Pulmonary Tuberculosis: A Life Threatening Disorder, Examine the Treatment Outcomes of Patients with Tuberculosis

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ABSTRACT

Aim: To determine the successful and unsuccessful treatment outcomes of tuberculosis patients.
Study Design: Retrospective/Observational
Place and Duration of Study: Department of General Medicine, Islam Medical & Dental College Sialkot from 1st October 2019 to 31st March 2020.
Methods: Total 350 patients of both genders with ages 18 to 75 years presented with pulmonary tuberculosis were analyzed in this study. Patients detailed demographic including age, sex, socio-economic status, residence and smoking status were recorded after taking informed consent. Treatment outcomes was examined and were divided into six categories such as cured, treatment failure, treatment completed, died, transfer out and defaulted. Data was analyzed by SPSS 24.0.
Results: Out of 350 patients 215 (61.43%) were males while 135 (38.57%) were females. Majority of patients 168 (48%) were ages 41 to 60 years. According to the treatment outcomes; 141 (40.29%) patients were cured, 185 (52.86%) patients had treatment completed, 10 (2.86%) were defaulted, 8 (2.29%) were died, 3 (0.86%) patients had treatment failure and 3 (0.86%) were transfer out. The overall treatment successful rate was 93.15%.
Conclusion: It is concluded that majority of patients got cured and completed treatment. Low rate of unsuccessful treatment outcomes was observed in our study.
Keywords: Tuberculosis, Pulmonary, Extra-pulmonary, Successful Treatment Outcomes, Unsuccessful Treatment Outcomes

INTRODUCTION

Tuberculosis (TB) is one of the most serious public health challenges worldwide. Globally, around 10.4 million people develop TB and 1.8 million people die from it (0.4 million of these also have HIV).[1] According to 2016 estimates, 56% of people suffering from TB were living in five countries (in descending order); India, Indonesia, China, the Philippines and Pakistan.[1,2] Pakistan shares 61% of the TB burden in the WHO Eastern Mediterranean Region.[3] In 2016, 356,390 new and relapsed cases of TB were notified in Pakistan, showing an increase in the number of notified cases compared with 2015 (323,856 cases).[1,4] Among all notified cases in 2016, 80% were pulmonary tuberculosis (PTB) cases, and 4% cases had known HIV infection.[2] Although trends in TB mortality rates in Pakistan from 2012 to 2016 demonstrate a substantial decline in associated deaths ranging from 34 to 23 cases per 100,000 population[4-6], TB remains a significant killer in this country.

Early diagnosis and adequate treatment of infectious patients with pulmonary TB are necessary to reduce transmission of M. tuberculosis and ultimately to achieve elimination of TB. If TB is detected early and properly treated using a combination of medicines for 6 to 9 months, the patients quickly become noninfectious and are eventually cured. Important challenges for TB control are human immunodeficiency virus (HIV) coinfection and drug resistance.[7,8] The successful TB treatment coverage is one of ten priority indicators in achieving the milestones and targets of the End TB strategy. Globally, in 2000 TB treatment coverage was 36% (30–43%), but significant

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improvement has been reported in 2015; nearly 60% (50-70%).[9]

Monitoring the outcome of treatment using standardized approach is essential in order to evaluate the effectiveness of the intervention and for comparison. World Health Organization in conjunction with International Union Against Tuberculosis and Lung Disease (IUATLD) provided recommendations on how to evaluate treatment outcomes using standardized categories.[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 Department of General Medicine, Islam Medical & Dental College Sialkot from 1st October 2019 to 31st March 2020. A total 350 patients of both genders with ages 18 to 75 years seeking treatment for tuberculosis were enrolled in this study. Patients with ages <18 years, patients with psychiatric illness and renal failure patients were excluded from the study. Patients baseline details such as age, sex, residence, socioeconomic status and smoking status were recorded. Blood sample was taken from all the patients for sputum spear examination. 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 failures, 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 215 (61.43%) males while 135 (38.57%) were females. One hundred and two (29.14%) patients were ages ≤40 years, 168 (48%) were ages 41 to 60 years and 80 (22.86%) patients were ages above 60 years. 202 (57.71%) had urban residency while 148 (42.29%) patients had rural residence. 136 (38.86%) patients had low socio-economic status, 170 (48.57%) had middle and 44 (12.57%) patients had high socio-economic status. 160 (45.71%) patients were smokers while 190 (54.29%) were non-smokers (Table 1).

