Assessment of Knowledge and Treatment Seeking Behaviour among Tuberculosis and Multi-Drug Resistant Tuberculosis Patients:-A Case Control Study

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Abstract

Context:-*Tuberculosis is a disease of global public health concern. Knowledge about Cause, Mode of transmission, Duration of treatment among TB/MDR-TB patient is utmost important. It is also important to assess the treatment seeking behaviour among patients which ultimately affect the outcome of RNTCP.*

Aim:-*Assessment of Knowledge and Treatment seeking Behaviour among Study patients.*

Setting and Design:-*An Unmatched Case Control Study, Purposively Recruited 68 MDR-TB Patients (Cases) and 136 non MDR-TB Patients (Control) in Surat District (Rural and Urban).*

Methods and Material:-*A pre-tested standardized semi-structured questionnaire was used. Data was collected and extrapolated in tables and graphs.*

Results:-*With probe, 13.2% of cases associated TB with germs as compared to 6.8% control. 85.3% of cases were able to consider Air as mode of transmission of TB compared to 77.9% of control, about 75% of cases and 81.6% of control were able to answer correctly the duration of treatment of Tuberculosis, 44.2% cases and 62.5% of control took initial consultation at Govt. health sector .76% cases and 81% of control were put on ATT as first line of treatment and among them 38% case and 30% control discontinued the treatment.*

Conclusion:-*There is a wide gap in Knowledge and Treatment seeking behaviour among TB/MDR –TB Patient.*

Keywords: *Case-Control Study, Knowledge, Multi-drug resistant Tuberculosis, Tuberculosis, Treatment.*

I. Introduction

Tuberculosis, a disease caused by the bacterium Mycobacterium Tuberculosis, continues to be a major cause of morbidity and mortality worldwide. India is the highest TB burden country globally, accounting for one fifth of the global incidence and 2/3rd of the cases in south East Asia. Nearly 40% of the Indian population is infected with the TB bacillus. The National Annual Risk of Tuberculosis Infection was estimated at 1.5% i.e. 75 new smear positive pulmonary TB cases are expected per 100,000 populations annually. Every day, more than 5,000 people develop TB disease, and nearly 1,000 people die of TB, i.e. 2 deaths every 3 minutes.[1]

A number of factors are responsible which includes lack of knowledge, noncompliance with control programs, inadequate diagnosis and treatment, increasing migration due to natural and men made disasters and emerging epidemic of HIV/AIDS.[2] All these are fuelled by population explosion, rising number of multi resistance tuberculosis, poor socio-economic conditions and lack of knowledge and awareness about tuberculosis.[3]

Prevention and control of tuberculosis need a number of factors to intervene. Provision of specific health information has proved successful in health education campaigns.[4] Good knowledge about tuberculosis among patients is of prime importance in this regard.[3] Thus, objective of this study was to assess the level of knowledge and Treatment seeking behaviour about tuberculosis among MDR-TB/TB patients registered for DOTs Plus/ DOTs in Surat District and Surat Municipal Corporation. This work will help to evaluate the level of knowledge and Treatment seeking behaviour of TB/MDR-TB Patients.

II. Aim

Assessment of Knowledge and Treatment Seeking Behaviour among Tuberculosis and Multi-Drug Resistant Tuberculosis Patients

III. Objectives

3.1 To explore the knowledge about Causes, Mode of spread, Duration of treatment of Tuberculosis/ Multi-Drug Resistant Tuberculosis among Study Participants.

3.2. To Document the Previous Treatment seeking behaviour among Study Participants.

IV. Subjects And Methods

4.1 Study Design: Unmatched Case Control study.

4.2 Study Setting: Cases were selected from the indoor ward of the Department of Pulmonary Medicine and controls were selected from the UHCs and PHCs of Surat City and District respectively.

4.3 Study duration: From October 2013 - June 2014.

4.4 Study Tool: A pre-tested standardized semi-structured questionnaire was used.

4.5 Sampling Technique: Purposive Sampling

4.6 Sample Size: History of smoking has been found to be the important risk factor for development of MDR-TB, having significant association (p value0.032) as well least odds ratio (2.350) was taken in to account while calculating sample size.[5] Interviews of 10 controls was taken before starting the actual data collection and found 3 (30%) controls having the history of smoking. Taking the same (30%) as expected frequency of history of smoking in control groups, at desired Confidence Level of 95 %, at desired Power of 80 %, taking Controls to Cases ratio of 2:1 and taking 2.350 as the Smallest OR that we would like to be able to detect; desired sample size came out to be 68 Cases and 136 Controls as calculated by Open Epi software according to Fiess method.

