Research Paper

Volume : 5 | Issue : 3 | March 2016 • ISSN No 2277 - 8179 | IF : 3.508 | IC Value : 69.48

The Epidemiological Determinants and Factors Affecting Compliance Among Cat II T.B. Patients Attending a Tertiary Care Health Facility of Central India.

Medical Science

KEYWORDS : TB, DOTS, ATT

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ABSTRACT

Background: In early 1990s it was shown that tuberculosis declined if socio-economic conditions improved.Tuberculosis is a specific infectious disease caused by Mycobacterium tuberculosis. It is categorized in to two categories, in Cat-I are include only new cases and Cat-II are include retreatment cases. Research question:What were the socio-demographic determinants of Cat-II TB patients , What were the various reason responsible to became Defaulter. Objective: To find out the socio-demographic factor of Cat-II TB patients.And To find out the various reason affecting compliance of the TB patients. Study Design: Observational cross sectional study conducted over a period of 3 month, on the patients attending DOTS Centre of Madav Dispensary of J.A.Group of Hospital,Gwalior. Study Population: 100 Cat-II TB patients of age group between 10-70 years. Statistical Analysis: Percentage and Chi square test. Result: In 100 Cat-II TB patients 56% were males and 44% were female,and in age wise distribution maximum in age group 31-40 i.e.36% and was minimum in age group <20 and >60.i.e.4% in each group,incase of 36% were illiterate,and only 8% were graduate and above education,97% patients were belong to lower socio-economic status.83% patients were of defaulter type and 81% gave reason of non-compliance were feeling of well-being. Conclusion:prevelance of cat II T.B. patients is associated with so many factors but most of them are duration of ATT,patientswellbeing after initiation of treatment, costing of transportation and the improper counseling by the physician at the time of ATT initiation etc.

Introduction

Tuberculosis is a specific infectious disease caused by Mycobacterium tuberculosis. The disease primarily affects lungs and causes Pulmonary TB (PTB).It can also affect intestine, meninges, bones and joints, lymph glands, skin and other tissues of the body which is known as Extra-pulmonary TB. The disease is usually chronic with cardinal features like persistent cough with or without expectoration, intermittent fever, and loss of appetite, weight loss, chest pain and haemoptysis[1]. TB has coevolved with humans for many thousands of years, and perhaps for several million years [2] , it is still remains the great concern of public health problem of the world despite the fact that highly effective drugs and vaccines are available.One-third of the world's population is currently infected with the tuberculosis bacillus. The largest number of cases occur in the South-East Asia region, which accounts for 39% of incident cases worldwide and India alone account for 24% of world TB cases.[3]

India is a highest TB burden country in the world in terms of absolute number of incident cases that occure each year .It account for one fourth of the estimated global incident TB cases in 2013.As per WHO estimation ,tuberculosis prevalence per lac population has reduced from 465 in year 1990 to 211in 2013.In absolute number prevalence has reduced from 40 lac to 26 lac annually .Incidence per lac population has reduced from 216 in year 1990 to 171 in 2013. Tuberculosis mortality has reduced from 38 per lac population in 1990 to 19 per lac population in 2013.In absolute number mortality has reduced from 3.3 lac to 2.4 lacs annually. Among the new TB cases , 5% of patient were in Pediatric age group .HIV among estimated incident cases of TB was about 5%.MDR-TB among notified new pulmonary patient was about 2.2 %, and among retreatment cases was about 15 percent.[4]

Tuberculosis is one of the three primary diseases of poverty along with AIDS and malaria [5]. A third of the world's population is thought to be infected with M. tuberculosis, and new infections occur at a rate of about one per second [6].It is a disease of poverty affecting mostly young adults in their most productive years. The vast majority of TB deaths are in the developing world. Left untreated, each person with active TB disease will infect on average between 10 and 15 people every year and this continues the TB transmission. Overall, one-third of the world's population is currently infected with the TB bacillus. **:** In early 1990s it was shown that tuberculosis declined if socio-economic conditions improved.[7]

