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Original Article

Treatment outcome of tuberculosis patients registered at dots centre in a teaching hospital, south India

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ABSTRACT

Aims: To study the treatment outcome of tuberculosis patients under Directly Observed Therapy Short course (DOTS) and to determine the risk factors affecting the treatment outcome of tuberculosis. Methods: This descriptive study of data analysis was carried out in district hospital, Hassan, Karnataka, South India. The patients registered from January to December 2008 were included in this study. Data of their treatment outcome was analyzed using standard statistical methods. Results: The study included 181 patients among them males were 123(67.4%) and females were 58(32.6%). Out of 181subjects 116 (65%) patients had pulmonary tuberculosis and 65(35%) patients had extra pulmonary tuberculosis. Treatment outcome among total 181 subjects was, 64 (84.2%) patients got cured, four (2%) patients were treatment failure, eleven (6%) patients died and fifteen (8%) were treatment defaulters. Treatment Success rate was 83.4 % (151 out of 181) which included the outcome of smear negative pulmonary tuberculosis and extrapulmonary tuberculosis. Conclusion: Cure rate among New Smear Positive (NSP) patients and retreatment patients was 84% and 83% respectively. The performance of TB Control Programme at a teaching hospital in year 2008 was on par with Revised Tuberculosis Control Program (RNTCP) norm, but treatment success rate of 83.4% was less than the RNTCP norm. This was due to irregular treatment, defaulting, alcoholism and human immunodeficiency virus co infection.

1. Introduction

Tuberculosis (TB) is among the most serious infectious causes of all global mortality and morbidity [1, 2]. It causes a great deal of ill health and enormous burden on population of most low and middle income countries [3]. According to recent World Health Organization(WHO) estimation 1.7 million people died from TB (including 380,000 women) in 2009, including 380,000 people with Human Immunodeficiency Virus(HIV)infection, equal to 4700 deaths a day. There were 9.4 million new TB cases worldwide (including 3.3 million women) in 2009 [4]. India is the highest TB burden country accounting for one fifth of the global incidence of TB. Global annual incidence estimate is 9.4 million cases out of which it is estimated that 1.98 million cases are from India. Though India is the second-most populous country in the world, it has more new TB cases annually than any other country [5]. Directly Observed Therapy Short Course (DOTS) is internationally recommended strategy to ensure cure of tuberculosis [6]. A key component of DOTS strategy is directly observed treatment (DOT); which aims to improve patient adherence to treatment and thus prevents the development of drug resistance [7].

The role of medical colleges is of paramount importance for the efficiency of Revised National Tuberculosis Control Programme (RNTCP) as care providers in medical colleges treat a significant number of TB cases in the country. They also provide specialised

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services for seriously ill TB patients or complicated cases like those TB patients co-infected with HIV and multi-drug resistant TB. This study was aimed to assess the treatment outcome with DOTS in district hospital attached to Hassan Institute of Medical Sciences (HIMS), Hassan, Karnataka.

2. Materials and Methods

2.1. Subjects

One year descriptive study was carried out in district hospital DOTS centre, attached to a new medical college, HIMS, which serves a population of about 1, 88,000 at Hassan, Karnataka. The study was carried out from January to December 2008. All the 181 patients registered at DOTS centre were followed up during their course of treatment to assess treatment outcome. Primary data from each patient included sputum smear report, type of tuberculosis, category of treatment regimen and outcome. Secondary data were collected from outpatient department registers, various registers maintained under RNTCP and treatment cards of patients. Data included age, gender, form of tuberculosis (pulmonary or extra pulmonary tuberculosis), type of tuberculosis (smear positive or smear negative), category of tuberculosis (new cases or relapse or retreatment cases) and treatment outcome. Treatment outcome of patients was evaluated in accordance with World Health Organization recommendation and classified as: cure, treatment completed, default, treatment failure, death or other. Patients were provided with free TB medications for a period of 6 to 8 months by the District Hospital RNTCP centre. Patients were followed up regularly until completion of treatment.

