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Pattern of Tobacco Consumption among TB Patients in a Tuberculosis Referral Center

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ABSTRACT

Background: *Tuberculosis (TB) is among the major causes of illness and death worldwide, especially in Asia and Africa. On the other hand, tobacco use is the most important preventable and the second biggest cause of death throughout the world. Smoking is associated with recurrent tuberculosis and its related mortality. Also, it could affect clinical manifestations, bacteriological conversion and outcome of treatment. This study aimed to evaluate the pattern of tobacco smoking, history of previous quit attempts, and attitude towards quitting in tuberculosis patients.*

Materials and Methods: *It was a cross-sectional study done amongst pulmonary TB patients presented to Masih Daneshvari Hospital. Two hundred patients entered the study as "First Come First Serve". Self-reported questionnaires were designed according to the standard questionnaires of smoking pattern.*

Results: *A total of 93.5% were males. The mean age was 39.8±1.73 yrs. Thirty-four percent of them were current smokers at the time of interview, 7.5% were occasional smokers and 28% of smoker patients had a history of at least one quit attempt.*

Conclusion: *Considering the prevalence of smoking in TB patients, evaluation of tobacco smoking status in such patients and motivating them to quit smoking could be considered as important steps in their treatment process.* ***(Tanaffos2011; 10(2): 50-55)***

Key words: *Tuberculosis, Smoking cessation, Tobacco, Smoking*

INTRODUCTION

Chronic diseases are conditions that require years or even decades of constant care and are usually associated with irreversible manifestations and an apparent or hidden constellation of disease complications or injuries. In other words, chronic conditions result in gradual but stable physical and mental deterioration affecting patients' quality of life. These conditions result in decreased function, and impaired personal and social relations. Tuberculosis belongs to the group of communicable diseases which include hepatitis, AIDS and etc and as a current condition requires further investigation.

Tuberculosis is amongst the most common causes of morbidity and mortality in the world especially in

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Asia and Africa. In 2006, 9.2 million new TB cases and 1.7 million deaths due to tuberculosis were reported globally (1). On the other hand, cigarette smoking is amongst the most preventable causes of mortality and the second cause of death worldwide. At present, smoking is the cause of one out of every 10 deaths that occur. According to the WHO estimates, the rate of morbidity and mortality due to tobacco consumption will reach 8 million by the year 2030 (2). Based on the Ministry of Health statistics, prevalence of tobacco consumption in Iran in the year 2000 was 12.5% (25% of males and 2.5% of females)(3).However, the growing trend of tobacco consumption among adolescents and the youth has been worrisome. In 2003, according to the findings of Global Youth Tobacco Smoking (GYTS) project 12% of the 13-15 year-old Iranian students were occasional smokers. In the second phase of this project conducted in 2007, this rate reached 27% (4). A correlation between tobacco consumption and tuberculosis was suggested and confirmed in 1918 and has become the center of attention during the recent years (5). Current studies have highlighted several correlations between cigarette smoking and TB infection (6). Tobacco consumption is directly correlated with recurrence and disability due to TB. Also, cigarette smoking impacts clinical manifestations, bacteriologic conversion and treatment outcome of disease (7). In other words, one of every 5 deaths due to TB could have been prevented if the patient was not a smoker (8-10). That is why TB patients should be a target of smoking cessation programs. Disease recurrence is one of the most important challenges encountered during the course of treatment in TB patients. Possible causes of recurrence include poverty, incarceration, HIV and substance abuse (11). Treatment compliance is another important factor for successful treatment of tuberculosis. Absence from work in smoker TB patients may be due to their nicotine addiction (12). Collecting information regarding the pattern of tobacco consumption and prevalence of smoking can enhance our knowledge in order to prevent and control cigarette smoking (13).

This study aimed to evaluate pattern of tobacco consumption, history of quit attempts, and attitude towards quitting in TB patients presenting to the infectious disease clinic of Masih Daneshvari Hospital.