A revised National Tuberculosis Control Programme (RNTCP) that implements the World Health Organization-recommended DOTS strategy was introduced in India in 1993. Despite the goal of the DOTS programme is to cure at least 85% of new smear-positive patients and to detect at least 70% of new smear-positive cases. . In DOTS two phase treatment are given during the intensive phase of treatment a health worker or other trained person watches as a patients swallows the drug in the presence .During continuation phase,the patient is issued medicine for one week in a multi-blister combipack, of which the first dose is swallowed by the patient in presence of health worker or trained person. The consumption of medicine in the continuation phase is also checked by return of empty multi-blister combipack , when the patient come to collect medicine for the next week. The drug are provided in patient wise boxes with sufficient shelf-life,boxes are colour coded red colour box for category one and blue colour box for category two patient. In the programme alternate day treatment is given.Even After involvement of DOTS strategy gradually cat II T.B. patients are increasing day by day due to various factors related to doctors, patients himself and some sort of environmental factors. Among of the Cat- II ,T.B patienrs the following groups come under this Categeory[8] 1.Sputum smear-positive relapse - A TB patient who was declaredcured or treatment completedby a physician and who reportsback to the health facility andis now found to be sputumsmear-positive. 2.Sputum smear-positive treatment failure- Any TBpatient who is smear-positiveat 5 months or

more afterinitiation of treatment.3.Sputum smear-positive treatment after defaulter-Apatient, who has receivedtreatment for TB for a monthor more from any sourceand returns for treatmentafter having defaulted i.e.not taken anti-TB drugsconsecutively for two monthsor more and found to besmear-positive .By keeping in the mind of objectiveS to assess the epidemiological determinants of cat-II T.B.patients. and to find out the reason on non- compliance among defaulter TB patient inrolled in cat-II TB treatment the present study were conducted among the cat II T.B patients attending DOTS Centre of Madhav dispensary of J.A. hospital of G.R.Medical college of of Gwalior .

Methodology

Study Design: It was a observational cross sectional study, conducted in the DOTS Centre of J.A. hospital of G.R.Medical college Gwalior. **Study population:** Study population were 100 Cat-II T.B patients randomly selected from the Cat-II T.B.Patients attending DOTS Centre of Madav Dispensary of J.A.Group of Hospital,Gwalior and study subjects were having age group 10 to 70 yrs. Informed consent was taken from the subjects and the care takers of subjects after explaining the purpose and procedure of study, the option to withdrawal from the study was always available. The permission to conduct this study was also taken from the Deptt. of community Medicine of G.R.Medical. College,Gwalior . **Data collection –** The data was collected randomly upon the basis of inclusion and exclusion criterias with the help of set proforma.

Study Duration: The duration of the present study was 3 months(including data collection and analysis.) i.e. 1st Aug to 30th October 2011.

Inclusion Criteria for the participants:

Who gave consent for the participation in the present study.

Who have previously taken treatment for TB from anywhere.

Patients in the age group between 10 -70 years were included in the present study.

Exclusion Criteria for the participants:

Who were not willing to participate in the study.

Who were of newly registered TB patients.

Patients < 10 years and > 70 years were excluded from the study.

Study tool: A predesigned & pretested questionnaire based,semi structured proforma was used to collect the socio-demographic information and other like. name,age sex, education, socio economic status, treatment duration,treatmentsource,type of treatment etc. and then data was analysed the data by applying appropriate statistical software i.e.epical info 2000.etc.

