

Analysis of the Indices of the Patients with Pulmonary Tuberculosis and Positive Smear Test Within the Territory Covered by the West Tehran Health Center During 2004-2008

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Abstract: Tuberculosis is one of the most important health priorities in the world. One third of the world population is affected by this microbe. However, there is no comprehensive and updated information about the indices of the patients affected by pulmonary tuberculosis in urban centers including Tehran, capital of Iran. The data collected from the records of West Tehran Health Center during 2004 to 2008 about the patients with tuberculosis and positive Smear Test (urban regions 2, 5, 6, 9, 18, 21 and 22) were analyzed. The average of 5-year incidence of the disease in the under-study community was 2.6 per 100,000 of the covered population from which 1.5 and 1.1 per 100,000 were associated with males and females respectively. The maximum rate of having pulmonary tuberculosis is seen among the age groups over 60 (42.8%) and 16-30 (27.4%). In general, the findings of the present study accompanied with the results gained from similar studies can be helpful for monitoring the results of treating patients for facilitating levels.

Key words: Pulmonary tuberculosis; Smear test; Tehran

INTRODUCTION

Tuberculosis is one of the most important health priorities in the world (Who, 2008). One third of the world population is affected by this microbe (BMJ, 2009). The countries can only control tuberculosis through implementing coordinated and strong programs as well as efficient health care system (mandell *et al.*, 2005). In Iran, it is expected that the result of treatment of all the patients with pulmonary tuberculosis and positive Smear Test (85% of the index specified by WHO) via performing the tuberculosis care system in DOTS will be improved. However, there is no comprehensive and updated information about the indices of the patients affected by pulmonary tuberculosis in urban centers including Tehran. The objective of the present study is evaluating the indices of the patient affected by pulmonary tuberculosis with positive Smear Test registered in the West Tehran Health Center during 2004 to 2008 for a period of 5 years.

Methodology:

Our under-study population was specified by the records available in the West Tehran Health Center. The West Tehran Health Center is located in the west part of Tehran and covers the urban regions with a population of about 2,500,000 and the rural ones with a population of 5000. The West Tehran Health Center covers 31 urban centers, 53 branches, 2 rural centers, and 4 health centers. In the present study, the secondary data analysis was completed. The data collected from the records of West Tehran Health Center during 2004 to 2008 about the patients with tuberculosis and positive Smear Test (urban regions 2, 5, 6, 9, 18, 21 and 22) were analyzed. Chi-Square and t-student Tests were used in significant levels ($p < 0.05$) for statistical analysis.

Findings:

The total number of our under-study individuals (Positive Smear Test for pulmonary tuberculosis) was 292 of whom 90.4% were Iranian and 9.6% non-Iranian. As shown in Table 1, the average of 5-year incidence of

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the disease in the under-study community was 2.6 per 100,000 of the covered population from which 1.5 and 1.1 per 100,000 were associated with males and females respectively. The incidences of pulmonary tuberculosis with positive Smear Test during the whole five years and separately are detectable in Table 1.

As it is shown in Table 2, the maximum rate of having pulmonary tuberculosis is seen among the age groups over 60 (42.8%) and 16-30 (27.4%) and the minimum frequency (1.7%) in the age group below 15. The findings during and after treatment indicated that the Smear Test was positive for 11.3% of the under-study cases and negative for 88.7% at the end of the second month of treatment (58% male and 42% female). It should be noted that the maximum frequency of negative Smear Test at the end of the second month were among the age group over 60 (43.2%) and the minimum frequency in the age group less than 15 (1.9%) which was not significant statistically.

The frequency of the cases with positive Smear Test was reduced to 2.7% at the end of the third month of treatment from which 2.1% and 0.7% were male and female respectively. The maximum frequency of the cases of positive Smear Test was for the age group over 60 and the age group 6-30 which was not significant statistically. The statistics of the cases with positive Smear Test was reduced to 1.7% at the end of the fifth month of treatment which includes 3 male patients (1%) and two female patients (0.7%) that were not also significant statistically. Other findings indicated that the percentage of success in curing the patients with positive Smear Test during the whole five years was 79.1%. The percentage of absence from treatment sessions in the under-study cases was 6.5% for the whole five years and the percentage of treatment failure in the under-study cases was 1.5%. in the whole five cases. Moreover, the percentage of MDR patients in under-study cases in the whole five cases was 0.7%.

