Clinical aspects of tuberculosis with directly observed treatment in Mehsana district India

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Abstract

Purpose: To review all cases of tuberculosis of the year 2004 and 2005 in a population of Mehsana district, India to determine the clinical and laboratory characteristics and treatment with directly observed treatment, short-course under revised national tuberculosis control programme is how much beneficial compare to national tuberculosis control program.

Methods: In this study patients with existence of tuberculosis, which are taking treatment in 40 tuberculosis centers running by government of Gujarat of Mehsana district, were selected randomly. A follow up study was done and relevant data and information were gathered through tuberculosis centers visits and grouped in age, sex, incoming rate of patients with pulmonary and extra pulmonary TB, conversion rate, cure rate, death rate, failure rate, default rate of TB. The patients were divided into three different categories as per the severity of diseases.

Results: The main findings of this study are Conversion rate was found 92.8% means after first stage treatment from total patients with sputum positive. Cure rate after completion of treatment was found 89.5 and death rate was found 3.36 % with directly observed treatment, which is extremely less, compare to estimated death rate 30 %.

Conclusion: Above data suggested that directly observed treatment, short course should be strictly followed under constant supervision and motivation of each patients to ensure completion of effective treatment and detection should be undertaken for all suspected cases around the patient as earliest to control the diseases.

INTRODUCTION

Tuberculosis (TB) is one of the leading infectious causes of death worldwide. [1,2] In 2003, for example, there were an estimated 8.8 million new cases, and approximately 1.7 million deaths. [3]

Mycobacterium tuberculosis bacteria cause Tuberculosis (TB) disease. If not treated properly, TB disease can be fatal. TB in the lungs or throat can be infectious, means that the bacteria can be spread to other people. TB in other parts of the body, such as the kidney or spine, is usually not infectious [4].

In most people who breathe in TB bacteria and become infected, the body is able to fight the bacteria to stop them from growing. The bacteria become inactive, but they remain alive in the body and can become active later. This is called latent TB infection. People with latent TB infection,

- Have no symptoms

- Do not feel sick

- Can not spread TB to others

- Usually have a positive skin test reaction

- Can develop active TB disease if they do not receive treatment for latent TB infection

Many people who have latent TB infection never develop active TB disease. In these people, the TB bacteria remain inactive for a lifetime without causing disease. But in other people, especially people who have weak immune systems, the bacteria become active and cause TB disease [5,6].

DOTS (Directly Observed Treatment, Short-course) is a strategy for the control of TB. It is based on research done in India over the past 40 years. It is one of the most successful

health interventions of the 1990s[4,6]. DOTS combine 5 elements,

- Government commitment

- Diagnosis primarily by microscopy

- Regular supply of good quality drugs for short-course treatment

- Direct observation of treatment, at least in the intensive phase

- Systematic monitoring and accountability

DOTS ensure that patients take medicines regularly until they are cured. During the intensive phase a health worker watches as the patient swallows the drugs in his/her presence. Sputum microscopy is done at defined intervals to monitor patient's progress. So, DOTS is the best way to detect and cure infectious TB patients. With DOTS, trained health workers and community volunteers can be used to deliver treatment. DOTS achieve cure rates as high as 95 percent. Even in economically devastated areas, DOTS works [8,9].

OBJECTIVES

This study was undertaken in order

1. To assess the important aspects associated with treatment of TB, which is most common disease amongst people.

2. To generate awareness regarding this disease amongst common people.

3. To assure quality of services under taken to prevent infection for all suspected cases around the patients.

METHODOLOGY

To review all cases of tuberculosis of the year 2005 and 2006 in a population of Mehsana district, India to determine the clinical and laboratory characteristics and treatment with directly observed treatment, short-course under revised national tuberculosis control programme is how much beneficial compare to national tuberculosis control programme Four thousand four hundred eighty seven (4487) patients with existence of TB, taking treatment in 40 government TB centers controlled by TB hospitals, Mehsana of Mehsana district in Gujarat were selected.

The total patients taking treatment were divided into three categories, namely

- Category I (n = 2244) as include new sputum positive cases, new sputum negative cases and new cases with extra pulmonary TB

- Category II (n = 692) as include, smear positive relapses cases, smear positive failures cases and smear positive after default.

- Category III (n = 1368) and others (n = 183) as include new sputum negative cases without pulmonary and extra pulmonary diseases.

A detailed Performa was prepared and data and information were gathered on age, sex, incoming rate of patients with pulmonary and extra pulmonary TB, conversion rate, cure rate, death rate, failure rate, default rate of TB [10]. A follow up study was done at regular interval and informations were gathered about drug therapy prescribed to patients coming in different categories and patient compliance through hospital visits.

RESULTS

The patients divided in various categories were evaluated for the following findings. We can say that in coming rate of patients with smear positive new cases were observed highest than the incoming rate of different type of patients divided in different categories during year 2004 - 2005 as shown in Table: 1.

Figure 1

Table 1: Incoming rate of different type of patients included in categories I, II & III

Category	Type of patient	No. of patient reported
I	Smear positive new cases	2020
	Smear negative/ Extra pulmonary	224
II	Smear positive relapses	371
	Smear positive failure	33
	Smear positive treatment after default	288
III	Smear negative without pulmonary/ extra pulmonary diseases	1368
Others		183
Total		4487

Type of patients were divided in different categories as in category I included Smear positive new cases and Smear negative/ Extra pulmonary, in category II included Smear positive relapses and Smear positive failure cases, in category III included Smear negative without pulmonary/ extra pulmonary diseases and numbers of patients reported in each category were mentioned. Others included the patients came for smear test but not came for further treatment.