MATERIALS AND METHODS

This was a descriptive analytical cross-sectional study conducted during a 9-month period from September 2008 to May 2009. All patients presented to the infectious disease clinic of Masih Daneshvari Hospital during this time period entered the study. Data were collected by trained technicians through face to face interview with patients. Only patients who were fully alert and conscious entered the study after obtaining a written informed consent from them. The questionnaire contained 38 questions and was designed according to the IUATLD questionnaire for tobacco consumption and ASI (Addiction Severity Index) questionnaire for smoking and substance abuse. Data regarding patients' age, sex, number of children, nationality, occupation, place of residence, age of initiation of smoking, pattern of smoking, the first experience of cigarette offering, quit attempts and number of cigarettes smoked per day were collected and entered the questionnaires. TB patients were defined as new or old TB cases whose disease had been confirmed by an infectious disease specialist in the infectious disease clinic of Masih Daneshvari Hospital. Collected data were analyzed using SPSS version 16 software. Mann Whitney U test and Pearson's correlation coefficient were also used. P-value less than 0.05 was considered significant.

RESULTS

Our understudy population included 200 TB patients. There were 187 males (93.5%). The mean age of patients was 39.8± 1.73 yrs. A total of 57% of the participants were in the age range of 21-39 yrs, 28.5% were in the age range of 40-59 yrs, 9.5% were over 60 yrs, and 5% were under 20 yrs of age. In terms of nationality, 83.5% were Iranian, 5% were Afghans, 5% were Azerbaijani and 1% were Iraqis. All 200 patients had experienced smoking which means they have had smoked at least one cigarette so far of which 97 patients (48.5%) had smoked equal or more than a hundred cigarettes.

A total of 68 subjects (34%) were daily smokers at the time of questioning. They smoked at least one cigarette a day and 15 patients (7.5%) were occasional smokers. The mean number of cigarettes smoked per day is illustrated in figure 1.

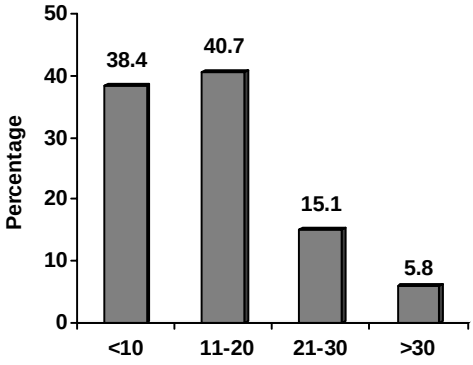

Figure 1. Mean number of cigarettes smoked per day

In terms of quit attempts, 56 subjects (28%) had at least one quit attempt. While 27 of them were current smokers. Among those who had quit attempts, only one case (0.5%) had done it by using proper medications and under the supervision of a physician. The remaining 56 subjects (28%) tried quitting with no medications involved. Eighty-five patients were asked about the risk of future consumption out of which 43 stated that they are not going to smoke in the next 5 years whereas 42 cases predicted continuation of smoking. This prediction was significantly correlated with number of cigarettes smoked per day (Table 1).

Table 1. The frequency of smoking cessation prediction in the next 5 years based on the number of cigarettes smoked per day

Daily smoking / Prediction of Smoking	≤10 cigarettes No. (%)	≥ 10 cigarettes No. (%)	Total
Will smoke in the next 5 years	11 (33.3)	31(59.6)	42
Will not smoke in the next 5 years	22(66.7)	21(40.4)	43
Total	33	52	85

P=0.018

Also, participants were asked about their opinion regarding harmful effects of smoking on the health of others in order to evaluate their knowledge in this respect. A total of 132 patients (66%) strongly and 56 cases (18%) relatively agreed that cigarette smoke is harmful for others, 6 cases (3%) had no opinion and 6 cases (3%) disagreed to the harmful effects of secondhand smoke.

In terms of knowledge about the harmful effects of smoking, 162 patients (81%) were aware of the adverse effects of smoking on the lungs, 18 patients (9%) knew about the harmful effects of smoking on the cardiovascular system, 12 cases (6%) were aware of the addictive nature of smoking and 4 cases (2%) knew that smoking can cause cancer.

