RESEARCH ARTICLE

FOCUS AND PRIORITISE FACTORS AFFECTING TUBERCULOSIS TREATMENT OUTCOMES IN A COMMUNITY – A FAMILY STUDY IN URBAN SLUM

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ABSTRACT

Background: Tuberculosis affects individual and also the vulnerable persons in a family, therefore taking the whole family into confidence is important to for better drug compliance. Tuberculosis is an ever green issue in India though the control programme started about 50 years ago. The infection affects all the organs of the body and all age groups, it is gaining further importance by its association with HIV and development of drug resistance leading to MDR TB. The burden of TB does not seem to reduce in the coming years until key issues are addressed by appropriate specific targeted interventions. **Objectives:** Case study of TB in a family - Scope of family counselling in adherence of treatment and prevention of spread. **Methods:** An in depth interview of the head of the family using a structured proforma. **Interpretation & Conclusion:** Lack of awareness, poor living conditions, illiteracy, ignorance and inadequate counselling of the family has led to series of tuberculosis cases in a single family. Therefore, family counselling should be an integral part of RNTCP. The psychosocial factors, unemployment, poverty and stigma are some of the issues which needs to be focused to reduce the final gap in treatment outcomes, which results in MDR TB.

INTRODUCTION

India accounts for one fifth of the world burden of tuberculosis and an even higher share of global incidence of multi–drug resistant (MDR) TB.[1] The TB relapse among the sputum positive treated cases is 10% which is mainly due to treatment failure and default , which is higher when compared to other countries where it ranges from 3.2% - 3.6% only.[2]

Tuberculosis not only affects individual but also affects all the vulnerable persons in a family. Compelling proper treatment and motivation is important not only for the individual but also family members for better compliance to medication. RNTCP is focusing on individual treatment of cases rather than the family as a whole. The diagnostic delay resulting in treatment delay will infect the family members as they are vulnerable. The Tuberculosis control programme is in place for more than 50 years, but the stigma is preventing the individual and families from seeking timely medical care at appropriate time and place due to the fear of social and economic consequences following diagnosis. TB-HIV co-infection has worsened the situation, adding to the existing stigma associated with the disease.

The MDR TB in India is about 2.1% which is due to treatment failure and relapse case.[3] The reported case load is only 3-4% in children, whereas the actual prevalence is estimated to about15-40%, in low to middle income countries.[4,5] These case mainly from adult case in the family. Studies have shown that psychosocial problems like depression, anxiety, related to social stigma, inadequate social support and physiological impact of the chronic disease affects treatment compliance and outcomes, hence mental health needs has to be addressed to ensure positive treatment outcomes.[6,7]

Presently, under RNTCP, STS, JHA(M), JHA(F), LHV are the responsible persons for doing initial home visits, taking retrieval action on default, screen for susceptible individuals in the family. The psychosocial problems associated with the disease are very varried which is beyond the scope of the above mentioned health workers.

The mental illness has to be diagnosed and treated to improve the treatment outcomes and reduce default, reoccurrence, relapse and MDR TB burden in the community along with improving the quality of life of tuberculosis affected individual and their families.

A study in Mexico showed that 25% of defaulted individuals failed to share the diagnosis of TB with family members.[8] As the disease is associated with a lot of psycho social impact not only on the patient but also on the families, there has to be support to address these issues along with importance to be given about the modes of transmission, infectivity, susceptible host in the house hold, do's and dont's for the patient and there family.

Objectives

Case study of TB in a family-Scope of family counselling in adherence of treatment and prevention of spread.

METHODOLOGY

A family study was conducted in Medar's block, an urban

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slum of Mysore City, which had six case of active tuberculosis. An in depth interview of the head of the family was done based on a structured proforma. Informed consent of the family members was taken prior to the study.

CASE DISCUSSION

A joint family of a 58 years old widow, living with four sons, two daughter in laws (one is a widow) and six grand children is residing in a slum of Mysore city. The family consisted of 13 members, seven adults and six children, where all adults are illiterate and work on daily wages.

dropout since this academic year and has been searching for some job to support the family and has recently picked up smoking habit. His younger son aged 12 is affected with TB and is on treatment for the same.

