



Research Article

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Evaluation of tuberculosis risk factors in patients referred to Nikoopour clinic of Yazd from April 2020 to March 2021

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Abstract

Tuberculosis (TB) is a major infectious agent leading to death in the world, accounting for 26% of preventable deaths in developing countries. About a third of the world's population is infected with tuberculosis bacilli, the majority of which live in developing countries, including Iran. The aim of this study was to evaluate the risk factors for tuberculosis. This cross-sectional study was performed on 68 TB patients. After preparing the questionnaire, they were given to the infected patients who referred to a clinic in Yazd. Then the obtained data were analyzed. No significant relationship was found between tuberculosis based on gender, occupation, education, nationality, underlying disease, smoking, diabetes, hospitalization history, age, and body mass index. According to the results of the study, it can be concluded that none of the variables: gender, occupation, education, nationality, underlying disease, smoking, hookah use, alcohol, diabetes, TB, family history, age did not increase the incidence of tuberculosis and are not considered as key risk factors for tuberculosis.

Keywords: Tuberculosis, Risk Factors, Yazd.

INTRODUCTION

Today, tuberculosis is considered as an important infectious agent leading to death in the world [1,2]. It includes almost (30%), preventable deaths in developing countries[3]. In fact, one-third of the world's population is infected with tuberculosis, the majority of cases live in developing countries, including Iran [4-6].

TB control and elimination is based on early detection of active TB cases, prompt anti-TB treatment, identification of high-risk individuals, and prevention of secondary TB cases. It all depends on good diagnostic methods and effective treatment [7, 8].

The risk of infection is mainly determined by external factors [9]. Unlike infection, the risk of disease depends largely on endogenous factors such as innate susceptibility to disease and the level of cellular immunity [10]. Since many interventions cannot be done in the immunological defense of individuals and also due to the high mortality of tuberculosis as well as high prevalence and drug resistance and failure to control tuberculosis, identification of risk factors and prevention and treatment of these factors seems necessary [11,12].

Thus, this study aimed to evaluate of tuberculosis risk factors in patients referred to Nikoopour clinic of Yazd during 2020 to 2021.

MATERIALS AND METHODS

In this cross-sectional descriptive study patients with tuberculosis referred to Nikoopour clinic in Yazd were studied. This study was presented in the ethics committee of Shahid Sadoughi University of Medical Sciences of Yazd and was approved.

The sample size was 68 patients who were selected by census method. Patients' information was obtained by filling out a questionnaire (including demographic information and list of risk factors for the disease and the patient's sputum smear status, etc.) as well as using the records of patients and, if necessary, making telephone calls to them.

Limitations of the study were that due to the Covid-19 epidemic, the number of patients with tuberculosis during the study period was significantly reduced compared to previous years. Also, the lack of access to

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all patients and the lack of cooperation of some patients in answering questions were among the problems of this study. Finally, data was analyzed by SPSS.

RESULTS

In this study, 68 patients with tuberculosis including 33 men (48.5%), and 35 women (51.5%), were studied. Patients were divided into 4 groups in terms of occupation: housewife, worker, retired and unemployed, which included 29 (42.6%), 14 (20.6%), respectively. Patients were divided into three illiterate groups of 44 (67.8%), under diploma 14 (20.6%), and diploma and above 10 (14.7%).

In this study, 33 (48.5%), were Iranians and 35 (51.5%), were Afghans, with a higher incidence of Afghan nationality than Iranian nationality.

The mean age of patients was (42.5±22.6), years. The patients were divided into 3 age groups. 24 patients (25.3%), were under 30 years old, 15 patients (22.1%), were 30-49 years old and 29 patients (42.6%), were in 50 and higher age group.

Patients were divided into 5 groups according to Body Mass Index. The first group of tuberculosis patients with BMI less than 18.5, which were 16 cases (23.5%). The second group of patients with (BMI=18.5-24.9),

which were 33 (48.5%). The third group of patients with (BMI=25-29.9), which consisted of 12 patients (17.6%). The next group were TB patients in the range of (BMI=30-34.9), with 3 cases (4.4%). The last group of TB patients had a (BMI=35), which included 4 patients (5.9%).

