IJPT
Available Online through
www.ijptonline.com
ISSN: 0975-766X
Research Article

OPERATIONAL INDICATORS OF DOTS THERAPY AT MNR MEDICAL COLLEGE & HOSPITAL, SANGAREDDY

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Received On: 06-05-2010 ***Accepted On: 26-05-2010***

ABSTRACT

Background: The Government of India, WHO and World Bank together reviewed the NTP in the year 1992. The revised strategy was introduced in the country as a Pilot Project since 1993 in a phased manner as Pilot Phase I, Pilot Phase II and Pilot Phase III. By the end of 1998, only 2 per cent of the total population of India was covered by RNTCP.

Objectives:

1. To know the sputum conversion rate among the sputum positive tuberculosis patients.

2. To find the treatment outcome of smear positive tuberculosis patients.

Methodology: This Hospital based descriptive study was carried out among the out patients attending Medicine, Surgery, OBG, ENT, Dermatology, TB and Chest Department of MNR Medical College during the period of January 1st to December 2006. Oral questionnaire prepared and applied to all the individuals (377 TB suspects) those who visited for sputum examination at DMC.

Results: Out of 138 TB Cases 67.3% cases were pulmonary and 32.7% were extra pulmonary. Out of 58 sputum positive cases, 49 cases returned for sputum examination at successive months and rest were

transfer out. Of these 49 cases, 46 cases have converted negative at 2, 4, 6 months respectively and remaining 3 cases had sputum conversion at 3,5, 7 months. Tuberculosis prevalence increased with age i.e. above 15 years of age group and significant association was found (P< 0.001). HIV- TB Co-Infection was found in 2 cases (1.4%) of the total TB (138) cases.

Conclusions: Out of 58 sputum positive cases, 4 cases (4/58) not traced and 5 cases (5/58) transferred out to neibouring districts. There is a need to increase RNTCP network to minimize the dropouts.

Key words: Age, Sex, Sputum conversion rate, Type of TB, Co-infection.

RESEARCH QUESTION

To describe the operational indicators at Designated Microscopy Centre?

BACKGROUND:

Tuberculosis is a specific infectious disease caused by *Mycobacterium tuberculosis*. It remains world wide public health problem and considerable mortality and morbidity was observed among untreated and inadequately treated patients. Pulmonary Tuberculosis is the most common form of TB (more than 85% of TB cases), while extra pulmonary Tuberculosis can affect almost all organ parts of the body([1]). Transmission occurs by air borne spread of infectious droplets and droplet nuclei containing the Tubercle bacilli and it can stay in the air for a long time.

In 2002, there are globally an estimated 8.8 million new cases of TB, of which 3.9 million were sputum smear positives, and 80% were in 22 high burden countries. One fifth of the Global TB incidence is in India, which accounts 1.8 million new cases, of which 0.8 million of these being infectious smear positive cases. In India an estimated 4 lakhs deaths occur from TB every year ([2]) .

In 1962, National Tb control programme was launched. 3 decades later in 1992, review of the NTP found that desired results have not been achieved. There was over dependence on X-ray for diagnosis, case detection rate itself is less. 1992 review revealed that only 30% of existing TB cases

were being diagnosed, and of these only 30% were completing treatment. Large - scale implementation began in late 1998. The RNTCP has expanded rapidly over the years and now it covers the whole country. The RNTCP has now entered into it's second phase in which the programme aims to consolidate the gains made to date, to widen services in terms of activities and access and to sustain the achievements ([10]).

In MNR Medical College, designated sputum microscopy center (DMC) was started on 1st January 2006. Thereafter as per the guidelines of the RNTCP programme, strictly followed the diagnostic algorithm [2], prolongation pouches for inpatients and referral to peripheral health institutions for treatment was done. Direct observation of treatment (DOT) ensures the best possible results in treatment of TB. Here an observer watches and assist the patient in swallowing the tablets, thereby ensuring that the patients receive medication. Many patients who do not received directly observed treatment stop taking drugs after 2 months because they feel better. Hence, by observing the patients during the entire course of treatment, one ensures that they receive the right drugs, in the right doses, at the right intervals and for the right duration. Based on mathematical modeling, WHO has estimated a prevalence of 1.2 percent of HIV in adult TB patients in India([11]).

OBJECTIVES

1. To know the sputum conversion rate among the sputum positive tuberculosis patients.
2. To find the treatment outcome of smear positive tuberculosis patients.

MATERIAL AND METHODS

This Hospital based descriptive study was carried out among the out patients attending Medicine, Surgery, OBG, ENT, Dermatology, TB and Chest Department of MNR Medical College during the period of January 1st to December 2006. About 31,367 outpatients attended the MNR Hospital during the study time. As per the guidelines of RNTCP, 377 TB suspects were identified from out patients.

Oral questionnaire prepared and applied to all the individuals (377 TB suspects) who are coming for sputum examination at DMC of our Hospital. These TB suspects underwent sputum examination for the diagnosis of pulmonary Tuberculosis. For the consideration of Smear positive TB, Out of 3 sputum samples 2 must be positive, 1 sputum positive case was correlated with X-ray for the diagnosis. Even sputum negative cases were insisted to come for repeat sputum examination after giving 2 weeks antibiotic course of treatment.

