STUDY TO KNOW THE RELATIONSHIP BETWEEN PULMONARY TUBERCULOSIS AND CIGARETTE SMOKING

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Abstract:
Objective: To verify the pulmonary tuberculosis and cigarette smoking relationship.
Study Design: A retrospective study.
Place and Duration: The study was conducted at the Pulmonology Department of Nishter Hospital, Multan for one year period from December 2016 to December 2017.
Methodology: Sixty patients with recorded pulmonary tuberculosis (positive smear) having age of 15-96 years were included in the study and 122 were randomly selected as the control group, age and sex without tuberculosis (in-patient surgical facilities and orthopedics). cigarette smoking, number of smoking cigarettes and smoking cessation were obtained from medical records. Data in two groups were compared using the SPSS 16. To compare cigarette smoking frequency in the two group's chi-square test was used. Where appropriate, 95% confidence intervals were calculated. P value difference of <0.05 was considered significant.
Results: There were 122 controls and 22 (18%) total smokers, 61 of them smoked 42 (68.9%) smokers. The probability ratio (OR) between tuberculosis and smoking was 10.1 with confidence interval of 23.5 95 4.3), p <0.001]. controls and cases were 13.5 ± 9.1 and 15.9 ± 13.7 (p = 0.6), respectively, in the average pocket smoking year (20 / pocket).
Conclusion: This study has shown that there is association between smoking and pulmonary tuberculosis. The relationship is not bound to dose. Risk factor for TB is smoking.
Keywords: Smoking, Tuberculosis, association.

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INTRODUCTION:

50000 Tuberculosis (TB) with an incidence rate of 27 to 100 people. During TB exposure of tuberculous baccilus causing TB is the most important infectious disease endemic to Pakistan. Although direct observation treatment strategy (DOT) reduces TB contamination and its incidence, TB in Pakistan is still a good public issue of health. Chronic exposure can allow the Mycobacterium tuberculosis organism to destroy the normal space of the secretions on the surface of the tracheo-bronchial mucosa, thereby preventing the host defense from reaching the alveoli, causing host defense to escape to the first level. Smoke is also an important enhancing mechanism against M. tuberculosis infection's cellular target, also premature bacteria, pulmonary alveolar macrophages, disrupts its function. Recent studies have suggested a new mechanism for this effect; The hypothesis directly acts on macro-nicotinic acetylcholine receptors to reduce the production of α, intracellular, tumor necrosis factor, which causes the dominant complication of smoking, tuberculosis, because of nicotine and cancer, cardiovascular infections related to the number of cigarettes consumed in package-years. These problems are more common in smokers who consumed (> 26 pack in one year) than in light smokers (<26 pack in one year). There is no harmony on whether TB risk increases with smoking. Last studies on the relationship between clinical tuberculosis and smoking controls prove that there was a high clinical TB risk among smokers regardless positivity of AFB, age or socioeconomic status, setting for age, type of controls. In Pakistan Smoking is increasing where tuberculosis is a major issue. For Pakistan, it is important that health policy makers should make strategies to control smoking in order to reduce the effect of tuberculosis in Pakistan. Now that we have assessed the effect of limited trials on tuberculosis and the lack of researches proving the relationship between tuberculosis and smoking in the study area, we carried out this retrospective study in southern Pakistan. To know whether smoking cigarettes are effective on tuberculosis in our population this study was done. The prospect of this and the possible role of cigarette as a risk factor will help to reduce tuberculosis-related mortality and morbidity by lowering the smoking rate.

MATERIALS AND METHODS:

This retrospective study study was conducted at the Pulmonology Department of Nishter Hospital, Multan for one year period from December 2016 to December 2017.Duration and number of days, imprisonment, HIV status, and dependency on medications, relevant demographic characteristics underlying medical problems and illnesses, medical history, cigarettes taken from their archives. 60 patients were enrolled in the study as TB patients and one hundred and twenty patients of the same age and sex without tuberculosis control. criteria for inclusion in the study for documented tuberculosis cases were identified according to the National Tuberculosis Program (NTP). A chest radiograph (CX rays) with at least two acid-fast bacilli positive smears (SSP-AFB) or tuberculosis suggestive plus positive or SSP-ARB positive culture were defined as SSP-AFB pulmonary tuberculosis and M. tuberculosis .The frequency of cigarettes smoked by the patients was examined on yearly basis. Exclusion criteria: information that is under 15 years old and incomplete. In two groups data was compared with SPSS 16 statistically. To compare the smoking frequency, chi-square test was used in both groups. Where appropriate, confidence intervals was recorded in ninety-five percent of cases. P value differences less than 0.05 were regarded significant.