4.7 Selection of Cases and Controls: Drug sensitivity testing was carried out at DTC Surat. CBNAAT method is used in which Rifampicin Drug sensitivity testing was done. Those patients whose sputum was found resistant to Rifampicin sensitivity testing were considered as cases and those patients whose sputum was found to be sensitive to Rifampicin sensitivity testing were considered as controls if they fulfil inclusion and exclusion criteria of our study.

4.7.1 Inclusion criteria for Cases and Controls:
a) Only those patients whose sputum samples have been tested for Drug Sensitivity Testing (under MDR suspect criteria) during the study duration were enrolled as cases & controls.
b) Willing to participate in the study.
c) Subjects less than 18 years of age were included only if reliable parent (mother or father or guardian) was accompanying with the subject and the parent was willing to participate and willing to give written consent for the subject.

4.7.2 Exclusion criteria for Cases and Controls:
a) Previously diagnosed MDR TB patients on DOTS Plus therapy.
b) TB patients whose sputum samples have not been tested by DST.

4.8 Assumption: We assumed that all those patients who were diagnosed to be suffering from MDR-TB (Cases) and admitted at Pulmonary Medicine Department of New Civil Hospital, Surat came from the same source population as that of Non MDR-TB Patient (Controls).

4.9 Bias: Being a case control study, the study was subjected to Recall Bias, Interview Bias, Selection Bias, and Sampling Bias. Since sampling technique was purposive sampling which is being a non probability sampling, so the findings of this study cannot be generalised.

4.10 Data Collection: All the Study Participants were asked about their Knowledge (Without Probe/With Probe) regarding cause, Mode of Transmission and Duration of Treatment of Tuberculosis and Multidrug resistant Tuberculosis.

4.11 Data Entry and Analysis: Data entry and analysis was done with the help of MS excel 2003. Information regarding knowledge about MDR-TB/TB is depicted in Multiple Bar Graphs. Information about the treatment seeking behaviours is illustrated Table.

4.12 Ethical Consideration: Study was approved by Human Research Ethics Committee of Government Medical College, Surat

V. Results

5.1 Knowledge about Cause of Tuberculosis:-

Without probe, only 2.9% of Cases had knowledge and considered germs as causative agent for TB while not even a single Control associated germs as cause of Tuberculosis.10% cases and 12% controls considered poor immunity to be responsible for Tuberculosis. With probe, 13.2% of cases and 6.8% of control associated TB with germs and 22.1% of cases and 19.7% of control associated TB with poor immunity.(as shown in graph 1)

Graph 1:- Knowledge about Causes of Tuberculosis (%)
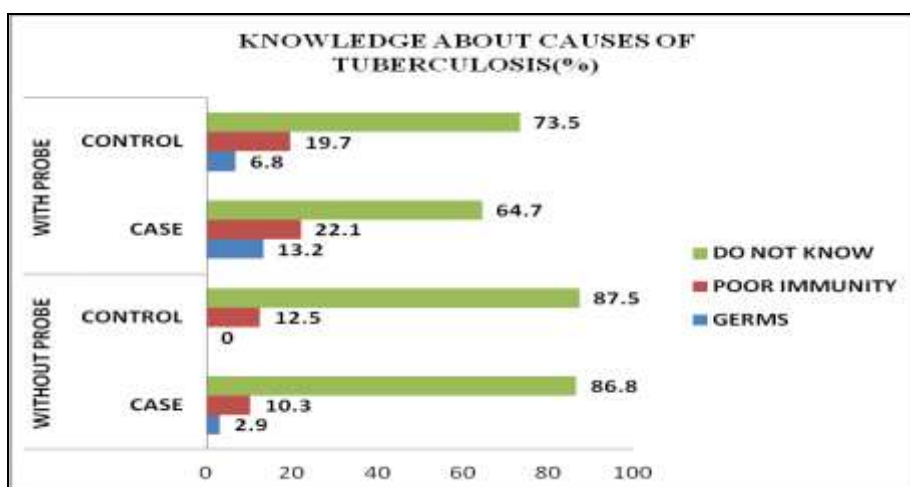
5.2 Knowledge about Mode of Transmission

Without probe, Cases were more informed and considered Air (55.6%) as a mode of transmission of TB as compared to 40.5% of control group. With probing 85.3% of cases were able to consider Air as mode of transmission of TB compared to 77.9% of control group (as shown in graph 2). There is wide gap in knowledge about mode of transmission of tuberculosis in cases and control group Absence of knowledge about mode of Transmission of Tuberculosis among patients is keeping them unaware about how they can spread the disease to the community by not adopting preventive measures (which can prevent TB transmission to the nearby community).

