) were females.120 (30%) patients were ages ≤40 years, 195 (48.75%) were ages 41 to 60 years and 85 (21.25%) patients were ages above 60 years. A study conducted by Worku et al[12] reported similarity regarding gender and age. In which majority of patients 52.4% were male and mostly patients had ages between 30 to 50 years. Some other studies showed similarity, in which male patients were predominant as compared to females 60% to 70% and average age was 45.4 years.[13,14]

In this study 238 (59.5%) had urban residency while 162 (40.5%) patients had rural residence. 158 (39.5%) patients had low socio-economic status, 190 (47.5%) had middle and 52 (13%) patients had high socio-economic status. 185 (46.25%) patients were smokers while 215 (53.75%) were non-smokers. These results were comparable to some previous studies.[15,16]

Three hundred and forty (85%) patients were newly diagnosed and 60 (15%) were relapsed. As per type of TB, 250 (62.5%) had pulmonary tuberculosis among pulmonary TB patients 145 (58%) had sputum smear positive, 105 (42%) were sputum smear negative. 150 (37.5%) patients had extra-pulmonary tuberculosis. A study by Olarewaju Sunday et al[17] reported that 88.5% patients had pulmonary tuberculosis while 11.5% patients had extra-pulmonary tuberculosis, 95.1% patients were registered as new cases while 4.9% were retreated patients.

In our study according to the treatment outcomes 162 (40.5%) patients were cured, 210 (52.5%) patients had treatment completed, 12 (3%) were defaulted, 10 (2.5%) were died, 3 (0.75%) patients had treatment failure and 3 (0.75%) were transfer out. A study by Olarewaju Sunday et al[17] demonstrated that 33.3% were cured, 52.2% had

treatment completed, 0.01% had treatment failure, 9.52% patients were died, 0.98% patients were defaulted and 3.94% were transfer out. Another study by Atif et al[18] reported 67.3% patients were cured, 1.7% patients had treatment completed while 31% patients had unsuccessful treatment outcomes. Ahmad et al[19] reported that 192 (38.94%) were cured, 276 (55.98%) completed treatment, 13 (2.6%) defaulted, 9 (1.8%) died, 1 (0.2%) treatment failure, and 1 (0.2%) had transferred to other facilities. The overall mean treatment success rate of the TB patients was 94.93%.

In present study we found that the overall successful treatment outcomes rate was 93% while 7% patients had unsuccessful treatment outcomes. These results showed similarity to many of previous studies in which successful treatment outcomes rate of TB patients varies 80% to 95%.[20-22]

CONCLUSION

Tuberculosis is one of the most common life threatening diseases in Pakistan and contributed increased rate of mortality and morbidity. We concluded from our study that 40.29% were cured and 52.86% patients had completed treatment. The overall treatment success rate in our study was 93% which is above the MDG target of 85% treatment success rate.

