ORIGINAL ARTICLE

Correlation of Compliance of Anti-tuberculous Therapy with Various Demographic Factors

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ABSTRACT

Objective: To see the association of compliance of anti-tuberculous therapy with various demographic variables.

Subjects and methods: This was a retrospective follow-up study of 100 consecutive patients of pulmonary tuberculosis registered between August 2010 and August 2011. The venue of this study was Department of Medicine, Sandman provincial Hospital Quetta. All included patients were >15 years, and had either previous history of tuberculosis or had fever, cough, weight loss, night sweats etc. Patients who were found to be non–tuberculous were excluded from the study. Treatment was given in two phases. The compliance of the patients was judged regarding: age, gender, occupation, socio-economic status, pre-treatment smear result, and immigrant status. Using computer-based software SPSS-10 carried out analysis of the data.

Results: Out of 100 patients of pulmonary tuberculosis included in this study, 56 were males and 44 females. The ratio of male to female was 1.2:1. The age range was 15-70 years. An overall compliance at the end of 6 months therapy was found to be 53 %. In the age group 15-30 years, 45.5% completed the therapy of 6 months while in the age group 31-45, 68.4% of the patients, and in age group 61-75 years completed the therapy of 6 months. 59.1% of the females and 48.2 % of the males completed the treatment of 6 months. The patient's compliance at the end of therapy was best in the house bound 58.3%, followed by servicemen in whom 57.1% completed the treatment. Compliance was lowest in the labourers, 47.1%. P value was 0.9993 (not significant) 72.1% of the patients having sputum positive for AFB and 38.6% with negative pre-treatment sputum results completed the treatment of 6 months. (P value was 0.3187). 67.5% of the native patients and 43.3 % of the immigrant patients completed the treatment. P value was 0.5106.

Conclusion: Following factors are associated with good compliance: age group 61-75 years, female gender, service man, sputum positive and native status.

Key words: Tuberculosis, Compliance, Gender

INTRODUCTION

An adequate and appropriate anti-TB drug prescription is of crucial importance in order to "cure" a TB patient of his or her disease.[1] Studies have shown that Higher the knowledge about their diagnosis as having tuberculosis and higher their knowledge about the durations of having to take the anti-tuberculosis drugs results in higher their expectation for the efficacies of taking the drugs resulted in higher compliance with anti-tuberculosis medication.[2] Non-compliance to self-administered multi drug tuberculosis treatment regimens is an important cause of failure of initial therapy and relapse as well as acquired drug resistance, requiring more prolonged and expensive.[3] In the present study we have considered the association of compliance with different demographic variables.

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PATIENTS AND METHODS

This was a retrospective follow-up study of 100 consecutive patients of pulmonary tuberculosis registered between August 2010 and August 2011. The venue of this study was Department of Medicine, Sandman provincial Hospital Quetta. All included patients were > 15 years, and had either previous history of tuberculosis or had fever, cough, weight loss, night sweats etc. Following selection a detailed history and physical examination was done and the patients were investigated with sputum for AFB and chest X-ray. Patients who were found to be non – tuberculous were excluded from the study. Treatment was given in two phases. The initial intensive phase was for two months and a continuation phase for another four months. Drugs used were Isoniazid, Rifampicin, Pyrazinamide and Ethambutol. In the initial phase all the four drugs were given. In the continuation phase, two drugs i.e. Isoniazid and Rifampicin were given. For the purposes of this study a non- compliant patient was defined as one who

missed two consecutive months of treatment. The compliance of the patients was judged regarding: age, gender, occupation, socio-economic status, pre-treatment smear result, and immigrant status. Using computer-based software SPSS-10 carried out analysis of the data. To test the significance of association between different demographic indicators and compliance to TB treatment, Chi square probability test was applied.

RESULTS

Out of 100 patients of pulmonary tuberculosis included in this study, 56 were male and 44 female. The ratio of male to female was 1.2:1. The age range was 15- 70 years. Majority (83%) of the patients in this study belonged to lower socio-economic class.