RESULTS:

61 cases were studied with 122 controls with 42.0 ± 18.08 years of a mean age and an average age of 41.0 ± 16.08 years. Of the 61 cases, 43 (69.09%) were smokers. A total of 122 controls smoked 22 (18%). The predicted odds ratio (OR) between tuberculosis and smoking was 10.2 [(96% confidence interval [CI]: 4.4 to 22.95), p less than 0.001]. The average number of cigarettes per day in controls and cases was 9.0 ± 8.01 and 7.0 ± 6.9, respectively with P equal to 0.5). The average packing size of cigarette (20 / pack) in controls and cases was 14.0 ± 9.0 and 16.0 ± 14.17, respectively (P equal to 0.5). The residence status, other data and morbidity among the studied patients are given in Table I.

Table-I: Underlying diseases and characteristics of cases and controls

Variables	Cases n=61 n (%)	Controls n=122 n (%)	P value
Residency : urban	50(81.9)	104(85.2)	
rural	11(18.1)	18(14.8)	0.35
HIV*	5(8.2)	2(1.6)	0.04
Imprisonment*	18(29.5)	17(13.9)	0.01
IDU*	34(55.7)	12(9.8)	<0.0001
Diabetes mellitus	7(11.5)	9(7.4)	0.25
CDS	4(6.5)	9(7.4)	0.55
Dialysis	2(3.3)	2(1.6)	0.40

HIV; Human immunodeficiency virus, IDU; Injection drug user. CDS; Cardiovascular diseases.
* Difference is significant

There were vast differences in injecting drug use (IDU), HIV infection and incarceration between the 2 groups (P less than 0.05).

DISCUSSION:
This is the first work of the line in South Punjab and probably in Pakistan. This study has shown that tuberculosis important risk factor is cigarette smoking that was documented previously in the literature. For this reason, this conclusion suggests that it is important to develop policies and strategies to control cigarette consumption in order to lower the impact of tuberculosis in Pakistani population health. The recent review of the published reports has shown that the odds ratio of smoking as a risk factor for tuberculosis changed in different areas and this changed between 2.1 and 3.13. There is a possible explanation for a stronger relationship between tuberculosis and smoking in our study. The presence of other risk factors such as incarceration, use of injectable drugs and HIV infection in our patients may be responsible for the development of tuberculosis. An earlier study in Ahvaz has suggested that the tuberculosis prevalence and mortality is due to incarceration, IDUs and HIV infection. For this reason, it is likely that in people with tuberculosis, the higher the prevalence of cigarette smoking, the higher the prevalence of lifestyle, the time spent in prison, or the time spent in patients. Significantly, in our study the prevalence of smoking is not stunning. We have seen that TB is more common in men than women. This is consistent with previous work. In the study area, men are at increased risk of exposure to cigarette smoke due to their high risk behaviors. They also participate in parties or activities that are exposed to greater risk of smoking. Patients hospitalized in the infectious disease ward were found to have a higher risk of smoking than the control group (68.9% vs. 18%). This may be due to the fact that the patients who are admitted to this ward are more likely to be exposed to risk factors for TB. This study showed that the total amount of smoking cessation of tuberculosis was not a significant effect on the development of tuberculosis. This finding is contrary to previous studies suggesting that the increase in the number of smokers in cigarettes is associated with an increased risk of tuberculosis. The reason for this finding is unclear, and more prospective work is needed to get better results. There is an obvious effect on tuberculosis control in our region where smoking is an important risk factor for tuberculosis. The high prevalence of tuberculosis in patients with tuberculosis attaches great importance to the struggle against smoking in the population, especially in young people and tuberculosis patients.

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