3.Results

The study included 181 patients out of which 123 (68%) were males and 58 (32%) were females. The majority of them 159(87%) belonged to economically productive age group (Table 1). 116 (65%) patients had pulmonary tuberculosis and 65(35%) extrapulmonary tuberculosis (Table 2). Among 76 pulmonary tuberculosis patients, New Smear Positive (NSP) patients were 58 and 18 patients were retreatment cases and their treatment outcome is shown in Table 3. Treatment outcome of 181 patients is shown in Table 4. Total cure rate was 84.2%, total failure rate was 2.2%, total defaulter rate was 8.2%, total death rate was 6.1% and total success rate was 83.4%. Among extra pulmonary tuberculosis subjects, lymph node tuberculosis was most common followed by pleural tuberculosis as shown in Table 5.

Table 1. Age-Sex distribution of study population

Age	Male	Female	Total (n=181)
0-20	10	12	22 (12.15)
21-40	59	34	93(51.38)
41-60	35	9	44(24.3)
61-80	18	4	22(12.15)

Table 2. Form and type of tuberculosis

Form and type of TB	Male	Female	Total (%)
Pulmonary TB	84	32	116(64.1%)
Extra pulmonary TB	39	26	65(35.9%)
Smear positive	60	16	76(65%)
Smear negative	26	14	40(35%)

Table 3. Treatment outcome in smear positive pulmonary tuberculosis

Type of TB Patients	Cured (%)	Failure (%)	Defaulter (%)	Death (%)
New Smear Positive (58)	49 (84.4%)	2 (3.4%)	3 (5.1%)	4 (6.8%)
Retreatment cases (18)	15 (83.3%)	2 (11.11%)	1 (5.5%)	0

Table 4. Treatment outcome in of total subjects (n=181)

Treatment outcome	Results (number of patients)
Success Rate	83.4 % (151 out of 181)
Cure rate	84.2% (64 out of 76)
Death Rate	6.1% (11out of 181)
Failure Rate	2.2% (4 out of 181)
Defaulter Rate	8.2 % (15 out of 181)

Table 5. Extrapulmonary tuberculosis (n=65)

Site of Extra pulmonary TB	Number of patients (%)
Lymph node	29(44.5)
Pleura	22(33.8)
Abdomen	7(10.8)
Meninges	5(7.7)
Hip joint	1(1.5)
Skin	1(1.5)

4. Discussion

The great burden of tuberculosis incidence and mortality in developing countries is in adults aged 15-60 years which includes the most socio-economically productive members of the society such as parents, workers, community leaders etc. Due to their age factor and socio-economic dependence of family they involve themselves in earning and get exposed to other cases in community [8]. In present study tuberculosis was seen more in males compared to females. Similar results were seen in study by K Okanurak et al [9], in Thailand and in Hamburg study by R Diel , S Niemann [10]. Mir Azam Khan et al [11], reported equal number of cases in both sex.11Tuberculosis mostly affects the lungs, but it may affect other organs of the body.

The study shows that pulmonary tuberculosis accounted for 116 cases (64.1%) of the total burden of the disease in the study population, while the extrapulmonary tuberculosis accounted for 65(35.9%) cases. This data differs from the national figure which states that 85-90% of cases are pulmonary tuberculosis and 10-15% of cases are extrapulmonary tuberculosis [12], out of total new cases.

Among 58 NSP patients treatment outcome was, 49 patients (84%) got cured, four (6%) patients died, three (5%) patients were defaulters and two patients were treatment failures. When compared to our study treatment outcome was poor in a study done by Moharana et al [13]. Among 18 retreatment cases treatment outcome was, 15 (83%) patients got cured, two were treatment failure and one patient had defaulted. Treatment outcome was higher in our study when compared to a study done by S.L. Chadha and R.P. Bhagi [14].

In our study treatment outcome among total 181 subjects was, 64 out of 76 (84.2%) patients got cured, four (2%) patients were treatment failures, eleven (6%) patients died, fifteen (8%) were treatment defaulters. Success rate was 83.4% (151 out of 181cases), which included the outcome of, smear negative pulmonary tuberculosis and extrapulmonary tuberculosis.

In a study done by S.L.Chadha and R.P.Bhagi [14], similar success rate was observed. Menke et al [15], Santha et al [16] and R.Diel, S.Niemann [10] observed lower cure rates than our study. A lower success rate was seen in a study done in Toronto by Wobeser etal [17] in a teaching hospital. Among 11 patients who died, five patients had co morbid HIV infection, three patients were seriously ill, two patients did not tolerate drugs and one patients died due to lung cancer. Among 15 defaulters six patients were alcoholic, three patients had given wrong address and could not be followed up, rest had vomiting, rash, cancer and co morbid HIV infection and two patients went to private consultant during the course of treatment. Four patients were treatment failure due drug resistance. Cure rate among NSP cases and retreatment cases was on par with RNTCP norm. Extra pulmonary tuberculosis was more common in our tertiary care hospital due to the availability of better diagnostic modalities.