As shown in Table: 2 and Figure: 1, Conversion rate was found 92.8% means after first stage treatment from total patients with sputum positive 92.8% patients converted to sputum negative. Cure rate after completion of treatment was found 89.5%. In our study, we found that because of DOTS strategy, death rate was found 3.36 %, which is extremely less compared to estimated death rate (30 %), which was found with previous treatment under NTCP (National Tuberculosis Control Program). The major reason found for this 3.36 % death was that at least 1/3rdof patients because of self-administration, failed to take the dose at time. Failure rate and default rate was found 0.73% and 6.41% respectively.
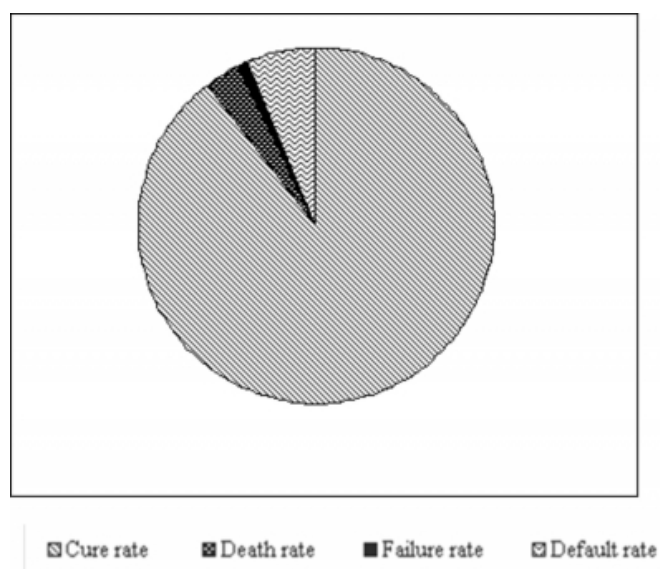
Figure 2

Table 2: Data for different evaluated finding rates

Total no. of patients evaluated	Conversion rate	Cure rate	Death rate	Failure rate	Default rate
4487	92.8%	89.5%	3.36%	0.73%	6.41%

Conversion rate indicates the conversion of smear positive patients to smear negative after 3 months treatment, cure rate indicates the rate of patients cured after completion of complete treatment, death rate indicates the rate of death of patients occurred during or after the treatment of patients, Failure rate indicates the rate of patients in which not possible to cure them after completion of treatment, default rate indicates the rate of patients they left the treatment in between after conversion into smear negative from smear positive.

Figure 3

Figure 1: Distribution of patients with resulting finding rates

☒ Cure rate   ☒ Death rate   ■ Failure rate   ☒ Default rate

Male patients with existence TB was found higher than female patients and age group in between 25 - 44 was found with highest number of patients with TB than other age groups as shown the data in Table: 3 and Figure: 2.

Figure 4

Table 3: Gender vice sputum positive patients divided in different age group

Age group	Gender		Total
	M	F	
0-14	15	21	36
15-24	274	131	405
25-34	362	195	557
35-44	316	115	431
45-54	244	72	316
55-64	144	45	189
65 and above	70	16	86

Only sputum positive patients were divided in gender vice as in male and female with different age groups in which they were coming.

Figure 5

Figure 2: Numbers of patients' v/s Age group
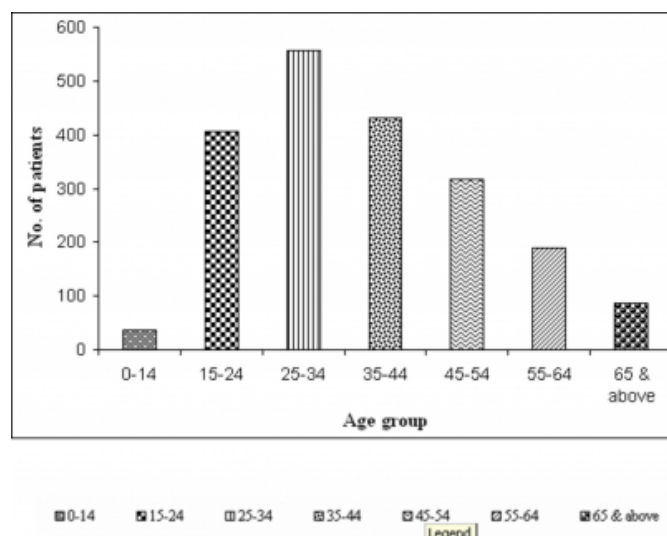
DISCUSSION AND SUGGESTIONS

For the patients with TB existence, therapy is very important for prevention of long-term complications.

Application of DOTS strategy with a short course of anti TB medicines given for 6 - 8 months with constant monitoring of patient is the cornerstone of TB control.

Amongst the patient relatively small number of patients possessed knowledge about the long-term complications.

Quality of services provided by visited hospital has been found satisfied.

Early detection of all suspected cases should be requiring for prevention of diseases.

Smoking increases the risk of infection so as a member of healthcare system a pharmacist can,

- Appeal to stop smoking. Informing people about the harmful effects of tobacco will result in decrease in number of patients.

- Help in DOTS program by informing the patient about the significance of the regularity of dose and its related treatment.

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