DISCUSSION

Our study results revealed the fact that many of TB patients are active or occasional smokers. In West Africa, prevalence of tobacco consumption among TB patients was twice the rate in housewives (35% Vs. 17%) (14). This figure was 3.5 times greater in India (86% Vs. 24%) (9). In a study conducted by Gullón Blanco and colleagues (15) on

the impact of smoking on sputum smear of TB patients, 64% of patients were smokers.

Considering our study findings, smoking cessation interventions by the medical staff implementing the DOTS seem necessary. In our study, more than ¾ of smoker TB patients had previous quit attempts and most of them had done it personally with no help from outside.

In a study conducted in Indonesia (16) it was shown that 72% of TB patients had tobacco consumption. By using smoking cessation interventions, this rate decreased to 11% at the time of next visit. This figure reduced further to 2%, 1-3 months after treatment.

In the same study, amongst 139 cases that were evaluated, only 30% were asked about the habit of smoking. As mentioned earlier, in our study only 0.5% of cases had used medications in order to quit smoking which justifies the need for comprehensive and fundamental smoking cessation programs. Also, the knowledge of TB patients about the health hazards of smoking was relatively high in our study which was in accord with the previous study findings (16). In their study, 94% of smoker TB patients who quit smoking and 56% of those who did not succeed to quit believed that even smoking one cigarette is hazardous to the health.

It seems that high knowledge of our study patients about the adverse effects of smoking on the lungs may be due to the fact that these patients had a pulmonary disease and experienced related complications.

El Sony et al. believe that smoking cessation consultation for smoker TB patients should focus on enhancing their knowledge about the hazardous effects of smoking on health and especially their disease (17).

Considering the prevalence of tobacco consumption among TB patients, evaluation of the cigarette smoking status in TB patients and encouraging them to quit play an important role in control and treatment of tuberculosis (18). Adding behavioral studies and nicotine replacement therapies to the DOTS can result in faster recovery, shorter infectious period and prevent treatment failure (19). Prevention of tobacco consumption and encouraging people to stop smoking can decrease the incidence of clinical cases of TB and related deaths (20). According to the articles 12 and 14 of the Framework Convention on Tobacco Control, an important strategy is to equip medical centers with smoking cessation clinics and provide patients with tobacco cessation programs (21). Prevalence of tobacco consumption in TB patients was greater than similar healthy subjects in our country. In a study done in 2006 in 4 areas of Tehran, prevalence of daily tobacco consumption was 22.7%. This is especially important because according to Thomas et al. study (22), tobacco consumption is an independent predictive factor in TB recurrence (OR: 3.1%, 95% confidence interval (CI): 1.6-6.0).

CONCLUSION

It looks like TB and tobacco consumption epidemics will continue their growing trend and developing countries will still be involved-even more than before with the adverse effects and consequences of these two major public health hazards. In this respect, merging the two systems suggested by the WHO namely DOTS for TB and MPOWER for tobacco control and enhancing each one by the other can be a great strategy for controlling these obstacles. By promoting smoking cessation in TB patients, we can increase patients' compliance to treatment, improve their interpersonal and social communications, decrease their stress, and control their risky behaviors.

