Clinical presentation of tuberculosis: a nine-year single-center experience

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ABSTRACT

Objective. The aim of this study was to determine the clinical presentation of tuberculosis cases from our center for the last nine years. *Methods*. This study was set as descriptive and retrospective. The data was obtained from the hospital records. Subjects who had been diagnosed as tuberculosis and received treatment in our center between the years 2007 and 2015 were included. The cases were classified as newly diagnosed, relapse, transferred, and returning after default. *Results*. There were 276 (171 males and 105 females) patients with a mean age of 41.5 ± 19.2 years. Pulmonary involvement is the most common presentation and seen in 155 (56.2%) patients. Lymph node and pleura are the most common extrapulmonary involvements those are seen in 53 (19.2%) and 23 (8.3%) patients, respectively. Number of the cases seems to decreased after 2012. Most (85.1%) of the patients were newly diagnosed. Among the subjects, 55.2% of them had bacteriologic diagnosis, 35.1% had histopathologic diagnosis. Two subjects died during the treatment period whereas 274 of them completed the treatment program. *Conclusions*. Our results show that tuberculosis is seen mainly in the adult age group. While pulmonary involvement is the most common presentation, lymph node and pleura involvements are the most common extrapulmonary presentations. Number of the tuberculosis seems to decrease for the recent years. Strict preventive measures and treatment strategies should be administered.

Introduction

Tuberculosis still remains a considerable health problem in spite of the strict preventive measures and treatment strategies [1]. Previous studies have already reported the clinical and demographical features, and management of tuberculosis in detail [2-5]. However, recent studies focused on the increased incidence of tuberculosis in the recent years [4-7]. Therefore, the aim of this study was to determine the clinical presentation of tuberculosis cases from our center for the last nine years.

Methods

This study was designed as descriptive and retrospectively. The data were obtained from the hospital records. Subjects previously diagnosed with tuberculosis and received treatment in our center (Elbistan, Turkey) between the years 2007 and 2015 were included. Subjects with missing data regarding the diagnosis and clinical involvement, and transferred to other clinics for their treatments were excluded. Age, gender, year, tuberculosis involvement (thoracic, lymph node, pleura, bone, etc.), and diagnostic method (histopathological, microbiological) have been noted. The cases were classified as newly diagnosed, relapse, transferred, and returning after default. This study protocol was approved by the local ethics committee.

Statistical Analysis

SPSS version 16 (SPSS Inc., Chicago, IL, USA) was used for the statistical analyses. Data were expressed as mean ± standard deviation or percentage. Chi Square test was used to compare categorical variables between the groups. A p value of 0.05 was set as significance.

Results

A total of 276 (171 males and 105 females) patients with a mean age of 41.5 ± 19.2 years were included in this study. Clinical and demographical features are shown in Table 1. Pulmonary and extrapulmonary involvements are shown in Tables 2 and 3. Pulmonary involvement is the most common presentation, and seen in 155 (56.2%) patients. Lymph node and pleura are the most common extrapulmonary involvements those are seen in 53 (19.2%) and 23 (8.3%) patients, respectively.

Table 1. Clinical and demographical features

Variable	Data (n = 276)
Age (years)	41.5 ± 19.2
Gender	
Male	171 (62%)
Female	105 (38%)
Age Group	
Adult (18-64)	218 (79%)
Geriatric (65 ≥)	36 (13%)
Pediatric (< 18)	22 (8%)
Pulmonary	155 (56.2%
Extrapulmonary	108 (39.1%)
Both	13 (4.7%)

