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Community Medicine

A STUDY ON TREATMENT COMPLIANCE OF PATIENTS UNDER REVISED NATIONAL TUBERCULOSIS CONTROL PROGRAMME IN JORHAT DISTRICT OF ASSAM.

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ABSTRACT **Introduction:** Poor adherence to anti-tubercular medication increases the risk of morbidity and mortality. The problem of compliance continues to persist due to variety of reasons. Objective: To study the prevalence of treatment compliance it's determining factors in patients under Revised National Tuberculosis Control Programme in Jorhat district of Assam. Materials and methods: A cross-sectional study was conducted among the registered patients between July 2016 and June 2017 under RNTCP. Results: 83.81% were compliant to treatment. Side-effect was the most common factor (32.8%) of missing the medication. Patients' family history of TB, alcoholic and knowledge about of TB were significantly different among compliant and non-compliant groups. Conclusion: Increase knowledge of TB and coping up with side-effect to anti-tubercular medication is required to improve treatment compliance.

KEYWORDS : Compliance, RNTCP, Knowledge, Jorhat.

Tuberculosis (TB) is a communicable disease requiring prolonged treatment and poor adherence to a prescribed regimen increases the risk of morbidity, mortality, and spread of disease in the community [1].

Although people of any age group can be affected by tuberculosis, persons of productive age group are more commonly infected. The male, malnourished and immune-compromised individuals are more vulnerable to infection. Tuberculosis has also been described as barometer of social welfare because some non-medical factors like poor quality of life, poor housing, overcrowding, population explosion, smoking, alcohol abuse, lack of education, large families, lack of awareness are interrelated and contribute to the occurrence and spread of tuberculosis. About one third of the current global population is infected with tuberculosis asymptomatically. Only 5-10 percent develops clinical disease. An infectious pulmonary tuberculosis patient can infect 10-15 persons in a year [2].

Treatment compliance is one of the key factors affecting the outcome of a therapy. Compliance (WHO, 1996) is defined as strict 'adherence' by patients to the prescriber's instructions regarding the method, dosage and pattern of drug administration [3]. In spite of remarkable success of RNTCP-DOTS, the problem of compliance continues to persist due to variety of reasons. In Assam the default rates among the registered sputum smear positive tuberculosis patients was 7% and among sputum smear negative cases it was 10%, which is higher than the national average (6%) [4]. Keeping in view the fact, this study was an attempt to identify social, economic, behavioral and other factors affecting the compliance.

OBJECTIVES:

1. To study the prevalence of treatment compliance of patients under Revised National Tuberculosis Control Programme (RNTCP) in Jorhat district of Assam.
2. To determine the factors influencing compliance of patients under RNTCP.

MATERIALS & METHODS:

- Type of study: Descriptive Cross-sectional study.
- Period of study: July 2016 to June 2017.

All the TB patients registered in entire seven Tuberculosis Units (TUs) of Jorhat district under RNTCP from 1st January to 30th June 2016 were considered as study universe. Two TUs were selected by Simple Random Sampling technique. A total of 665 patients registered in the seven TUs, out of which 243patients that were enrolled as study subject from the selected two TUs (viz. Baghchung and DTC TU). Among the selected 243 patients, 22 patients died, 6 transferred out and 5 were not traceable .Therefore, a total of 210 cases could be interviewed [Figure:1].

In the present study the compliance status was assessed in relation to some factors like knowledge about TB, habit of consuming alcohol, tobacco and other substances, family history of TB, type of resident and the demographic characteristic of the study population.

Operational definitions:-

Compliance and non-compliance: Missing of more ≥2 consecutive weeks of DOTS was taken as non-compliance, whereas missing less than two weeks was taken as compliant [5,6].

Tobacco user:
Smokeless tobacco user:- A person who use smokeless tobacco products such as *gutka* (a mixture of tobacco, lime and areca nut), *khaini* (a mixture of tobacco and lime), snuff and betel quid with tobacco.