Out of 68 tuberculosis patients, 52 had a positive sputum smear result and 16 patients had a negative sputum smear result, which included (76.5%), and (23.5%), of patients, respectively.

21 patients (30.9%), had underlying disease, among which the highest incidence of tuberculosis was in patients with diabetes with 16 patients (73.5%).

Among tuberculosis patients, 9 (13.2%), smoked. There were no TB patients with AIDS in the study population.

Out of 33 male TB patients, 24 had positive sputum smear and out of 35 female TB patients, 28 had positive sputum smear. There was no significant difference between positive smear TB based on sex ($p=0.301$). There was also no significant difference between smear-positive pulmonary tuberculosis based on occupation, level of education, nationality, age, BMI and underlying diseases (Table 1).

Table 1: Frequency distribution of sputum smear results according to demographic characteristics

Demographic characteristics		Positive		Negative		Total		p-value
		%	Frequency	%	Frequency	%	Frequency	
Sex	Male	72.7	24	27.3	9	100	33	0.301
	Female	80	28	20	7	100	35	
Occupation	housewife	79.3	23	20.7	6	100	29	0.102
	Worker	57.1	8	42.6	6	100	14	
	retired	72.7	8	27.2	3	100	11	
	Unemployed	92.9	13	7.1	1	100	14	
Education level	illiterate	72.7	32	27.3	10	100	42	0.625
	Under diploma	85	12	14.3	2	100	14	
	Diploma and above	80	8	20	2	100	10	
Nationality	Iranian	78.8	26	21.2	7	100	33	0.436
	Afghan	74.3	26	25.7	9	100	35	
Underlying disease	No	76.6	36	23.4	11	100	47	0.558
	Yes	75.2	16	23.8	5	100	21	
Age	<30	70.8	17	29.2	7	100	24	0.510
	30-49	86.7	13	12.3	2	100	15	
	Above 50	75.9	22	24.1	7	100	29	
BMI	18.5>	81.3	13	18.8	3	100	16	0.802
	18.5-24.9	72.7	24	27.3	9	100	33	
	25-29.9	75	9	25	3	100	12	
	30-34.9	66.7	2	32.3	1	100	3	
	35<	100	4	0	0	100	4	

People with a family member with TB were about 1.9 times more exposed to have pulmonary TB.

DISCUSSION

The results of the present study showed that (51.5%), of patients were female and (48.5%), were male. One study also found that women were more likely than men to get TB [13]. In another study (58.5%), of patients were female and (41.5%), were male [14]. In one study, 149 cases tuberculosis were identified, of which 79 (54%), were male and 70 (46%), were female [15].

Also, the results of the present study on the distribution of job frequency in the studied patients showed that most of the patients (about 43%), were housewives. In one study, the highest incidence in women with tuberculosis was related to housewives (almost 90%), [14].

In the present study (51.5%), of patients were Afghan and (48.5%), were Iranian. In one study, (67%), of patients were Iranian and (33%), Afghan [14].

At present study, there was also no significant difference between smear-positive pulmonary tuberculosis based on sex, occupation, level of education, nationality, age, BMI and underlying diseases. A study in Zahedan found that a history of substance use, three positive sputum smear scores, chest radiographs in favor of tuberculosis, drug resistance, and low socioeconomic status significantly increased the chance of tuberculosis in the persons [16]. The results of a study in India

showed that there is a significant relationship between smoking and tuberculosis [17].

In another study, smoking was an important risk factor for tuberculosis and the response to treatment was dose-dependent on smoking [18]. The results of another study showed that the chance of tuberculosis in anemic patients was 3.56 times of non-anemic individuals and also the severity of tuberculosis was directly related to the severity of anemia [19].

CONCLUSION

This study showed that there was no significant difference between smear-positive pulmonary tuberculosis based on sex, occupation, level of education, nationality, age, BMI and underlying diseases.

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Conflicts of interest

None declared.