Results

It was found that in the present distribution of Cat- II T.B. patients were maximum in age group 31-40 i.e. 36% and were minimum in age group <20 and >60.i.e.4% in each group and according to sex wise distribution male were 56% and female were 44%. In male most common age group also 31-40 years it was 35.71% and least were from61-70 years age group and in females most of them (36.36%) were belonged to 31-40 years age group and least 2.27% were in 10-20 years age group **(As shown in Table no.1)**only fewer Cat- II T.B patients are distributed in extreme age group. The overall distribution of male and female was found statistically not significant (p=>0.05)

Table No.1,Distribution of the Cat-II T.B.Patients According to Age and Sex-

S.N.	Age Group (years)	Male(%) (n=56)	Female(%) (n=44)	Total (%) (N=100)
1.	10-20	3(5.35%)	1(2.27%)	4(4%)
2.	21-30	18(32.14%)	11(25%)	29(29%)
3.	31-40	20(35.71%)	16(36.36%)	36(36%)
4.	41-50	10(17.85%)	9(20.45%)	19(19%)
5.	51-60	3(5.35%)	5(11.36%)	8(8%)
6.	61-70	2(3.57%)	2(4.54%)	4(4%)
Total=		56(100%)	44(100%)	100 (100%)

p= 0.7, chi square =2.28

In Table no.2 others various socio-demographic character's were analysed in Cat-II TB patients ,in the present study 36% of the patients were illiterate and least 8% were have higher education as graduate and above ,so we concluded that frequency of distribution Cat-II patients were decreased as educational level were increases. In this study most of the of the patients (63%) were from urban residential area and most of the participants i.e. 97% were belong to lower socio-economic status as Grade IV , V and BPL families. So we found that the socio-economic status was the most important determinant in all T.B.patients and especially in Cat-II T.B. Patients.

Table No-2 Socio-demographic characteristics

S.N.	Socio-demographic character's	Total no.	Percentage(%)
1.	Education status Illiterate Primary school middle school High school Higher Secondary Graduate and above	 36 14 21 12 9 8	 36% 14% 21% 12% 9% 8%
2.	Residential area Urban Rural	 63 37	 63% 37%
3.	Socioeconomic status Grade I Grade II Grade III Grade IV Grade V BPL	 0 0 1 37 32 30	 0% 0% 1% 37% 32% 30%

In Table no.3 shown that distribution of Cat-II T.B. Patients according to their type of cases in cat-II Relapse , Treatment after Defaulter ,Treatment Failure and Other were included who were previously taken T.B treatment of more than one month .In the present study most of them i.e. 83% of them belong to treatment after default type.

Table No.3 Distribution of Cat-II TB patients according to type of case-

S.N.	**Type of case**	Total No. of cases	Percentage (%)
1.	Relapse	6	6%
2.	Treatment failure	11	11%
3.	Treatment after default	83	83%
4.	Others	00	00%
Total		100	100%

In Table no.4 we observed the various reasons for non-compliance to TB treatment in defaulter's patients at the time of interview with the Cat-II TB patients. Most of them i.e. 97.59% of them reasoned that the feeling of wellbeing was the reason of their incomplete treatment,and least common i.e. 14.45% gave costly transportation was the reason of their incomplete treatment.In the present study we also consider their mode of treatment taken in the past 48% were taken treatment from Government set-up and 17% were from Private practitioner and 35% were taken treatment by ASHA worker,it was also affect their compliance .

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Table No.4 Distribution according to reasons of Noncompliance-

S.N.	Reasons of Noncompliance	Total No. (83)	Percentage (%)
1.	Feeling of well being	81	97.59%
2.	Not counseled properly for full course ATT	58	69.87%
3.	Fear from side effects	52	62.65%
4.	Time strain	24	28.91%
5. Costly transportation		12	14.45%

*multiple choice question.