REFERENCES

1. World health organization. Global tuberculosis Report 2016. 1211 Geneva 27, Switzerland: WHO; 2016. Contract No.: WHO/HTM/TB/2016.13.
2. Khurram M, Khaar HT, Fahim M. Multidrug-resistant tuberculosis in Rawalpindi, Pakistan. J Infect Dev Ctries 2012;6:29-32.
3. Safdar N. MDR-TB in Pakistan: A challenge in hand. Pak J Med Res 2014;53:54-5.
4. Khan WM, Smith H, Qadeer E, Hassounah S. Knowledge and perceptions of national and provincial tuberculosis control programme managers in Pakistan about the WHO stop TB strategy: A qualitative study. JRSM Open 2016;8:1-9.
5. Erhabor GE, Adewole O, Adisa AO, Olajolo OA. Directly observed short course therapy for tuberculosis—a preliminary report of a three-year experience in a teaching hospital. J Nat Med Assoc 2003; 95(11): 1082–8.
6. World Health Organization. Global tuberculosis report. 2015. http://apps.who.int/iris/bitstream/10665/191102/1/9789241565059_eng.pdf?ua=1.
7. World Health Organization. Pakistan: tuberculosis. 2018. http://www.emro.who.int/pak/programmes/stop-tuberculosis.html
8. World Health Organization. Global tuberculosis report 2016. http://apps.who.int/medicinedocs/documents/s23098en/s23098en.pdf. Accessed 20 Apr 2017.
9. World Health Organization. Pakistan: stop tuberculosis. 2017. http://www.emro.who.int/pak/programmes/stop-tuberculosis.html
10. World Health Organization. Treatment of tuberculosis: guidelines. 2010. http://www.who.int/tb/publications/2010/9789241547833/en/. Accessed 20 July 2015.
11. World Health Organization. Tuberculosis: fact sheet. 2018. http://www.who.int/mediacentre/factsheets/fs104/en/
12. Worku, S., Derbie, A., Mekonnen, D. et al. Treatment outcomes of tuberculosis patients under directly observed treatment short-course at Debre Tabor General Hospital, northwest Ethiopia: nine-years retrospective study. Infect Dis Poverty 2018; 7: 16.
13. Mekonnen D, Derbie A, Mekonnen H, Zenebe Y. Profile and treatment outcomes of patients with tuberculosis in northeastern Ethiopia: a cross sectional study. Afr Health Sci 2016;16(3):663–70.
14. Ahmad AM, Akhtar S, Hasan R, Khan JA, Hussain SF, Rizvi N, et al. Risk factors for multidrug-resistant tuberculosis in urban Pakistan: A multicenter case-control study. Int J Mycobacteriol 2012;1:137-42.
15. Ahmad T, Zohaib, Daud M, Zaman Q, Saifullah, Jadoon MA, et al. Prevalence of tuberculosis infection in general population of district Dir (Lower) Pakistan. Middle East J Sci Res 2015;23:14-7.
16. Sisay S, Mengistu B, Erku W, Woldeyohannes D. Ten years' experience of directly observed treatment short-course (DOTS) in Gambella regional state, Ethiopia: An evaluation of tuberculosis control program. Int J Mycobacteriol 2016; 5Suppl 1:S117-8.
17. Sunday O, Oladimeji O, Ebenezer F, Akintunde B, ObohAbiola T, Saliu A, et al. Treatment Outcome of Tuberculosis Patients Registered at DOTS Centre in Ogbomoso, Southwestern Nigeria: Tuberculosis Res Treatment 2014; 2014, 5-9
18. Atif M, Anwar Z, Fatima RK, Malik I, Asghar S, Scahill S. Analysis of tuberculosis treatment outcomes among pulmonary tuberculosis patients in Bahawalpur, Pakistan. BMC Res Notes 2018;11(1):370.
19. Ahmad T, Haroon, Khan M, Khan MM, Ejeta E, Karami M, Ohia C. Treatment outcome of tuberculosis patients under directly observed treatment short course and its determinants in Shangla, Khyber-Pakhtunkhwa, Pakistan: a retrospective study. Int J Mycobacteriol 2017;6:360-4.
20. Singh A, Prasad R, Kushwaha RA, Srivastava R, Giridhar BH, Balasubramanian V, Jain A. Treatment outcome of multidrug-resistant tuberculosis with modified DOTS-plus strategy: A 2 years' experience. Lung India 2019;36:384-92.
21. Gebrezgabiher G, Romha G, Ejeta E, Asebe G, Zemene E, Ameni G, et al. Treatment outcome of tuberculosis patients under directly observed treatment short course and factors affecting outcome in Southern Ethiopia: A five-year retrospective study. PLoS One 2016;11:e0150560.
22. Ali SA, Mavundla TR, Fantu R, Awoke T. Outcomes of TB treatment in HIV co-infected TB patients in Ethiopia: a cross-sectional analytic study. BMC Infec Dis. 2016;16(1):640.