Table 2. Pulmonary and extrapulmonary involvements

Involvement	Adult (n = 218)	Geriatric (n = 36)	Pediatric (n = 22)	Total (n = 276)
Pulmonary	123	18	14	155 (56.2%)
Lymph node	38	11	4	53 (19.2%)
Pleura	20	1	2	23 (8.3%)
Bone	10	1	0	11 (4%)
Urinary	6	2	0	8 (2.9%)
Periton	5	0	0	5 (1.8%)
Miliary	4	0	0	4 (1.4%)
Gastrointestinal	2	1	1	4 (1.4%)
Skin	3	1	0	4 (1.4%)
Central Nervous System	3	0	0	3 (1.1%)
Pericardium	2	0	1	3 (1.1%)
Breast	2	1	0	3 (1.1%)

Table 3. Pulmonary and extrapulmonary involvements

Involvement	Adult (n = 218)	Geriatric (n = 36)	Pediatric (n = 22)	Total (n = 276)	*p* value
Pulmonary	123 (56.4%)	18 (50%)	14 (63.6%)	155 (56.2%)	$p > 0.05$
Extrapulmonary	84 (38.5%)	17 (47.2%)	7 (31.8%)	108 (39.1%)	$p > 0.05$
Both	11 (5.1%)	1 (2.8%)	1 (4.6%)	13 (4.7%)	$p > 0.05$

Table 4. Classification of the cases according to the diagnosis

	Adult (n = 218)	Geriatric (n = 36)	Pediatric (n = 22)	Total (n = 276)
Newly Diagnosed	186 (85.3%)	28 (77.8%)	21 (95.5%)	235 (85.1%)
Relapse	18 (8.3%)	4 (11.1%)	1 (4.5%)	23 (8.3%)
Returning after default	3 (1.3%)	0 (0%)	0 (0%)	3 (1.1%)
Transferred in	11 (5.1%)	4 (11.1%)	0 (0%)	15 (5.4%)

Number of tuberculosis patients over the years is shown in Figure 1. Presentation of pulmonary and extrapulmonary involvements over the years is shown in Figure 2. Number of the cases seems to be decreasing after 2012.

Classification of the cases according to the diagnosis is shown in Table 4. Most (85.1%) of the patients were newly diagnosed. Diagnosis method is shown in Table 5. Among the subjects, while 55.2% of them had bacteriologic diagnosis, 35.1% had histopathologic diagnosis. Two subjects died during the treatment period whereas 274 of them completed the treatment program.

Table 5. Diagnosis method

Diagnosis	Data (n = 276)
Bacteriologic	144 (52.2%)
Histopathologic	97 (35.1%)
Quantiferon	2 (0.7%)
Missing data	33 (12%)

Discussion

Tuberculosis is an infectious disease caused by Mycobacterium tuberculosis. Although tuberculosis primarily involves the lungs, any sort of extrapulmonary involvements can be seen [8-13]. Recording, analysis, and reporting the tuberculosis cases is the mainstay of the tuberculosis control program according to the WHO. As such, there is standard data set of special tuberculosis surveillance conducted in the European Region, likewise in our county [7]. In this context, we aimed to define our tuberculosis cases in our center.

The data related to tuberculosis in our county has been recruited individually according to WHO definitions since 2005. Furthermore, directly observed treatment strategy was announced in 2006. These two facts resulted in achieving more reliable data thereafter [14]. We have described the clinical involvement of tuberculosis and our results showed that most of the patients were adults (n = 123) followed by geriatric (n = 18) and pediatric (n = 13) patients. Among 276 cases, 56.2% of them had pulmonary tuberculosis whereas 39.2% (n = 108) had extrapulmonary involvements. In addition, 4.7% (n = 13) had both pulmonary and extrapulmonary tuberculosis. When compared the pulmonary and extrapulmonary involvements between the age groups, no significant difference was observed ($p > 0.05$). Up to 40% of extrapulmonary TB cases are attributable to tuberculous lymphadenitis [15]. Accounting for roughly 4% of all TB cases, pleural TB is the second leading cause of extrapulmonary TB [16].