Graph 2:-Knowledge about Mode of Transmission of Tuberculosis (%)
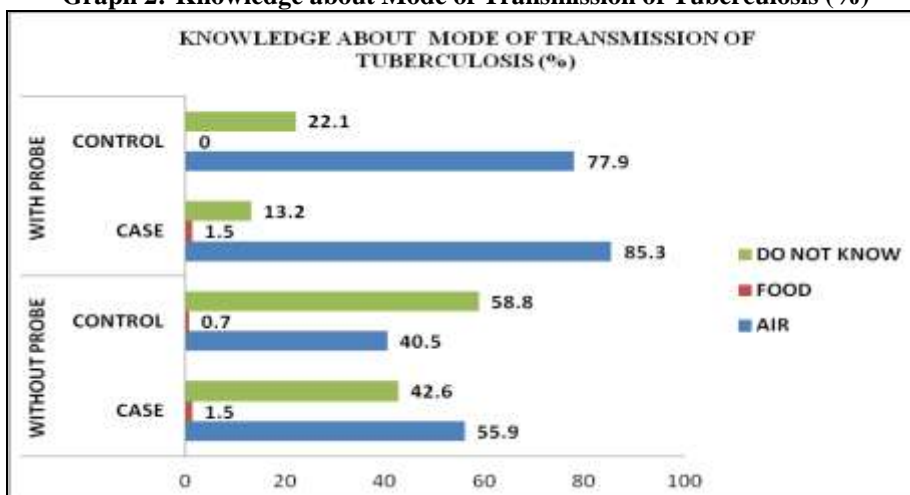
5.3 Knowledge about Duration of TB Treatment

Without probing there is complete lack of knowledge about duration of TB Treatment, while with probing about 75% of cases and 81.6% of control were able to answer correctly the duration of treatment of Tuberculosis (as shown in graph 3)

Graph 3:-Knowledge about Duration of Treatment of Tuberculosis (%)
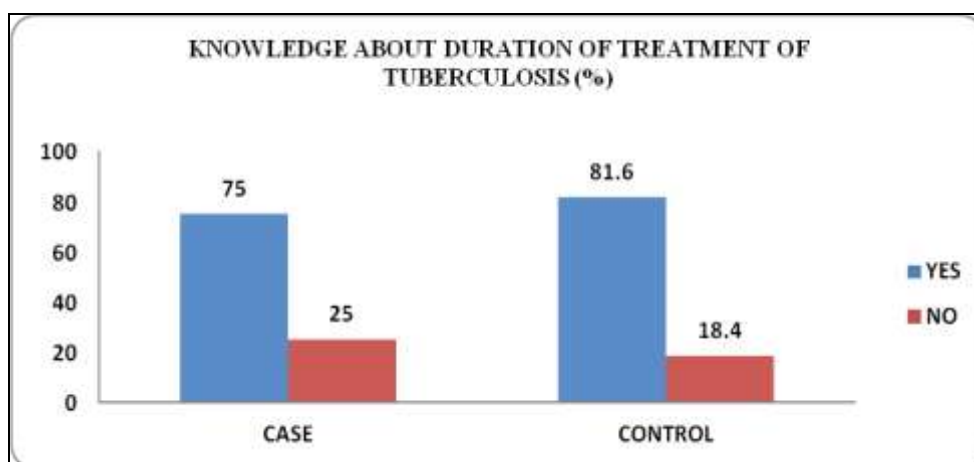
5.4 Treatment Seeking Behaviour among Study Participants.

About 44.2 % of cases and 62.5% of control group consulted Govt. Sector for first Consultation while 50% of cases and 31.6% of control group consulted Private sector (as shown in Table 1). Cases consulted More of Private sector Compared to Control group. 76.1% of Cases were put on Anti-Tubercular Treatment as initial treatment for illness compared to 81.6% of control, rest of study participants were put on Symptomatic treatment for cough and fever.38.2% of cases and 30.1% of control Discontinued Treatment, Treatment Default rate is more among cases as compared to control group.