***Smoker*:-** A person who smokes any tobacco products such as cigarettes, *bidis* (hand-rolled cigarettes), cigars, or hookahs (water pipes).

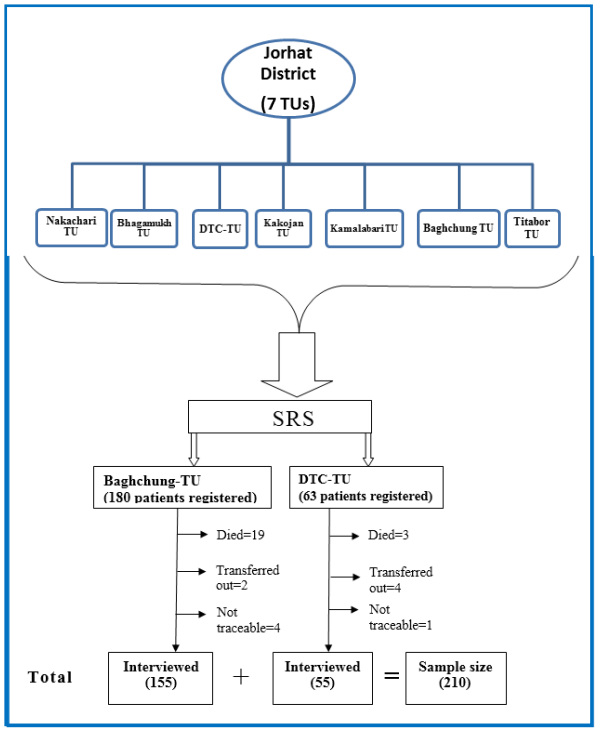
Alcohol user: Person who drinks at least one standard drink of alcohol (30 ml of spirits, 285 ml of beer or 120 ml of wine) in a day.

Side effect of drugs: The side-effects of the drugs considered here were- nausea and vomiting; drowsiness, red/orange discoloration of urine, burning sensation of hands and feet, joint pain, impaired vision, loss of hearing, dizziness and jaundice etc as reported by the patient/informant.

Patients' knowledge on Tuberculosis:
For assessing knowledge of TB amongst study subjects, questions were asked about knowledge of spread, duration of treatment and consequences of partial treatment. For each correct answer one point was awarded, and for incorrect answer zero point was awarded. The subject who secured three points his/her knowledge was considered adequate otherwise considered as inadequate.

Inclusion & Exclusion criteria:
All the patients registered in the selected TUs under RNTCP between 1st January and 30st June 2016, who gave the consent were included for the study. On the other hand patients who were not willing to participate, died, transferred out and not-traceable were excluded.

Figure1: Schematic diagram of sampling technique



ETHICAL CLEARENCE:

Ethical clearance was taken from the Institutional Ethics Committee (Human) of Jorhat Medical College [No. SMEJ/ JMCH/MEU/ 841/ 2011/2796 dated 19/09/16].

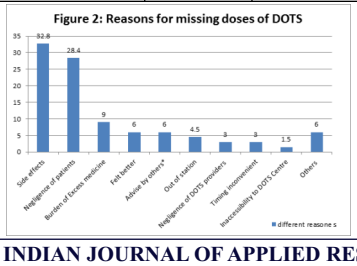
RESULTS:

