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Research Article

Treatment Outcome with Radiological Lesions and Risk Factor of Poor Outcome in Tuberculosis Retreatment Cases at a Tertiary Medical College in West Bengal, India

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Abstract: Patients with tuberculosis require retreatment if they fail or default for the initial treatment or if they relapse following initial treatment success. Outcomes among patients receiving CAT- II regimen are sub optimal, resulting in increased risk of morbidity, drug resistance and transmission. In this study, we evaluated the risk factors for retreatment failure, default or early relapse. We also assessed the factors responsible for the poor outcome. Patients with smear positive pulmonary tuberculosis presenting for retreatment were identified at outdoor department of our college. Demographic and outcome data were collected from clinical charts and laboratory references. To identify the risk factor and cause of poor outcome, treatment records of patients were evaluated at the end of CAT- II regimen. 148 patients presenting for retreatment were included; Retreatment was successful in 78.37% of relapse case, 66.7% of default cases and 53.8% of failure cases. Retreatment failure was higher (46.15%) in treatment failure cases compare to relapse case (21.62%) and initial default case (33.33%). Young age, male, unmarried, employed who work outside appears to be the risk factors for default in retreatment cases. Low body mass Index, Treatment from Private Sector, History of Alcoholism, Poor Knowledge about Tuberculosis has unfavorable outcome. In conclusion, outcome of retreatment with CAT- II are sub optional. The patients also fail initial tuberculosis treatment are high risk of retreatment failure. Strategies to address risk factors for treatment default and to identify patients at risk for failure are important, for better treatment outcomes.
Keywords: tuberculosis, Retreatment, pulmonary tuberculosis

INTRODUCTION

Tuberculosis (TB) continues to be a global public health problem, with an estimated 9.4 million incident cases of TB and 1.8 million deaths in 2008. Among patients being retreated for TB because of treatment failure, default from initial treatment, or relapse following initial treatment, drug resistance is common and retreatment outcomes poor [1, 2, 9]. Patients who fail, default, or relapse after completion of standard first-line TB treatment and present for retreatment were grouped together as Category II cases, and, in settings where individual drug susceptibility testing (DST) was not universally accessible, these patients were often treated with a standard retreatment regimen of first-line agents (a regimen that adds a single drug to the standard initial TB treatment regimen). Retreatment outcomes, however, are often poor, especially in patients with treatment failure or default [3]. DST may help identify those patients with multidrug-resistant (MDR) TB so that the appropriate antibiotics can be administered. Identifying local patient characteristics that confer higher risk of relapse, failure, or default from TB treatment may help inform country-specific prevention strategies aiming to reduce the need for retreatment, resulting in cost savings and diminished morbidity and transmission.

MATERIALS AND METHODS

This study was done from February 2011 to 2014 at chest department in a medical college of West Bengal. It was an observational prospective, longitudinal study. 148 Sputum positive patients were included in the study. After taking proper history, patient was put on CAT-II regimen under DOTS. Age, sex, education , marital status, employment status, monthly income, body weight, contact history of tuberculosis, addiction history, knowledge about tuberculosis etc. information were collected. Regular follow up till the end of

treatment was done and data were analyzed at completion of treatment. All variable were described by proportion and differences between independed groups were compared using Chi square test and Fisher's test. The study was ethically approved by the institutional ethical committee.

RESULT AND ANALYSIS

A total number of 148 sputum positive pulmonary TB patients who are obtaining CAT-II regimen were included in this study. Of them 64.5% were male and 35.5% were female. Male: Female ratio is 1.8:1. Most of the patients of my study group have their income <5000 Rs. (72.3%). Median value of per capita monthly income of this group is 2750 Rs. Most common presenting complains are cough (92.1%) and fever (84.2%) followed by wt. loss, anorexia and hemoptysis. Most of the patients have their body wt. in the range of 30 to 50 kg (73.4%). Median value of these body weights is 40.5 kg. Only 14 (9.2%) patients were diabetic and only 4(2.6%) were HIV positive. Alcoholism is fairly common (30.2%). Most common side effect was nausea and vomiting (32.9%) followed by vertigo, giddiness, neuropathy and skin rash.

Table 1: Treatment outcome of different types of re-treatment sputum smear positive pulmonary TB patients

Re-treatment TB patient groups	Treatment success (%)	Unfavorable outcome (%)
Relapse (n=74)	58 (78.37)	16 (21.62)
Default (n = 48)	32(66.66)	16(33.33)
Failure (n=26)	14(53.84)	12(46.15)
Total (n = 148)	104(70.27)	44(29.72)

In our study cure rate is highest among relapse cases (78.37%) followed by treatment after default cases (66.6%) and treatment after failure (53.8%) patients (Table 1). It is seen that in age below the median value (35 yrs) failure rate is higher. Males have a higher (12.8%) rate of default than in females. Educational status didn't alter treatment outcome. However literates have a little higher failure rate (19.3%). Married persons have little higher cure rate (73.2%) than unmarried ones (61.1%). Among the employed persons who have to work outside chance of default is significantly higher (11.3%) than in others (p = < 0.05). Patients who have monthly income above their median value (>2750) cure rate is paradoxically lower (63.2%) than those who have income < 2750 / month / capita (77.8%).

