Original Article

# TREATMENT OUTCOME OF PULMONARY TUBERCULOSIS IN A TEACHING REFERRAL CLINIC, IN IRAN

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**ABSTRACT:**

**OBJECTIVES:**

Tuberculosis is an endemic infection in Iran. Despite improved living standards and availability of free drugs, tuberculosis remains a major health problem in Iran. In this study, we assessed the treatment outcome of tuberculosis patients.

**METHODS:**

In this descriptive study, all new cases of pulmonary tuberculosis with smear or culture positive admitted in Niko poor referral clinic, in Yazd, Iran were studied.

**RESULTS:**

Of the 280 patients, 148 (52.9%) were males and 132 (47.1%) were females. Among these patients 202 (72.2%) had pulmonary smear positive tuberculosis and 78(27.8%) patients had smear negative pulmonary tuberculosis? Treatment outcome was 247 (90.8%) successful treatment,3 (1.1%) treatment failure, 10 (3.7%) treatment defaultures,9 (3.3%) died and 3 (1.1%) transferred to a different area.

**CONCLUSIONS:**

In our study cure rate among new smear positive patients was more the rate recommended by the world health organization.

**KEY WORDS:**

Iran- Pulmonary Tuberculosis- Treatment Outcome- Yazd

**INTRODUCTION:**

Despite mass BCG vaccination to all newborn, and the availability of free and first line anti-tuberculosis drugs and improved living standards, tuberculosis remains a major health problem in developing countries [1-7]. Epidemiologic studies have demonstrated that the prevalence of tuberculosis in Iran is high, probably due to the influx of an excess of 1 million laborers from developing countries.

Over the remote years, efforts to control the disease have been hampered by non-systematic approaches, nevertheless, a National Tuberculosis Control Committee was established by the Ministry of Health and Medical Education of Iran in 1995,and recommendation for application of directly

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observed therapy strategy(DOTS) was made to improve the control of tuberculosis [8,9].

## OBJECTIVE OF THE STUDY:

The aim of this survey was to evaluate the outcome of tuberculosis treatment in referral teaching clinic, in Yazd, Iran, were the all of tuberculosis cases are admitted and treated.

## MATERIAL & METHODS:

Patients with active pulmonary tuberculosis admitted to Niko poor clinic, the referral clinic for treatment of tuberculosis from 2006 to 2010 were studied. Demographic data were reported. Diagnosis was made according to the world Health Organization criteria for active pulmonary patients [10]. Outcome of the treatment of the tuberculosis classified as: cure, completion of therapy, failure of therapy, default, relapse and death. All patients were treated with free short course chemotherapy for a period of 6 months with directly observed therapy strategy (DOTS). Standard treatment was isoniazid and rifampicin for six months, and ethambutol and pyrazinamide in the first two months [11]. For the uniform definition of terms used in this survey, the WHO definitions were adopted [12]: *Cure:* A patient who is diagnosed pulmonary tuberculosis by smear or culture positive sputum, who is smear negative at or one month prior to completion of TB treatment and on at least one previous occasion. *New case:* A patient who has never taken anti-TB drugs for more than one month. *Failure of therapy*: A TB patient who, while on treatment, remained smear-positive; or once more became smear-positive at the fifth month or later during the course of treatment, or one who was initially smear negative before starting treatment and became smear-positive after the second month of treatment. *Default:* A patient who completed at least one month of treatment

and returned after at least two months' interruption of treatment. *Death*: End of life in a patient who is currently on treatment for tuberculosis. *Transferred:* A patient who has been transferred to another facility outside the district and whom the treatment outcome is not known. The chi-square and Fisher test were used for statistical analysis. Data analysis was carried out using the SPSS software package, version 13. *P. Value* less than 0.05 was considered significant.