Table 1: The incidence of pulmonary tuberculosis with positive Smear Test according to the study year among the patients registered in the Tuberculosis Book of the Township in the West Tehran Health Center during 2004 to 2008.

Year (Hijri Calendar)	Number of Cases (%)	Incidence
83	63 (2.9)	2.9
84	43 (1.9)	1.9
85	62 (2.8)	2.8
86	55 (2.5)	2.5
87	69 (3.1)	3.1
Mean (Five Years)	292 (100)	2.6

Table 2: Frequency of age groups in cases of pulmonary tuberculosis with positive Smear Test according to the under-study group among the patients registered in the Tuberculosis Book of the Township in the West Tehran Health Center during 2004 to 2008.

Age group (year)	Frequency	Percentage
0-15	5	1.7
16-30	80	27.4
31-45	36	12.3
46-60	46	15.8
>60	125	42.8
Total	292	100.0

Discussion:

In our study, the rate of negative Smear Test was 88.7% at the end of the second month. In another study done by Dr.Salek, et.al. the abovementioned rate was 96.6% which was better than the indices of our study (Salek, 1387). In our study, the rate of absence from treatment sessions and failure of treatment were 6.5% and 1.7% respectively which were better than the indices of the nationwide statistics (10% and 4% respectively). In the study done by Ms.Azadeh Ebrahimzadeh, *et al.* (1388), in a 10-year survey of the patients with tuberculosis in Birjand (1995-2005), the treatment was failed in 0.6% of the patients. This percentage is more in our study but compared with the nationwide index, it is acceptable.

In another study done by Ms.Masoumeh Sofian *et al.*, (Soufian *et al.*, 1388) in 2009, in a 10-year survey of the patients, the rate of mortality was reported as follows: 8.4% due to tuberculosis and 1.2% due to other factors. The percentage of absence from treatment sessions: 1.6% The percentage of the treatment failure: 1.9%. In the study done by Estifanos B shargie, *et al.* in which 19971 patients with tuberculosis were surveyed during 1994-2001, the percentage of treatment failure is about 0.7 and the rate of recurrent cases was 0.7% (Trends, 2007). The mortality rate of the patients with tuberculosis in our study is 0.3% and the other factors are 4.8% which, because of the low rate of mortality, demonstrate no significant difference between the mortality and factors of the patient's death. But it is worthy to be noted that by virtue of the scientific sources and similar studies, the rate of mortality because of tuberculosis accompanied with HIV was higher and should be surveyed in the studies with more samples (Suofian *et al.*, 1381).

The study carried out by Dr.Salek, et.al. on 6168 patients with tuberculosis illustrated that from among the total patients 2528 were male (40.1%) and the rest were female (Salek, 1387). They were classified into three groups of 1812 patients with pulmonary tuberculosis and positive Smear Test (29.4%), 1920 patients with pulmonary tuberculosis and negative Smear Test (31.1%), and 2449 patients with extra-pulmonary tuberculosis (39.7%). The other studies and surveys indicate that the findings are not satisfactory, but different studies show that the amalgamation of DOTS will be useful in achieving appropriate indices and following up the treatment of the patients (Schaaf:).

Conclusion

In general, the findings of the present study accompanied with the results gained from similar studies can be helpful for monitoring the results of treating patients for facilitating levels. In spite of the fact that in the territory covered by the West Tehran Health Center, there are about 5000 doctor's offices, it appears that the private doctor's offices are not active in reporting all the tuberculosis cases to the West Tehran Health Center. It is recommended that the physicians engaged in the private medical centers should be informed of the importance and the process of reporting cases of pulmonary tuberculosis to the health centers.

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