Table 2: Association of treatment outcomes with demographic and clinical characteristics of re-treatment sputum smears positive pulmonary TB patients

Factors	Total No.	Treatment success (%)	Failure	Default	Deaths
Body Wt.:					
< 40.5 kg	74	48 (64.9%)	16 (21.6%)	4 (5.4%)	6 (8.1%)
> 40.5 kg.	74	56 (75.7%)	10 (13.5%)	8(10.8%)	0
H/o contact with TB:					
Absent	124	88(70.9%)	20(16.1%)	12 (9.7%)	4 (3.2%)
Present	24	16 (66.7%)	6 (25%)	0	2 (8.3%)
Previous treatment from:					
i) DOTS	46	42 (75%)	8 (14.3%)	6(10.7%)	0(0%)
ii) Non DOTS	102	62(67.39%)	18(19.56%)	6(6.5%)	6(6.5%)
Alcoholism					
Alcoholic	58	30 (65.2%)	6 (13%)	8 (17.4%)	2 (4.3%)
Non-Alcoholic	90	72 (72.5%)	20 (19.6%)	4 (3.9%)	4 (3.9%)
Knowledge of TB					
Score ≤1		30 (51.7%)	16 (27.6%)	8(13.8%)	4 (6.9%)
Score ≥ 1		74 (82.2%)	10(11.1%)	4 (4.4%)	2 (2.2%)

Body wt. has some implication in treatment outcome. Patients having body wt. above-their median value (40.5 kg) have higher cure rates (75.7%) than others (64.9%). All three patients who died in our study had their body wt. <40.5 kg. This higher chance of death in lower body wt. (8.1%) is significant (p = 0.05).

Recent history of contact is most of the time absent in adult pulmonary TB. Those patients with contact history of tuberculosis had higher failure rate, but that is not statistically significant.

Patients who were under DOTS treatment had better treatment success and lesser failure rate compare to Non DOTS treatment.

Alcoholism decreases the chance of cure rate and increases the chance of default. Alcoholics had more default rate (17.4%) compare to non-alcholics (3.9%) (p = <0.05).

Patients level of knowledge on different aspects of TB like its transmission, cure rate, duration of treatment etc. also affect treatment outcome. All the patients were asked 4 questions on TB. A scoring system had been done on their correct response. Correct answer of the question on duration of treatment was given 3 points (because different studies suggest question on duration of treatment had highest implication on default rate). For other questions 1 point was allotted. Now it is seen that patients having scoring ≤ 1 have higher failure rate (27.6%) than those having score > 1 (11.1%). Also those having score ≤ 1 have a higher rate of default (13.8% -vs-4.4%).

DISCUSSION

In this study of 148 patients undergoing retreatment for TB, outcomes differed in different groups. 78% of patients with relapse, 54% of patients with failure, and 67% of patients with default had treatment success – similar to previous studies [3]. Low body weight, alcoholism, contact history of tuberculosis, poor knowledge about tuberculosis etc. had poor outcome in our study [11, 12]. So, it is important to regular monitoring of body weight with proper counseling about nutrition should be done by health care provider. They should also educate the patient about tuberculosis. Recent studies have demonstrated that, in urban settings, adherence is linked to patient knowledge about TB and provision of disease specific education by the health care provider to the patient [6]. In our study, treatment failure and death rate were more among Non DOTS treatment compare to DOTS treatment. Hence, private sector must be sensitized, trained and involved in the program in order to reduce the incidence of re-treatment cases. RNTCP had developed and implemented guidelines for the involvement of Non Governmental Organizations (2001) and private practitioners (2002), and created a task force mechanism to involve medical colleges in the RNTCP [4, 5]. In this study default from retreatment was most frequent among those who had defaulted from initial treatment (12.5%), while failure was most common among those with previous failure (38.5%) [6,7].

Although retreatment guidelines are often the same for patients with failure, default from, or relapse after initial treatment, [6] these results suggest that groups may benefit from different management strategies [9, 10]. For example, treatment failure is commonly due to drug resistance, while recurrence may be due to poor adherence, high mycobacterium burden (such as in cavitary disease), or exogenous reinfection. So, default patients may require intensified case management and education, rather than more intensive treatment.

CONCLUSION

Patients presenting for TB retreatment - those with relapse, failure of initial treatment, or default are often grouped together and treated with a standard Category II retreatment regimen. However, these groups have distinct demographic and clinical characteristics, important differences in retreatment outcomes, and likely have different rates of drug resistant M. tuberculosis. So new strategies required to identify and address country-specific risk factor for maximize treatment success.

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