

Original Article

EVALUATION OF NON-ADHERENCE TO ANTITUBERCULAR DRUGS AMONG TUBERCULOSIS PATIENTS: A PROSPECTIVE STUDY

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ABSTRACT

Objective: The objective of present study was to examine the non-adherence among tuberculosis patients to antitubercular drugs and the factors associated with non-adherence.

Methods: Prospective observational study was conducted in department of pharmacology Government Medical College, Kathua in collaboration with the district tuberculosis centre, Kathua for a period of four months. TB Patients on treatment for last 8 w were included in the study. The pre validated questionnaire was provided to patients and their responses were analysed. Morisky's Medication Adherence Scale (MMAS-4) was used to assess adherence/non-adherence to antitubercular drugs.

Results: Total 72 patients were included in trial and out of which 60(83.33%) were males and 12 (16.66%) were females and the maximum were between 40-50y (38%) of age, mostly illiterate (50%) and from lower socioeconomic status (38%). Out of 60 male patients, 48(80%) showed adherence to anti-tuberculosis drugs, while remaining 12(20%) were non-adherent. Whereas 10 females (83%) were adherent and 2 (16.66%) were non-adherent. Forgetfulness (42%), followed by illiteracy (21.4%) and longer distance from health institute (14%) were main reasons for non-adherence.

Conclusion: Present study has shown non-adherence is maximum among males, illiterate, low socioeconomic group, longer distance from the health institution.

Keywords: Anti tubercular therapy, Adherence, Non-adherence

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INTRODUCTION

Tuberculosis is an infectious disease caused by mycobacterium tuberculosis bacteria (MTB) and it generally affects the lungs (pulmonary tuberculosis), but other parts of body may also get involved (extra pulmonary tuberculosis) [1]. It is transmitted by infected milk, meat and from person to person through droplet infection. Most of patients become fully non-infectious and cured with therapy if tuberculosis (TB) is detected early and treated [2].

TB can be prevented by screening of high risk cases, early detection and vaccination with the bacillus Calmette-Guérin (BCG) vaccine. High risk includes household, workplace, and social contacts of people with active TB [3-5]. In tuberculosis treatment, there is fixed dose combination of drugs which include isoniazid, rifampicin, pyrazinamide, ethambutol. These are first line drugs as recommended by WHO [6]. Patients taking antitubercular drugs sometimes do not adhere to the treatment and this has become now a serious issue.

Non-adherence to TB treatment can cause delayed conversion of sputum to become negative, high relapse rate and emergence of drug resistance [7]. The emergence and rapid growth of multidrug resistant (MDR TB) has become a matter of great concern [8].

Non adherence to antitubercular treatment has been a persistent problem throughout the world, including both developed and non-developing countries. Non adherence is mostly seen in alcoholic patient, low annual income, low literacy rates, longer duration of treatment and younger age group in developed or industrialised countries, whereas adherence was higher in patients who were initially hospitalised and returned for follow up within 4 w of initiation of therapy [9, 10, 16].

The aim of the current study was to evaluate and analyze the reasons of nonadherence among patients of tuberculosis on

antitubercular treatment. Patients from district tuberculosis centre Kathua were included in study and centre it caters majority of patients from rural areas.

Objective

- The main objective of this study is to evaluate the non-adherence to antitubercular drugs among TB patients.
- To study the reasons for non-adherence

MATERIALS AND METHODS

This observational study was carried over for a period of 4 mo (September 2019-December 2019) in the department of pharmacology, Government Medical College Kathua in collaboration with district tuberculosis centre kathua, UT Jammu and Kashmir.

Inclusion criteria

- All tuberculosis patients who had completed at least 2 mo of antitubercular treatment and gave consent to participate.
- Patients of both gender were included

Exclusion criteria

- Patients who were not willing to participate in the study and who were on antitubercular for less than 8 w

Ethical consideration

Permission was obtained from the institutional ethical committee before starting of the study. Written consent was obtained from patients to confirm their willingness for participation after explaining the objective of study. All procedures followed in accordance with the Helsinki declaration of 1975.

Data collection

The data was collected by face to face interview using a prevalidated-questionnaire. The questionnaire was prepared which include sociodemographic profile (name, age, sex, address, education, level of income, travelling distance to hospital), Personal habits (Alcoholic, Smokers), medical history (Diabetic, HIV).

Morisky's medication adherence scale (MMAS-4) [11] was used to assess adherence/non-adherence to antitubercular therapy in patients. TB patients were considered adherent to medication if they answered negatively to all four question. Patients who had missed at least one prescribed dose of TB drug were described as non-adherence.

RESULTS

Total of 72 patients who were attending district tuberculosis centre for at least 2 mo was analysed. Among all 72 patients, the majority

were male, illiterate between 40-50 age, and had family income less than INR 10,000. Level of adherence/non-adherence assessed by MMAS (4-item scale) revealed 58 patients (48 males and 10 females) were adherent [table 3] Non-adherence was seen in 14 patients (12 males and 2 females). Travelling distance from their home to the tubercular health centre when analyzed showed that 12 patients had to travel less than 5km and 24 patients had to travel 5-10 km and 36 patients had to travel more than 10km.

When non-adherent patients were analysed for reasons for non-adherence, it was found that forgetfulness was main reason in 6 patients (42.8%), followed by illiteracy in 3 patients (21.4%), longer distance to the health centre in 2 patients (14.2%) both had distance more than 10 KM. While one patient each (7.1%) had side effects, smoking, and mental retardation.