Table 1:-Treatment Seeking Behaviour of Study Participants

Sr.no	Variables		Cases(n= 68)(%)	Controls(n= 136)(%)
1	**First consultation for Illness**	Govt.	30(44.2)	85(62.5)
		Private	34(50)	43(31.6)
		Trust	2(2.9)	1(0.7)
		Others	2(2.9)	7(5.2)
2	**Treatment Received Initially**	ATT	52 (76.5)	111 (81.6)
		SYMPTOMATIC	16 (23.5)	25 (18.4)
3	**Discontinued Treatment**	Yes	26(38.2)	41(30.1)
		No	42(61.8)	95(69.9)

VI. Discussion

6.1 Knowledge about Cause of Tuberculosis

There was significant lack of knowledge among both groups of study participants about causes of tuberculosis. With probe, 13.2% of cases associate TB with germs and 22.1% with poor immunity as compared to control group where 6.8% associated TB with germs and 19.7% to poor immunity. Majority of Study Participants were not able to answer correctly even after probing. Similar study done by Tolossa et al showed that 22.9% answered "M. tuberculosis" or "bacteria/germs" for the question "what is the cause of TB?" Other responses were cold air (42%), smoking or chat chewing (38.1%), shortage of food (8.9%), sun light (9.0%),

and dust (8.0%).[6] Findings are also supported by a study by Viney et al which showed that most patients were not aware that TB was caused by a bacterium (94%). Many participants attributed their TB to smoking, and alcohol or kava preparation and consumption: A quarter (26%) were not aware of local beliefs regarding TB causation but some considered smoking (31%), food and eating utensils (20%), kava and alcohol consumption (9%) and kastom (6%) to be the local beliefs about TB causation:"*Yes, I have heard that belief sharing of food and eating utensils may also spread the disease. But things like chewing of kava make it more badly especially our preparation of kava on Tanna." (Male TB patient aged 60).*[7]

6.2 Knowledge about Mode of transmission

Cases were more informed and considered Air (55.6%) as a mode of transmission of TB as compared to control group(40.5%), With probing 85.3% of cases were able to consider Air as mode of transmission of TB compared to 77.9% of control group, findings are supported by a study by Tolossa et al which showed that 38.8% of study participants had low level of knowledge.[6] Similar Study by Anochie PI et al showed 76.7% of the respondents had no idea of the mode of transmission of the disease. Other methods of spread suggested by respondents included touch (97%), act of God (1.7%), while 3.7% were not able to name any route of transmission. [8]

6.3 Knowledge about Duration of TB Treatment

Among Study Participants, without probing insignificant knowledge was there about duration of TB Treatment. Control group was more informed about duration of Treatment of Tuberculosis. Knowledge about Tuberculosis Treatment is important as it guides the patient to complete the full course of DOTS Therapy.

6.4 Treatment Seeking Behaviour among Study Participants

Among study participants 50% Cases have a history of first consultation at private sector, compared to Control group in which Majority (62.5%) first consulted Govt. sector, Similar finding was found in the study of Christian Auer et al, 53% patients initially consulted to private practitioners.[9]Different finding was found in the study of Graeme Meintjes et al, in which majority of patients (55.3%) initially consulted to public sector clinic, 33.0 % patients initially consulted to private practitioners, 9.7% patients consulted to traditional healers and 1.9% patients consulted to secondary or tertiary hospital. Fifteen percent (n = 16) reported using a home remedy.[10] In the study of Boonlue Chimbanrai et al, it was found that over half of TB patients visited more than one source of medical care to find relief from their symptoms before TB was diagnosed. One of the most common first choices when seeking medical care outside the house hold was private sector. In the second and third stages of treatment seeking, some patients sought treatment at a hospital but were not diagnosed with TB, and thus did not start a TB treatment regimen. This finding revealed that the lack of TB awareness among physicians and professional caregivers was the cause of delayed diagnosis and effective TB treatment.[11] In this study, cases have higher rate of treatment default (38 %) compared to control group (30%). Inadequate TB Treatment leads to emergence of MDR-TB, a study done by Selamawit Hirpa1 et al showed that those being failed on treatment or defaulted from the treatment were 4.5 times more likely to get MDR-TB as compared to those being cured or completed on treatment. [12] Regarding the Initial treatment received by study participants 76% of cases received anti Tuberculosis drugs as compared to 81.6% of control group which indicates majority of patients in Control group received earlier initiation of Anti-Tubercular Treatment as compared to cases.

VII. Conclusion

There is wide gap in the knowledge about cause, mode of transmission and duration of treatment of TB/MDR-TB among study participants. Regarding Treatment seeking behaviour still there is majority of patient who first consult private sector for treatment of Tuberculosis which is associated with switch over from one regimen to another, discontinuation of treatment due to financial constraints and leads to emergence of Drug Resistant Tuberculosis. This study finding indicate that there is requisite to improve the knowledge by providing Information, Education and Communication (IEC) and bring about behaviour change in treatment seeking by Behaviour Change Communication (BCC) at the community level by health care providers.

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