5.Conclusion

Cure rate among NSP cases and retreatment cases was 84% and 83% respectively. The performance of TB Control Programme at a teaching hospital in year 2008 at par with RNTCP norm, but treatment success rate of 83.4% which was less than the RNTCP norm, this was due to irregular treatment, defaulting, alcoholism and HIV.

Key message:

1. The highest prevalence was seen in the economically most productive age group (15-60 years).
2. Extrapulmonary tuberculosis is more common in tertiary care hospital.
3. Alcohol addiction and HIV co infection play a major role in drug defaulting.

6. References

[1] Murray CJ, Lopez AD. Mortality by cause for eight regions of the world; global burden of disease study. Lancet. 1997; 349: 1269-1276.

[2] Murray CJ, Lopez AD. Regional pattern of disability free life expectancy and disability-adjusted life expectancy; global burden of disease study. Lancet. 1997; 349: 1347-1352.

[3] Naing NND, Este C, Isa AR, Salleh AR, Bakar N, Mahmood MR. Risk factors contributing to poor compliance with anti-TB treatment among tuberculosis patients. South East J Trop Med Public Health. 2001; 32: 369-382.

[4] Tuberculosis facts 2010/2011 Geneva: World Health Organization; 2010.

[5] http://www.tbcindia.org/pdfs/TB India 2010.pdf

[6] Global tuberculosis Control, Surveillance, Planning, Financing- WHO Report 2005: WHO/HTM/TB/2005. 49, WHO Geneva; 2005.

[7] Trebueq A, Reider HL. Two excellent management tools for national tuberculosis programmes; history of prior treatment and sputum status at two months. Int J Tuberc Lung Dis. 1998; 2: 184-186.

[8] Managing the RNTCP in your area, a training course: Modules 5-10, Central TB Division, DGHS, MOHFW, New Delhi, July 1999.

[9] Okanurak K, Kitayapor D, Wanarangsikul W, Koompong C. Effectiveness of DOT for tuberculosis treatment outcome: a prospective study in Bangkok, Thailand Int J Tuberc Lung disease. 2007; 11(7): 762-768.

[10] Diel R, Niemann S. Outcome of tuberculosis treatment in Hamburg: a survey 1997-2001. Int J Tuberc Lung Dis. 2003; 7(2): 124-131.

[11] Khan MA, Basit A, Ziaullah , Javaid A. Outcome of tuberculosis patients registered during 2007 in major teaching hospitals of Peshawar. JPMI. 2009; 23(04):358-362.

[12] Central TB Division, Directorate General of Health Services, Ministry of Health and Family Welfare, New Delhi. RNTCP TB status Report. 2007 ;1: 10-13.

[13] Moharana PR, Satapathy DM, Sahani NC. An analysis of treatment outcome among TB patients put under dots at a tertiary level health facility of Orissa. Jcomm Med. 2009; 5(2): 5-8.

[14] Chadha SL, Bhagi RP. Treatment outcome in tuberculosis patients placed under directly observed treatment short course- A cohort study. Ind J Tub. 2000; 47:155-158.

[15] Menke B, Sommerwrck D, Schaberg T. Result of Therapy in pulmonary tuberculosis. Outcome Monitoring in Northern lower Saxony. Pneumologie 2000; 54: 92-96.

[16] Santha T, Garg R, Frieden TR, Chandrasekaran V, Subramani R, Gopi PG, Selvakumar N, Ganapathy S, Charles N, Rajamma J, Narayanan PR. Risk factors associated with default, failure and death among tuberculosis patients treated in a DOTS programme in Tiruvallur District, South India, 2000: Int J Tuberc Lung Disease. 2002; 6(9): 780-788.

[17] Wobeser W, Yuan L, Naus M. Outcome of pulmonary tuberculosis treatment in the tertiary care setting- Toronto 1992/93. CMAJ 1999; 160: 789-794.