Secondary cases: All the children at home were screened for tuberculosis at Mysore Government (Chaluvambha) hospital by Mantoux test. Five of them tested strongly positive with a reading of 15 mm to 21 mm induration and were categorised as new case of TB. They were all started on ATT according to paediatric guidelines for TB.[9] The family is also supporting Mr. X and his sons and is staying united even though they have

Table 1 Individual suffering from TB in the family

S l no	Name	age/sex	Health status	Other information	Treatment Status
1	X (Index case)	42/M	Tuberculosis(Index Case)	alcoholic and smoker since 20 years, separated from wife,	CAT I
2	A (son of Index case)	10/M	Tuberculosis (Contact)	After taking ATT for 2 months is now unwilling to continue medication	CAT I
3	B (nephew of Index case)	12/M	Tuberculosis (Contact)	none	CAT I
4	C (niece of index case)	8/ F	Tuberculosis	none	CAT I
5	D(niece of index case)	5/F	Tuberculosis (Contact)	none	CAT I
6	E(niece of index case)	11months	Tuberculosis (Contact)	Vaccination up to date	CAT I

Names changed to maintain confidentiality.

Environmental Conditions of family: The family belongs to low socio economic class living in an overcrowded house with inadequate lighting, ventilation, poor sanitary conditions in and around the house. The pig sty and an open drain add to the insanitary living conditions.

Background of the Index case

Mr. X is a 42 years old, had history of cough with expectoration since one year but diagnosed with pulmonary tuberculosis only three months ago and treatment for the same was initiated under RNTCP Category I. In the last three months he developed cough with expectoration which increased during the day and was associated with foul smell and greenish in colour. It was not associated with heamoptysis but associated with low grade fever, loss of appetite and weight loss. He was advised to undergo sputum examination for TB but the stigma associated with the disease delayed him from being diagnosed at an appropriate time and in the course of time the young vulnerable children in the family got infected with tuberculosis (as an overcrowded house adds to the risk of transmission of infection). Meanwhile, he stopped working due to his detiorating health status.

After six months of persuasions by a local doctor, the patient agreed for sputum examination and was diagnosed as tuberculosis for which the treatment was initiated at JSS urban health centre in June 2013. After intensive phase treatment, the patients symptoms had significantly reduced in intensity and therefore unwilling to continue treatment. The patient has increased alcohol consumption and is unwilling to go to the hospital to take his drugs and is unavailable at home whenever the DOTS provider, STS or the doctor makes a home visit. The doctor at the JSS UHC has counselled the other family members about the treatment and the consequence and gives the medication blister packs for Mr. X through them. Even then the compliance of the patient is not satisfactory. He now goes to work for a few days out of town and misses his medication on those days. He may complete the treatment by taking a longer time but the chance of default is still very high. The patient's wife lives separately since four years along with the daughter with her parents following a family dispute and she left the house as they could not live separately from rest of the family. The elder son aged 15yeras is a school

stigma related to the disease in question.

Social diagnosis - Therefore, Mr. X is an unemployed, alcoholic, smoker, has marital disharmony, a school dropout son who has started to smoke and tuberculosis affected younger son, he is under tremendous psychosocial stress, who needs support to cope with this situation.

The family belonging to low socio economic status class II according to Kuppuswamy's modified classification, low educational level, overcrowded, inadequate lighting and ventilated house, with five out of six children are affected by TB and an antenatal women having obstetric score of $G_3P_2L_2A_0$ with history of four months amenorrhea.

DISCUSSION

Tuberculosis is a disease with both medical and social dimensions, characterized by its close relation to poor socioeconomic conditions. Patients suffering from pulmonary tuberculosis are reported to have psychiatric disorders like depression, anxiety, psychosis, and psychosocial problem like increased smoking, increased alcohol consumption, divorce, and isolation from the family. These psychosocial issue and diagnosable mental disorder have to be identified in order to address them effectively. They have negative effect on adherence to treatment which is a major setback for effective tuberculosis control in the community, possibly responsible for the appearance of drug-resistant TB which is caused by inconsistent or partial treatment of the disease.[7]

Studies report high rates of depression and anxiety among tuberculosis patients most likely related to social stigma, inadequate social support, and the physiologic impact of chronic disease.[7]