Most of the patients were house bound (36%) followed by labourer (34%). 60 % of the patients had duration of their illness between 6 months and 1 year. 43 % of the patients had sputum positive for AFB, and negative in the remaining.85 % of the patients had a positive result on culture. X-ray chest of 82 % of the patients showed non- homogeneous opacities. The Montoux test was positive in 86 % of the patients and negative in the remaining 14 %.

An overall compliance at the end of 6 months therapy was found to be 53 %. In the age group 15-30 years, 45.5 % completed the therapy of 6 months while in the age group 31-45, 61.4% of the patients, and in age group 61-75 years 63.6 % completed the therapy of 6 months. P value was 0.9998(not significant). At the end of 6 months of therapy compliance was better in females. 59.1 %of the females and 48.2 % of the males completed the treatment of 6 months. P value was 0.9150(not significant). According to occupation of the patients compliance at the end of therapy was best in the house bound 58.3 %, followed by servicemen in whom 57.1 % completed the treatment. Of the un-employed 52.2 % completed the 6 months treatment. Compliance was lowest in the labourers, 47.1%. P value was 0.9993 (not significant). 68.7% of the lower class took the medicine up to 4 months and 51.8% completed the therapy. In the middle class 64.3% were taking drugs at 4 months and 57.1% completed the treatment. 66.7% of the upper class completed the treatment of 6 months. P value was 0.9996 (not significant)

According to the pre-treatment sputum results, compliance was better in those patients who had their sputum positive for AFB. 43% of the total patients had sputum positive for AFB while the remaining had negative sputum results. 72.1% of the patients having sputum positive for AFB and 38.6% with negative pre-treatment sputum results

completed the treatment of 6 months. P value was 0.3187 (not significant)

According to residential status, 60% of the total patients were immigrants, the remaining being native. Compliance at the end of therapy was better in the native patients as compared to immigrants. 67.5% of the native patients and 43.3 % of the immigrant patients completed the treatment. P value was 0.5106(not significant).

DISCUSSION

Studies have showed that treatment non-compliance involved multiple and complex interrelated factors.[4] Smoking status, occupation, history of treatment compliance of the patient, and extent of lung involvement were predictors for defaulting.[5] Immigrant status also confers a high prevalence of latent tuberculosis infection and lack of compliance.[6] Further studies have demonstrated that a lower proportion of the TBDM group defaulted in their treatment (19.8%) and experienced resistance to anti-tubercular therapy (1.4%) compared to non-diabetics.[7] Women have been showed to be less compliant to the anti-tubercular therapy than their counterpart.[8] Pakistani studies show that our societal and demographic factors leading to non- compliance remain static, continually exposing our children to higher risk of tuberculosis exposure.[9] Hispanics vs. blacks, those who had children, and those incarcerated for simple charges (vs. drug related charges) were less likely to complete treatment. DOT users were more likely to complete treatment then those who used the self-administration method. Inmates whose DOT was administered at a field site were more likely to complete treatment than those whose DOT took place at a clinic or mixed clinic and field.[10] Another study showed the following variables were associated with default: previous default, father not living with the child and father using illicit drugs.[11] Among those living farthest away from the center, patients younger than 30 years old tend to be more irregular in the follow-up of their treatment while there was no statistically significant relationship between TB treatment default and the patient's age, the clinical form, the therapeutic regime or the place of residence.[12] Bashour showed although the women reported more barriers to seeking care, compliance with treatment tended to be higher and the treatment success rate was significantly higher among females than males.[13] Balasubramanian documented that despite facing greater stigma and inconvenience, women were more likely than men to access health services, be notified under DOTS and adhere to treatment.[14] This is in spite of the fact that women with pulmonary TB are diagnosed on average 2 weeks later than men because of delays from the

health care provider.[15] Goncalves emphasized that many factors are important in compliance: socio-demographic characteristics, cultural factors, popular beliefs, the cost-benefit relationship, physical and chemical aspects of the drugs, the physician-patient relationship, and level of family participation in treatment.[16] A study from Nepal suggested that non-adherence seemed related to treatment delivery failures.[17] Our study showed that compliance is most common in the age group 31-45 years. Almost 60% of women were compliant while almost half of the men were compliant. Housebound patients were the most compliant i.e. around 60% while it was least among the laborers. Social status did not matter much in compliance. Native status and positive AFB were associated with good compliance.

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