Table 1: Demographic characteristics of the study participants

Demographic characteristics		Male	%	Female	%	TOTAL	%
1. Age (years)	0-20	15	7.1	25	11.9	40	19
	21-40	31	14.8	24	11.4	55	26.2
	41-60	71	33.8	36	17.1	107	50.9
	61-80	2	1	5	2.4	7	3.4
	>80	1	0.5	0	0	1	0.5
2. Religion	Hindu	115	54.8	87	41.4	202	96.2
	Islam	5	2.4	3	1.4	8	3.8
3. Education	Literate	90	42.9	46	21.4	136	64.8
	Illiterate	30	14.3	44	21.0	74	35.2
4. Occupation	Unskilled Labourer	48	22.9	36	17.1	84	40.0
	Skilled	28	13.3	21	10.0	49	23.3
	Unemployed	44	21.0	33	15.8	77	36.7
5. Type of family	Nuclear	73	34.8	55	26.2	128	61.0
	Joint	47	22.4	35	16.7	82	39.0
6. Residence	Permanent	108	51.4	78	37.1	186	88.6
	Temporary	12	5.7	12	5.7	24	11.4

Table 2: Treatment compliance according to site of involvement:-

Site of involvement	Compliant	Non-Compliant	Total
Pulmonary	130 (81.76)	29 (18.24)	159
Extra-Pulmonary	46 (90.20)	5 (9.80)	51
Total	176 (83.81)	34 (16.19)	210



Others: Advice by Quack, traditional healer. **Marriage, Death of Kin, Forgot during examination

Table 3: Association of compliance with residence, family history & Knowledge of TB and substance abuse

		Compliant (%)	Non-compliant (%)	Total	p-value
Residence	Permanent	153(82.3)	33 (17.7)	186	0.14
	Temporary	23 (95.8)	1(4.2)	24	
Family history of TB	Yes	32(72.7)	12(27.3)	44	0.03
	No	144(86.8)	22(13.25)	166	
Knowledge of TB	Adequate	108(99.1)	1(0.1)	109	0.00
	Inadequate	68(67.3)	33(32.7)	101	
Alcohol user	Yes	64(76.2)	20((23.8)	84	0.01
	No	112(88.9)	14(11.1)	126	
Smokers	Yes	9(90)	1(10)	9	1.00
	No	167(83.5)	33(16.5)	200	
Other user*	Yes	37(84.1)	7(16.0)	44	0.95
	No	139(83.7)	27(16.3)	166	

* Chewing tobacco, betel nut & *gutkha*.

The study revealed that 77.1% patients belonged to productive age group (21-60 years). 96.2% were Hindu, 64.8% were literate, 40% were unskilled labourer, and 61% from nuclear family, 88.6% subjects resided in permanent residents (Table 1).

The study results showed that 83.81% were compliant to treatment while 16.19% were non-compliant to treatment. Compliance was found 81.76% in pulmonary patients and 90.20% among extra-pulmonary group (Table 2).

Among the various causes of missing the doses side effect was the most common factor (32.8%) which was followed by negligence of the patients (28.4%) for taking drugs. Burden of excessive medicine was found as another leading factor (9%) for stopping the drugs. 6% responders discontinued the medication due to feeling better, whereas another 6% interrupted on advice of quack or traditional healers (Figure 2).

Significant different (p value < 0.05) was observed in the compliance to treatment among the patients with family history of TB (72.7%) in comparison to that of the patients who do not have (86.8%)

Moreover, 23.8% of alcohol users were non-compliant to treatment and which was significantly different as compared to non-alcoholic group (p<0.01). Besides, the study showed that compliance among the patients having adequate knowledge of TB (99.1%) was found significantly different (p value 0.00) than the compliance of patients with inadequate knowledge (67.3%) (Table:3).

DISCUSSION:

The present study was undertaken in Jorhat district of Assam among 210 TB cases registered from 1st January to 30th June 2016 in two randomly selected TUs. The study revealed, majority (57.1%) were male which was supported by Bagga RV *et. al*. study in Punjab (64.3%) [7] and Jaggrajamma *et al.* study in Tamilnadu (77.6%) [1]; However, Ubajaka C. F. *et al*. study done in South East Nigeria reported 41.9% male [8]. Majority of the patients were in the age range of 41-60 years (50.9%) [Table1], which is the consonance of Bagga RV *et al*. [7], Jaggarajamma K *et al*.[1] and Kulkarny P *et al*. [9] studies where it was reported that TB had affected commonly the productive age group. Mean age of the patients was 34.9 years (SD±14.8) which was almost similar with O'Boyle S.J. *et al*. [10] study done in Malaysia (mean age=34.9±14.3years) and comparable with the findings of Kulkarni P *et al*. (mean age=32.99 years) [9]and Ubajaka C. F. *et al*. (mean age=36.1±13.3 years)[8] studies. 96.2% of the study subjects were Hindu and was supported by Bagga RV *et al*. study [7].From our study it was found that illiterate section of the people contributed a considerable proportion (35.2%) of tuberculosis cases which supported by the study of Bagga RV *et al*. [7], Rai N *et al*.[6] and Kotokey RK *et al*. [10]. 40% patients were unskilled labourer corroborating with the findings of Rai N *et al*. [6] and Zaman FA *et al*. [11] studies.

The study finding revealed that 83.8% patients were compliant to treatment. The compliance was found to be consistent with Das R. *et al.* (84.5%)[12] in Tripura, Bagchi *et al.* (84%)[13] in Mumbai and Mittal C *et al*. in Kerala (88%) [14] Rai N *et al*. in M.P.(80.11%) [6]. However, the prevalence of compliance found low in compared to study of Zaman FA *et al*. in Dhubri district of Assam (92.6%)[11] Pandit N *et al*. in Gujarat (93%)[5]

The study found that among the male 80.8% were compliant. The study conducted by Shah VR *et al*. [15] in Gujarat also found males were more compliant. In another study conducted by Gupta S *et al*. [16] in LRS institute also reported that males were more compliant compared to female (77.6% vs. 22.4%). In contrast to our observation compliance rate was found more among females (83.5%) in a study carried out by Rai N *et al*. [6].

The study revealed that majority (86.8%) of compliant patients without family history of TB was significantly different compared to patient with family history of TB (p value <0.05) corroborating with Rai N *et al*. [6] and O'Boyle SJ *et al.* [17] studies. Moreover, 23.8% of alcohol users were non-compliant to treatment which is significantly different compared to non-alcoholic group (p<0.01). Adequate knowledge was also significantly different among compliant and non-compliant group (p value 0.00). The finding is in contrast to Das R. *et al*. study done in Tripura[12].

CONCLUSION:

In the present study, although better performance of treatment compliance was found in comparison to other parts of Assam and in comparison to the previous study findings however a substantial proportion of patients still could not continue their treatment for variety of reasons in this district in spite of various interventions done under RNTCP. Most common reason was side effect to the medicine. Other important factors were negligence of the patients and better feeling of patients after taking the medication for few days. Although, our study findings are supportive as well as contradictory to various previous studies in some aspects as mentioned earlier but noteworthy finding in present study was that the adequate knowledge about TB. Therefore, it is realized that increase knowledge of TB can improve compliance as well as patients' cope up with side-effect of anti-tubercular medication which can also minimize negligence of patient for taking the drugs. Moreover, they should also be taught about that feeling better is not the only sign of cure from the disease, rather complete course of treatment is of utmost importance to get complete cure.

Apart from the factors affecting compliance present study also observed that more proportion of patients belonged to Tea Garden Community and among unskilled workers, illiterate persons and lower socioeconomic class. We believe that uplifting of the socio-economic condition is the only way and need of the hour to reduce the TB burden in the community.

Most of the patients discontinued medication during continuation phase (CP) of treatment as this is usually a symptom-free phase. It is found that most of the DOTS provider was peripheral level health care providers like ASHA, ANMs, and Health Workers etc. Many times they have to engage themselves in various other activities in addition to providing a long procedural treatment where direct observation is necessary. Therefore, a mechanism to intensify the supervision of the DOTS provider is realized necessary along with validation of supervision activity of Senior Treatment Supervisors under the programme.

CONFLICT OF INTEREST: None

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