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REFERENCES

1. Narasimhan P, Wood J, Macintyre CR, Mathai D. Risk factors for tuberculosis. *Pulm Med*. 2013;2013:828939.
2. Davies PD. Risk factors for tuberculosis. *Monaldi archives for chest disease*. 2005;30:63(1).
3. Kirenga BJ, Ssengooba W, Muwonge C, Nakiyingi L, Kyaligonza S, Kasozi S, et al. Tuberculosis risk factors among tuberculosis patients in Kampala, Uganda: implications for tuberculosis control. *BMC Public Health* 2015;15:1-7.
4. Waitt C, Squire S. A systematic review of risk factors for death in adults during and after tuberculosis treatment. *The International journal of tuberculosis and lung disease* 2011;15:871-85.
5. Behnaz F, Mohammadzadeh M, Mohammadzade G. Five-year assessment of time of sputum smears conversion and outcome and risk factors of tuberculosis patients in Central Iran. *Tuberculosis research and treatment*. 2015;2015: 609083.
6. Dizaji MK, Kazemnejad A, Tabarsi P, Zayeri F. Risk factors associated with survival of pulmonary tuberculosis. *Iranian Journal of Public Health*. 2018;47(7):980.
7. Lee CH, Lee MC, Lin HH, Shu CC, Wang JY, Lee LN, et al. Pulmonary tuberculosis and delay in anti-tuberculous treatment are important risk factors for chronic obstructive pulmonary disease. *PloS one*. 2012;25:7(5):e37978.
8. Adamu AL, Gadanya MA, Abubakar IS, Jibo AM, Bello MM, Gajida AU, et al. High mortality among tuberculosis patients on treatment in Nigeria: a retrospective cohort study. *BMC Infect Dis* 2017;17:1-11.
9. Sterling TR, Lau B, Zhang J, Freeman A, Bosch RJ, Brooks JT, et al. Risk factors for tuberculosis after highly active antiretroviral therapy initiation in the United States and Canada: implications for tuberculosis screening. *J Infect Dis* 2011;204:893-901.
10. Seyler C, Toure S, Messou E, Bonard D, Gabillard D, Anglaret X. Risk factors for active tuberculosis after antiretroviral treatment initiation in Abidjan. *Am J Respir Crit Care Med* 2005;172:123-127.
11. Kumari P, Meena LS. Factors affecting susceptibility to *Mycobacterium tuberculosis*: a close view of immunological defence mechanism. *Appl Biochem Biotechnol* 2014;174:2663-2673.
12. Nicod LP. Immunology of tuberculosis. *Swiss Med Wkly* 2007;137:357-362.
13. Rezaei F, Saghaipour A, Karami Jooshin M. Epidemiological Assessment of Extrapulmonary Tuberculosis in Qom Province during 2008-2015 (Iran). *Qom University of Medical Sciences Journal* 2017;11:111-117.
14. Khalife Soltani SA, Afzali H, Arbabi M. Epidemiology of Tuberculosis among patients referred to the center against Tuberculosis in Kashan, 1993-95. *KAUMS Journal (FEYZ)* 1998;1:81-88.
15. Raham M, Azrghon A, Zndadel A. Epidemiology of tuberculosis in Lorestan, 2008-2009. *Quarterly Research Journal (Yafte)* 2012;14:41-47.
16. Moatamedizadeh B, Ansari H, Payandeh A, Tabatabae S, Ramadanpouramirdehi A. Evaluation of Tuberculosis Recurrence and Its Determinants in the Southeast of Iran: A Nested Case-Control Study Based on Data from 2012 to 2018. *Iranian Journal of Epidemiology* 2020;16:17-26.
17. Maurya V, Vijayan V K, Shah A. Smoking and tuberculosis: an association overlooked. *The International journal of tuberculosis and Lung Disease* 2002;6:942-951.
18. Alcaide J, Altet M, Plans P, Parron I, Folguera L, Salto E, et al. Cigarette smoking as a risk factor for tuberculosis in young adults: a casecontrol study. *Tuber Lung Dis* 1996;77:112-116.
19. Gelaw Y, Getaneh Z, Melku M. Anemia as a risk factor for tuberculosis: a systematic review and meta-analysis. *Environ Health Prev Med* 2021;26:1-15.