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REFERENCES

1. WHO report 2008, Global tuberculosis control-surveillance, planning, financing. www.who.int/tb/publications/global_report/2008/pdf/fullreport.pdf
2. WHO report on the global tobacco epidemic, 2008. The MPOWER Package. http://www.who.int/tobacco/mpower/en/index/html.
3. Mohammad K, Noorbala AA, Majdzadeh SR, Karimloo M. Trends of Prevalence of Tobacco consumption in Iran (1370-78), According to two National Health and disease projects. ***Hakim Journal*** 2000; 197: 290- 4.
4. Trends in tobacco use among school students in the Eastern Mediterranean Region 2007. http://www.emro.who.int/tfi/pdf/tobacco%20-among-school-students.pdf
5. Slama k, Chiang CY, Enarson DA. Educational series: Tobacco and Tuberculosis. Tobacco cessation intervention for tuberculosis patients. ***Int J Tuberc Lung Dis*** 2007; 11(6): 612- 6.
6. Slama K, Chiang CY, Enarson DA, Hassmiller K, Fanning A, Gupta P, et al. Tobacco and tuberculosis: a qualitative systematic review and meta-analysis. ***Int J Tuberc Lung Dis*** 2007; 11 (10): 1049- 61.
7. Abal AT, Jayakrishnan B, Parwer S, El Shamy A, Abahussain E, Sharma PN. Effect of cigarette smoking on sputum smear conversion in adults with active pulmonary tuberculosis. ***Respir Med*** 2005; 99 (4): 415- 20.
8. Leung CC, Li T, Lam TH, Yew WW, Law WS, Tam CM, et al. Smoking and tuberculosis among the elderly in Hong Kong. ***Am J Respir Crit Care Med*** 2004; 170 (9): 1027- 33.
9. Gajalakshmi V, Peto R, Kanaka TS, Jha P. Smoking and mortality from tuberculosis and other diseases in India: retrospective study of 43000 adult male deaths and 35000 controls. ***Lancet*** 2003; 362 (9383): 507- 15.
10. Sitas F, Urban M, Bradshaw D, Kielkowski D, Bah S, Peto R. Tobacco attributable deaths in South Africa. ***Tob Control*** 2004; 13 (4): 396- 9.
11. Cain KP, Haley CA, Armstrong LR, Garman KN, Wells CD, Iademarco MF, et al. Tuberculosis among foreign-born persons in the United States: achieving tuberculosis elimination. ***Am J Respir Crit Care Med*** 2007; 175 (1): 75- 9.
12. Howard AA, Klein RS, Schoenbaum EE, Gourevitch MN. Crack cocaine use and other risk factors for tuberculin positivity in drug users. ***Clin Infect Dis*** 2002; 35 (10): 1183-90.
13. Sharifi H, Heydari Gh, Emami H, Masjedi MR. Tobacco smoking pattern: Cigarette vs.Hookan. ***Tanaffos*** 2009; 8(1): 62-67.
14. Lienhardt C, Fielding K, Sillah JS, Bah B, Gustafson P, Warndorff D, et al. Investigation of the risk factors for tuberculosis: a case-control study in three countries in West Africa. ***Int J Epidemiol*** 2005; 34 (4): 914- 23.
15. Gullón Blanco JA, Suárez Toste I, Lecuona Fernández M, Galindo Morales R, Fernández Alvarez R, Rubinos Cuadrado G, et al. Tobacco smoking and sputum smear conversion in pulmonary tuberculosis. ***Med Clin (Barc)*** 2007; 128 (15): 565- 8.
16. Ng N, Padmawati RS, Prabandari YS, Nichter M. Smoking behavior among former tuberculosis patients in Indonesia: intervention is needed. ***Int J Tuberc Lung Dis*** 2008; 12 (5): 567- 72.
17. El Sony A, Slama K, Salieh M, Elhaj H, Adam K, Hassan A, et al. Feasibility of brief tobacco cessation advice for tuberculosis patients: a study from Sudan. ***Int J Tuberc Lung Dis*** 2007; 11 (2): 150- 5.
18. McBride CM, Emmons KM, Lipkus IM. Understanding the potential of teachable moments: the case of smoking cessation. ***Health Educ Res*** 2003; 18 (2): 156- 70.
19. Anderson JE, Jorenby DE, Scott WJ, Fiore MC. Treating tobacco use and dependence: an evidence-based clinical practice guideline for tobacco cessation. ***Chest*** 2002; 121 (3): 932- 41.

20. Stanton H. The Millennium Development Goals and Tobacco Control: an Opportunity for global partnership. ***Tob Control*** 2005; 14 (6): 432.
21. World Health Organization, WHO Framework Convention on Tobacco control. A56/8.Geneva: WHO, 2003. www.who.int/gb/EB_WHA/PDF/WHA56/ea568.pdf (accessed 16 June 2003)
22. Thomas A, Gopi PG, Santha T, Chandrasekaran V, Subramani R, Selvakumar N, et al. Predictors of relapse among pulmonary tuberculosis patients treated in a DOTS programme in South India. ***Int J Tuberc Lung Dis*** 2005; 9 (5): 556- 61.