According to the registration status, 302 (86.29%) patients were newly diagnosed and 48 (13.71%) were relapsed. As per type of TB, 220 (62.86%) had pulmonary tuberculosis and 130 (37.14%) patients had extra-pulmonary tuberculosis (Table 2).

Table 1: Baseline details of all the TB patients

Variable	No.	%
Gender		
Male	215	61.43
Female	135	38.57
Age (years)		
<40	102	29.14
41 – 60	168	48.0
>60	80	22.86
Residence		
Urban	202	57.71
Rural	148	42.29
Socioeconomic status		
Low	136	38.86
Middle	170	48.57
High	44	12.57
Smoking status		
Smokers	160	45.71
Non-smokers	190	54.29

Table 2: Clinical findings of TB patients

Variable	No.	%
Registration status		
New	302	86.29
Relapsed	48	13.71
Type		
Pulmonary	220	62.86
Extra-pulmonary	130	37.14

Table 3: Treatment outcomes of TB patients

Outcome	No.	%
Successful		
Cured	141	40.29
Treatment completed	185	52.86
Unsuccessful		
Defaulted	10	2.86
Died	8	2.29
Treatment failure	3	0.86
Transfer out	3	0.86

According to the treatment outcomes we found 141 (40.29%) patients were cured, 185 (52.86%) patients had treatment completed, 10 (2.86%) were defaulted, 8 (2.29%) were died, 3 (0.86%) patients had treatment failure and 3 (0.86%) were transfer out (Table 3). The overall treatment successful rate was 93.15% while 6.85% patients had unsuccessful treatment outcomes (Fig. 1)
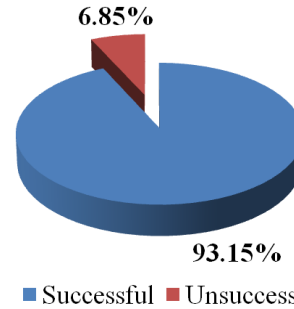

Fig. 1: Frequency of successful treatment outcomes

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 350 patients were enrolled. In our study 215 (61.43%) were males while 135 (38.57%) were females. 102 (29.14%) patients were ages ≤40 years, 168 (48%) were ages 41 to 60 years and 80 (22.86%) 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, 202 (57.71%) had urban residency while 148 (42.29%) patients had rural residence. 136 (38.86%) patients had low socio-economic status, 170 (48.57%) had middle and 44 (12.57%) patients had high socio-economic status. 160 (45.71%) patients were smokers while 190 (54.29%) were non-smokers. These results were comparable to some previous studies.[15,16]

In the present study we found according to the registration status, 302 (86.29%) patients were newly diagnosed and 48 (13.71%) were relapsed. As per type of TB, 220 (62.86%) had pulmonary tuberculosis and 130 (37.14%) patients had extra-pulmonary tuberculosis. A study by 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 141 (40.29%) patients were cured, 185 (52.86%) patients had treatment completed, 10 (2.86%) were defaulted, 8 (2.29%) were died, 3 (0.86%) patients had treatment failure and 3 (0.86%) were transfer out. A study done by 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 the present study we found that the overall successful treatment outcomes rate was 93.15% while 6.85% 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's threatening diseases in Pakistan and contributed increased rate of mortality and morbidity. We concluded from our study that the successful treatment outcome rate was 93.14% in which 40.29% were cured and 52.86% patients had completed treatment. The mortality rate and treatment failure rate was very low in our study.

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