## RESULTS:

The survey included 280 patients out of which 148 (52.9%) were males and 132 (47.1%) were females. 202 (72.2%) patients had smear positive pulmonary tuberculosis, and 78 (27.8%) had smear negative pulmonary tuberculosis (culture positive). 8 patients died due to causes beside tuberculosis and outcomes of 272 patients were followed.

The nationality of the pulmonary tuberculosis patients over the 5- year period showed 145 patients (51.8%) were Afghan refugees, and 135 patients (48.2%) were Iranian. In both nationality groups, pulmonary tuberculosis was more common in males group (Iranian 52.6%, Afghan refugees 53.1%) (Table1).

Cure rate was found to be more common among female patients (118 patients, 92.9%) than among males (129 patients, 89%), but not statistically significant.

Successful treatment was 100% in children below 5 years old and lowest cure rate was seen in group 25-44 years old (84.6%) (*PV=0.01*).

The treatment outcome analysis indicate that the cure rate was higher among patients who were smear negative (97.4%) than among patients who were smear-positive (88.3%) , while the treatment failure was not seen among the smear negative patients.

**Table 1: Age-National distribution of study patients**

| Age Group Nationality (%) | <10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 |
|---|---|---|---|---|---|---|---|---|---|
| Iranian | 4.4 | 3.7 | 8.1 | 5.9 | 5.2 | 13.3 | 17 | 25.9 | 16.3 |
| Afghan(refugee) | 3.4 | 11 | 23.4 | 3.4 | 4.8 | 12.4 | 22 | 14.5 | 4.8 |
| Total | 3.9 | 7.5 | 16.1 | 4.6 | 5 | 12.9 | 19.6 | 20 | 10.4 |

Breakdown of the data by age showed the lowest rate of pulmonary tuberculosis was in the ≤years age group, and the highest rate among the 70-80 years age group. In Iranian nationality, the highest rate was in the 70-80 years age group, while in Afghan refugees the highest rate was in the 20-30 age group(*PV=0.00*). Treatment outcome of 272 patients is shown in Table 2.

**Table 2: Treatment outcome in a total subject (n=272)**

| Treatment outcome | Results No | (%) |
|---|---|---|
| Cure rate | 247 | (90.8) |
| Failure rate | 3 | (1.1) |
| Defaulter rate | 10 | (3.7) |
| Death rate | 9 | (3.3) |
| Transferred | 3 | (1.1) |
| Total | 272 | (100) |

**DISCUSSION:**

Our study has demonstrated the role of treatment success to be 90.8%, which is above the 85% target set by the WHO [13]. In our reference center, compliance with treatment was good, and mycobacterium tuberculosis drug resistance was not observed. This suggests that anti-tuberculosis resistance is not a real problem in the management of pulmonary tuberculosis in our center, and every endeavor should not be made routinely to obtain a specimen for drug susceptibility testing. The movements of a growing number of refugees have made tuberculosis control in refugee populations an issue of increasing importance [14, 15]. Experience in our center shows that despite difficult in this setting; control of tuberculosis can be managed successfully in these conditions.

Age-national distribution of study patients showed that pulmonary tuberculosis was more common in Iranian 70-80 year age group, while more common in Afghan refugees in 20-30 year age-group (*PV=0.000*).

The primarily affects the young age group in Afghan refugees consistent with previous reports in developing countries [16,17]. However our data consistent with developed countries that has been reported to be tuberculosis more prevalent among the elderly age group [18].

In our center cure rate was found to be more common in female patients, this is consistent with other published report such as: Fatiregun in Nigeria, Samman et al in Saudia [19, 20].

In conclusion, the findings of our study and other published reports provide a useful insight in understanding challenges to outcomes of treatment. The poor knowledge findings in other study, as a barrier to higher successful rates among patients, could be modified by health education intervention. Variation in health center treatment outcomes of pulmonary tuberculosis showed the need for more study to identify area and center-specific factors associated with treatment outcome.

**CONCLUSION:**

In present study the cure rate among new smear positive patients was more than the rate recommended by the world health organization.

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