Discussion:

The present study was undertaken at DOTS Centre of J.A. hospital of G.R.Medical college Gwalior, Madhaya Pradesh.Period of study was selected for three month from 1st August to 30th October 2011,data was collected after applying exclusion and inclusion criteria a total of 100 patients included in the present study who were of Cat-II TB patients and come to take treatment at the selected DOTS Centre. These selected patients were interviewed by a pre-tested questionnaire to find out socio-demographic determinants, and reason for incomplete treatment . After analyzing data we found ,in the present studyit was found that in the Most 36% of the Cat- II T.B. patients were belong in age group 31-40 and was minimum in age group <20 and >60.i.e.4% in each group and according to sex wise distribution male were 56% and female were 44%. And in male most common age group also 31-40 years it was 35.71% and least were from61-70 years age group and in females most36.36% of them belong to 31-40 years age group and least 2.27% were in 10-20 years age group,disease incidence was peak in peoples belonging to the economically productive age group of 21-60 years and TB was more prevalent in males than females. Similarly age wise distribution of TB patients was also found in the study conducted by **Manmeet Kaur[9]** et al (2012) found that the maximum patients (55.9%) patients were belong to 15-30 yrs. of age group which also support the age wise distribution of the present study but in case of sex wise distribution more were female patient than male in comparison of present study.Similar findings were also found in the study conducted **by Sukamal Bisoi[10]** et al (2007) that the maximum 79.1% patients were belonged to 15-54 years of age group and 64% were males and 36% were females which also support the age and sexwise distribution of the present study. Hence such age and sexwise distribution is also also supported by many other studies like**C. KOLAPPAN[11]**et al(2012) in their study in Tiruvallur district in Tamil Nadu was also found that majority 47.4% patients were 15-34 Years of old although in their study 51.2 % were female in comparison of 48.8% males may be because of more number of female were included in their study.In the present study most 36% of the patients were illiterate and lower educated and least 8% were have higher education as graduate and above ,so we concluded that frequency of distribution Cat-II patients were decreased as educational level were increases. In this study most 63% of the patients were from urban residential area and most 97% were belong to lower socio-economic status as Grade IV , V and BPL families.So we found socio-economic status was the most important socio-demographic determinant in all T.B. patients and especially in Cat-II T.B. Patients. Similarly **Jaggarajamma et al [12] (2007)** was also found that 35.71% patients were illiterate, these finding was concordance with present study findings in contrast to present study finding . **Even M. Vasantha et al[13] (2008**) study also shows that 43% were illiterate and 57% were literate it may be due study area .Similarly **Pandit et al[14] (2006)** in a study carried out at Anand district of Gujrat found that 81% of patients were from socio-economic class IV and V or lower socio-economic class or can say poor it was support the finding of present study. Similarly **Dr Kapil Goel et al[15](2011**) shows that 87.8% patients were from lower socio-economic status and 12.2% middle socio-economic status,this was support the finding of present study.

In the present study we observe various reasons for non-compliance to TB treatment in defaulter's patients at the time of interview with the Cat-II TB patients. Most 97.59% of them reason that feeling of wellbeing was the reason of their incomplete treatment followed byNot counselled properly for completion of treatment 69.87%, and least common 14.45% was gave costly transportation was the reason of their incomplete treatment. Similarly a study conducted by K. **Jaggarajamma et al [12] (2007**) ,found that intolerance to drugs 42%,migration in 29% patients, free from symptoms in 20%, work related problem in 15%,treatment in else-where in 13% and domestic problem in 8% patients ,these were the major factors for non-adherence to treatment in their study.

Chatterjee et al[16] (2003) also reported that reasons of non-compliance were distance from treatment center, indifference due to improvement in symptoms and lack of motivation, intolerance to drugs and temporary illness.**O, Boyale et al[17] (2002)** also reported that reason for non-compliance were unable to afford transport ,lack of motivation and feeling of being were cured.

Conclusion:

On the basis of this study it is concluded that the prevelance of cat II T.B. patients is associated with so many factors but most of them are duration of ATT, patients well being after initiation of treatment, costing of transportation and the improper counseling by the physician at the time of ATT initiation etc.but it couldn't conclude that these are the determinants responsible for cat II T.B. patients as in general because for it there are needed so many intervention like this in a large group of patients.

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