2 patients had shown non-adherence to tuberculosis because of travel distance more than 10 km.

Table 1: Morisky medication-taking adherence scale (4-item)

Do you ever forget to take your medicine?	Yes	no
Do you ever have problems remembering to take your medication?	Yes	no
When you feel better, do you sometime stop taking your medicine?	Yes	no
Sometime if you feels worse when you take your medicine. Do you stop taking it?	Yes	no

Table 2: Demographic profile of study participants

Demographic	Frequency (%)
Gender	
Male	60(83.33)
Female	12(16.66)
total	72
Family income	
<10,000	38(52.77)
>10000	34(47.22)
Age group	
<20	2(2.77)
20-30	20(27.77)
30-40	12(16.66)
40-50	28(38.88)
>50	10(13.88)
Marital status	no (%)
Married	58(80.55)
Unmarried	12(16.66)
Widow	2(2.77)
Total	72
Level of education	no (%)
Illiterate	36(50)
Under graduate	20(27.77)
Graduate	16(22.22)
Post graduate	0
Travelling distance to hospital	
<5km	12(16.66)
5-10	24(33.33)
>10	36 (50.00)
Habits	no (%)
Smoking	6(8.33)
Alcohol	3(4.16)

Table 3: Adherence and nonadherence

Adherence (as per MMAS scale)	No (%)	Male (%)	Female (%)
Adherent	58(80.55)	48(66.66)	10(13.88)
Nonadherent	14 (19.44)	12 (16.66)	2(2.77)
Total	72	60 (83.3)	12(16.6)

Table 4: Factors associated with nonadherence to antitubercular treatment No (%)

• Forgetfulness	6(42.85)
• Mentally retarded	1(7.14)
• Illiterate	3(21.42)
• Side effects of drugs	1(7.14)
• Who are far from the health facility	2(14.28)
• Smoking	1(7.14)
• Total	14

DISCUSSION

Adherence to medication is the extent to which a person takes medicine as prescribed by the health care provider. It is a key factor for effectiveness of therapy, while non-adherence to medication can result in failure of therapy and manifest as increased morbidity and mortality [12]. The aim of the present study was to evaluate the important issue of non-adherence in patients of tuberculosis.

The current study was conducted in department of pharmacology of GMC Kathua, in collaboration with District Tuberculosis Centre Kathua, which mostly cater rural population.

A baseline demographic information of 72 patients enrolled in study revealed that most of them were males 60(83%), in between 40-50 y of age (38%), illiterate (50%) and belonged to lower income group. Similar to our observations many of the studies have shown that males constituted the majority of tuberculosis patients. However, one study in contrast to our observations revealed females to be more affected with tuberculosis [13].

Higher number of males in present study, could be due to more outdoor activities of the males which entails higher chances of contracting disease. Females on the other hand prefer indoor work as the study included mostly rural area where males mostly carry outdoor work and females confine to indoor household work.

Majority of patients (50%) were illiterate and higher number of the tuberculosis patients in illiterate group could be due to lack of knowledge regarding the disease and lower socioeconomic status might have further compounded the situation.

Our results revealed the out of 60 male patients, 48(80%) showed adherence to antituberculosis therapy while remaining 12(20%) were non adherent. Whereas out of 12 females in the trial 10(83%) were adherent while 2 female patients (16.66%) were non adherent. This shows that non adherence was more in male patients. This probably could be due to higher number of male patients than females included in current study and thereby implying more chance of number of non-adherence compared to females. Number of studies have similarly shown that males were more non adherent to antituberculosis treatment [14, 16].

Our results revealed that forgetfulness (42%) regarding taking of medicine was foremost cause of non-adherence followed by illiteracy (21.4%) and higher distance from health institute (14%), while smoking, side effects of the drugs, mental retardation contributed 7.1% each towards non adherence.

Higher rate of forgetfulness in the present study has also similarly been documented by other. The higher rate of forgetfulness in present study may be to ignorance on the part of the patients, correlating with their educational status, inadequate knowledge about disease. This may also be contributes due to failure on the part of health providers to impart knowledge and education about tuberculosis, ADRs are known to cause noncompliance in patients. In present study 7.14% of non-adherent patients had history of side effects. Similar studies have also shown non adherence due to side effects of the drugs [13-16].

Another important factor contributed towards non adherence in our present study was the distance from home to the health institution (14%). 2 patients had distance more than 10 km. This shows that distance to the health institution is a critical factor for non-adherence. It is to explain as longer distance do deter patient to reach health providing centre. Similar report to our results have also been recorded by earlier studies [16].

Our study has clearly shown in no unambiguous terms that non adherence is an important issue in the tuberculosis patients. This scenario is of grave consequences as it leads to resistance to anti tubercular drugs, disease relapse and delay in sputum negativity. The forgetfulness regarding taking of medicine, illiteracy, and distance from health institution were major factors contributing towards the non-adherence in the present study. These result calls for drive to increase literacy level and providing health care within

reach of the patients to counter non adherence. The health care provider should also educate the patient regarding the disease as well as non-adherence.

CONCLUSION

The present study has depicted non-adherence in tuberculosis patients. This was found to be more common in males, illiterate, lower socioeconomic group, higher distance to the health institution. These result calls for appropriate remedial measures.

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AUTHORS CONTRIBUTIONS

All the authors have contributed equally.

CONFLICT OF INTERESTS

There is no conflict of interest.

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