As for the extrapulmonary tuberculosis in our study; lymph node involvement (19.2%) is the most common presentatin followed by the pleura (8.3%) and bone (4%). Previous studies reported the extrapulmonary tuberculosis rate in different populations [13,17-20]. Compared with them, extrapulmonary tuberculosis rate was higher in our study population. However, our results were consistent with the study done by İnönü *et al*. [20], and government statistics in our country. While absolute numbers have been on the rise, the prevalence of tuberculosis in relationship to population has trended downward during the past 15 years, and global public health efforts have averted an estimated 6 million deaths during this time [2]. On contrast, a decrease was observed in tuberculosis patients in our study population after 2012.

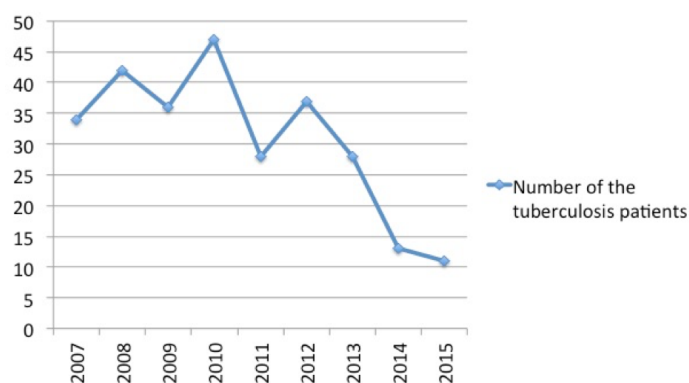When classified the groups according to the

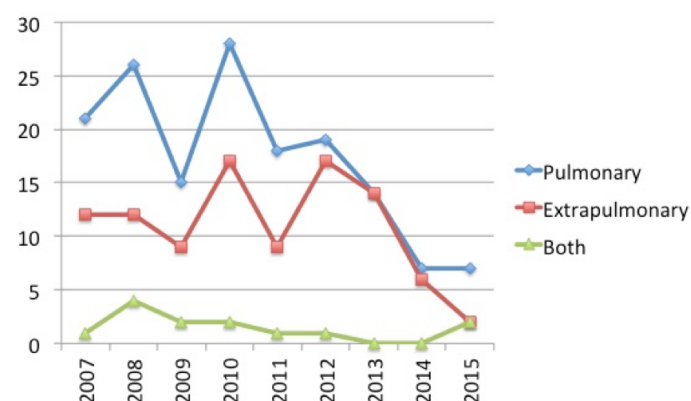**Figure 1.** The number of tuberculosis patients over the years.

Figure 2. The number of pulmonary and extrapulmonary tuberculosis patients over the years.

diagnosis, most of them were newly diagnosed (85.1%) while relapse were seen in (8.3%) patients. Approximately 5% of the patients were transferred in our center and 1.1% was returning after default. Regarding the number of the relapse according to the age groups; although relapse rate was higher in the geriatric group, it did not reach significance. Overall, we herein imply that a possible relapse should be considered in all age groups.

Bacteriologic diagnosis is vital for the early diagnosis and directly observed treatment strategy. This fact will decrease the incidence of tuberculosis in the community. In our study, 55.2% of the subjects were diagnosed with tuberculosis according to the bacteriologic tests, and 35.1% of them according to the histopathological examination. Only two patients were diagnosed with tuberculosis with quantiferon test. However, there is missing data in twelve percent.

Limitations

We have some important drawbacks to the current study. First, our study was conducted as retrospectively. Second, this study lacks several comorbidities such as diabetes mellitus, immunosuppression, malnutrition, and malignancy those might be important for the infection of tuberculosis. Last, aside from the clinical involvement, treatment time, drug resistance, side affects were not mentioned in our study.

Conclusions

In the light of our results, tuberculosis is seen mainly in the adult age group. While pulmonary involvement is the most common presentation in all age group, lymph node and pleura involvements are the most common extrapulmonary presentations. Number of the tuberculosis seems to decrease for the recent years.

Conflict of interest
The authors disclosed no conflict of interest during the preparation or publication of this manuscript.

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