

Original Article

PULMONARY TUBERCULOSIS AND TOBACCO SMOKING

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Objective: To determine the clinical, radiological, bacteriological and therapeutic effects of pulmonary tuberculosis in tobacco smoking.

Methods: Hundred cases were divided into 2 groups, 50 smoking patients: Group A and 50 non-smoking patients: Group B. All our patients were male, the mean age was 41 years \pm 12 in group A and 36 years \pm 16 in group B. The consultation time was longer for smokers, the median was 60d (30; 98) against 40d (30; 60), the clinical symptomatology was variable in both groups, dominated by sputum in smokers 96% versus 60%.

Results: The radiological lesions were similar in both groups as well as the bacillary load. All patients were put on anti-tuberculosis treatment. After one month of treatment, microscopy was negative in 50% of group A versus 66% in group B. the regression of radiological lesions was similar in both groups. The delayed diagnosis due to the delay in analysis of the sputum smears and lack of smoking cessation is the main point of complication in the pulmonary tuberculosis patients.

Conclusions: Smoking cessation and sputum microscopy must be an integral part of the management of patients with tuberculosis.

Keywords: pulmonary tuberculosis, smoking, bacillary load.

Introduction

Smoking and tuberculosis are two major public health issues at the global level, especially in emerging countries. The relationship between tobacco and pulmonary tuberculosis has been suspected since 1918 and it is only recently that the effect of tobacco on tuberculosis has been identified.¹ The purpose of our study is to provide information of the effect of smoking on the clinical, bacteriological, radiological and progressive aspects of pulmonary tuberculosis patient. To determine the effect of smoking on treatment of smear positive tuberculosis patients.

Methods

Prospective study conducted at the Pulmonology Department of the DHQ Hospital Faisalabad over a period of 10 months, covering 100 new cases hospitalized for pulmonary tuberculosis with positive microscopy, divided into 2 groups, 50 patients with tobacco smoking: Group A and 50 patients non-smoking: Group B. Excluded from this work were immunocompromised patients.

Results

The mean age was 41 years \pm 12 in group A and 36 years \pm 16 in group B. In group A, the degree of tobacco intoxication ranged from 10 to 80 packets / year (AP) with a degree of average poisoning

estimated at 18 packs / year. The consultation time was longer for smokers, with a median of 60 days (30; 98) versus 40 days (30;60). The clinical symptomatology was variable in both groups, dominated by sputum in smokers: 96% versus 60% (**Fig-1**). Radiological lesions were similar in both groups (**Fig-2**) and bacillary load. Treatment was similar in the 2 groups combining rifampicin - isoniazid - pyrazinamide and ethambutol for 2 months, then rifampicin and isoniazid for 4 months. After one month of treatment, microscopy was negative in 50% of group A versus 66% in group B. We found poor compliance with significant treatment in both groups. Treatment was generally well tolerated in both groups. The regression of radiological lesions was similar in both groups.

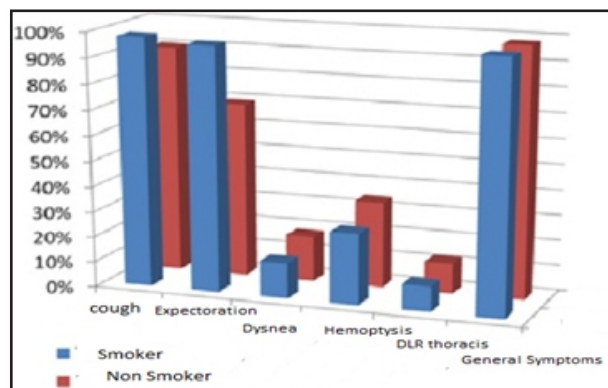


Fig-1: Comparison of clinical symptoms in both groups.

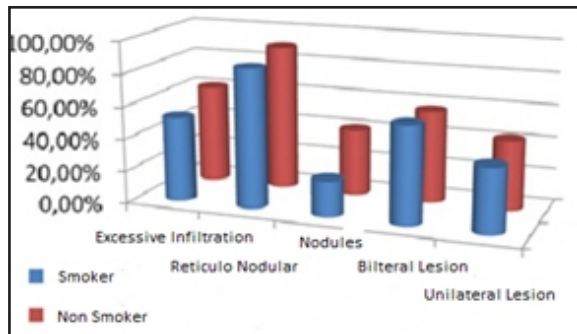


Fig-2: Comparison of radiological abnormalities observed in both groups.

Discussion

Smoking and tuberculosis are two major public health issues at the global level, especially in emerging countries. Tobacco smoke promotes *Mycobacterium tuberculosis* infection by several mechanisms: impaired mucociliary clearance,^{1,2} reduced performance of alveolar macrophages,^{3,4} immunosuppression of pulmonary lymphocytes,⁵ decreased the cytotoxic activity of natural killer cells, alteration of the activity of pulmonary dendritic cells.⁶⁻⁸ Promiscuity, low socio-economic status, HIV infection and genetic susceptibility to TB^{9,10} are factors that contribute to the maintenance of tuberculosis. Smoking is one of the risk factors for the onset of this disease. Davies et al. have shown that the incidence of tuberculosis increases with smoking, and that this risk is multiplied by 4 from consumption exceeding 20 cigarettes per day.¹¹

Regarding the study of clinical symptomatology, we found no difference between the 2 groups in the sputum. The study by Fekih et al¹² showed. There was no significant difference between smokers and non-smokers regarding the clinical signs of the disease (coughing and slimming). In contrast to other studies that have shown that clinical signs during tuberculosis were much higher in case of associated smoking.¹³ The consultation time is longer for smokers. The study by Fekih et al.¹² also

showed a delayed diagnosis of upper pulmonary tuberculosis in smokers compared to non-smokers. Radiologically, we found an association of lesions (nodules, infiltrates and excavations) in both groups. In a study conducted in Tunisia,¹⁴ the severity of initial radiological lesions (nodules, infiltrates, excavated opacities) and the radiological sequelae (opacities excavated and / or pulmonary fibrosis) of pulmonary tuberculosis were greater in smokers than in non-smokers fumeurs. On the other hand, the study by Fekih et al¹² showed initial radiological lesions (bilaterality), were larger and more frequent in smokers than in non-smokers. It was the same for clinical (dyspnea) and radiological (pulmonary fibrosis) sequelae. Several studies have shown that smoking was associated with poor adherence to treatment.¹⁵⁻¹⁹

As in our study, a longer delay in the analysis in microscopy was observed for smokers compared to the non-smokers group in other series.^{14,20} Thus the study of Fekih et al.¹² showed a delay in curing upper pulmonary tuberculosis in smokers compared to nonsmokers WHO²¹ recalled experts' recommendations: stopping smoking is an essential means of controlling TB in emerging countries.^{22,23} Smoking cessation support procedures have been developed to facilitate the support of smoking patients in the follow-up of their TB disease. The DOTS strategy may lend itself to smoking cessation support.²⁴

Conclusion

The delayed diagnosis due to the delay in analysis of the smears and active smoking are the main factors of complications in pulmonary tuberculosis treatment. Tobacco smoke, by altering lung defenses against *Mycobacterium tuberculosis* infection, is one of the factors increasing the risk of tuberculosis. Smoking cessation must be an integral part of the management of patients with tuberculosis.

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