WHO 2007 report states that in 22 high burden countries, malnutrition (PAF {population attributable fraction} - 34.1%; RR- 4.0 [2.0- 6.0]), smoking (PAF- 30.3%; RR- 2.8[2.0- 3.9]), indoor air pollution (PAF- 26.2%; RR- 1.5[1.2- 3.2]) and crowded living (PAF- 23.1%; RR- 2.0[1.5- 3.0]) as important risk factors for developing TB. These factors can be addressed by adopting economic, social and environmental, health policies that affect the housing, urbanisation, poverty, education and health system which can modify these direct

determinants.[10] The decline in TB trends that was observed in developed countries during the early 20th century even before the advent of ATT due to improvement in the above mentioned conditions.[11]

Studies from India have revealed males, alcoholic, pulmonary TB, conversion of sputum positive status and in-convinces to take DOTS after initial improvement in physical state when they start working are some the important factors for high default rates.[12]

This case study has all the above mentioned psychosocial factors affecting adherence to drug regimens and emphasizes the importance of attention(consideration) to mental health needs to ensure positive treatment outcomes.

RNTCPin our country emphasis on secondary prevention (early diagnosis and treatment) rather than on primary preventive strategies. Though RNTCP identifies patient as VIP and patient friendly flexible approach have been adopted through the DOTS strategy which uses action like: a) Incentives- free meal, transport coupons, b) Defaulter action, c) Patient centered design, d) Confidentiality.[11] Defaulter action is the only approach that has been adopted in this case.

The relapse rate in India is about 10% higher when compared to other countries where it ranges from 3.2% - 3.6%. The factors for relapse are drug irregularity, initial resistance, smoking, and alcoholism. Majority (68.5%) of the relapse cases occur in the first year of completion of treatment and they also have worse treatment outcomes.[2] The drugs used in category II are not recommended by WHO anymore to treat the relapse or failure cases.[11] Therefore, measure have to be taken to see that defaulter rates are low by improving the compliance and thus reducing the TB burden and also the MDR TB in India. As the defaulters consist of 12-17% of MDR TB cases, who have poor compliance again during the retreatment regimen as well.[2]

The stigma associated with TB is the cause for delay in seeking the diagnosis and appropriate treatment. There is an added stigma with its association with HIV status detection. The delay in diagnosis is associated with poverty, lack of education, fear of long term consequences, social isolation, discrimination at home and work place.[8] The stigma is more often felt which leads to self exclusion which has to be addressed using an appropriate platform. The family is the social unit that an individual relates to and thus it should be the first place of intervention.

Similar to a study conducted in an urban slum in Puducherry showed, the knowledge regarding treatment availability was good, but the cause of TB, duration of treatment, mode of transmission, diagnosis, disposal of sputum, vaccination was poor. These issues need a focus while doing the initial home visits.[13]

According to the 2013 World TB report, TB prevalence has reduced by 37% from 1990 level, but the target for 2015 to achieve the MDG target of 50% reduction looks.[14] In order to achieve, targeted interventions for specific issues have to be prioritised.

The current family study focuses on the need of family counselling as one among these efforts.

CONCLUSION

Lack of awareness, poor living conditions, illiteracy, ignorance and inadequate counselling of the family has led to series of tuberculosis cases in a single family.

However, family counselling where all the family members are educated about the consequences of TB (economic and health of the family as a whole) will help in motivating them to complete the treatment. Thus, RNTCP should not only focus on early diagnosis and treatment, but should also provide psychosocial support to patients and their families. This will help in reducing defaulters among the patients who have psychiatric disorders and other psycho social factors which are beyond the capabilities of the existing health workers in the programme.

Steps to support treatment at work places to complete their treatment by recognizing high prevalent pockets will not only help to improve treatment outcomes but also to educate other co-workers about the sign & symptoms, such that delay in seeking treatment is reduced. This will not only help in creating anawareness about the disease and treatment but also in reducing the stigma and disbeliefs related to TB.

With the raising concerns of MDR TB, this looks like a feasible approach with a targeted intervention. Thus, psychiatric and psychosocial issues have to be addressed as early as possible to have better compliance and treatment outcomes.

Strengths of the study

In detail reporting of indigenous issues of an urban slum which is similar all over India. The present family is being continuously counseled for completion of the treatment.

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