Those who are admitted in the hospital were given prolongation pouches for all varieties of TB cases. Then referral forms filled and will be sent to respective peripheral institutions (PHI) for further treatment according to DOT Directory available in our hospital. Data entered in to MS excel sheet, analyzed and necessary statistical tests were applied.

RESULTS

Table: I

No.of Adult Out Patients	No. of TB Suspects	No. of suspects undergone sputum examination	No. of Smear Positives
31,367	377	377	58

Out of 377 TB suspects 58 (15.4%) cases were smear positive Tuberculosis. According to programme guidelines 10 % positivity among TB suspects is required (Table-I)

Table – II

Type of TB cases according to Sputum Examination

Type of TB Cases	No. of TB Cases
Smear Positive Cases	58 (42%)
Smear Negative Cases	35 (25.3%
Extra Pulmonary cases	45 (32.7%)
Total	138 (100%)

Out of 138 TB Cases 67.3% cases were pulmonary and 32.7% were extra pulmonary (Table-II).

Table – III

Sputum Conversion rate among smear positive cases

Description	Conversion at 2 months	At 3 months	At 4 months	At 5 months	At 6 months	At 7 months	Total
New Sputum positives	46 (93.8%)	3 (6.2%)	46 (93.8%)	3 (6.2%)	46 (93.8%)	3 6.2%)	49 (100%)

Out of 58 sputum positive cases, 49 cases returned for sputum examination at successive months and rest were transferred out. Of these 49 cases, 46 cases have converted negative at 2, 4, 6 months respectively and remaining 3 cases had sputum conversion at 3,5, 7 months (Table-III)

Table – IV

Age & Sex wise distribution of smear positive TB cases

Age wise distribution TB cases			
Age	TB Present	TB Absent	Total
< 15 years	18 (13%)	68 (28.5%)	86 (22.8%)
> 15 years	120 (87%)	171(71.5%)	291(71.2%)
Total	138 (100%)	239 (100%)	377 (100%)

X2 = 11.8, 1df, P< 0.001

Tuberculosis prevalence increased with age i.e. above 15 years of age group and significant association was found (P< 0.001).

Table – V

Type of TB Cases	Male	Female	No. of TB Cases
Smear Positive Cases	39 (67%)	19 (33%)	58(100%)
Smear Negative Cases	22 (62.8%)	13 (31.2%)	35(100%)
Extra Pulmonary cases	19 (42.2%)	26 (57.8%)	45(100%)
Total	80 (58%)	58 (42%)	138(100%)

High TB prevalence was noticed in males of sputum positive and sputum negative Tuberculosis patients. In extra pulmonary Tuberculosis, prevalence among the females was found to be more (Table-V)

Table-VI

Treatment outcome of smear positive Tuberculosis patients.

Description	Cases Cured	Treatment Completed	Other District Cases			Total
			R.R. Dist.	NZB Dist.	Not Traced	
Sputum positive	49 (84.4%)	-	4	1	4	58
Sputum Negative	-	22 (62.8%)	8	-	5	35
Extra Pulmonary	-	35 (77.7%)	5	-	5	45
Total	49	57	17	1	14	138

This table clearly shows that out of 58 smear positive cases, 49 cases are labeled as cured. Cure rate among sputum smear positive cases was 84.4%. Treatment completed among sputum negative cases was 62.8% and in extra pulmonary cases 77.7% people were completed their said course of treatment (Table-VI).

Out of 138 total TB cases only 2 cases (1.4%) were found to be co-infected with HIV and TB. Of which one case was sputum positive HIV case another sputum negative HIV positive case.

DISCUSSION:

Out of 31367 out patients, 138 Tuberculosis patients were diagnosed as per the guidelines of Revised National Tuberculosis Control Programme (RNTCP). Of which, 58 cases were sputum positive, 35 were sputum negative and 45 cases extra pulmonary TB. Sputum conversion rate among sputum positive cases was about 84.5% which has matched with one of the objective of RNTCP ([2,6]). Tuberculosis prevalence increased with age i.e. above 15 years of age group and significant association was found (P< 0.001). According to National Tuberculosis Institute, Bangalore the Tuberculosis affects all ages in India and there is a sharp rise in infection rates from infancy to adolescence, with an

average of 1% in the under 5 age group the infection rate climbs to about 30 % at age 15 years([3]). Thus the findings of current study are parallel to the national trends.

High TB prevalence was noticed in males of sputum positive and sputum negative Tuberculosis patients which are also in line with the nationals trends ([4,5]). But in extra pulmonary Tuberculosis, high prevalence among the females about (64.6%) was found. The reasons for these reciprocal trends need to be explored. About 62.8% sputum negative patients completed the said treatment and 77.7% extra pulmonary cases completed the treatment. In the present study 1.4% of the people co-infected with HIV and TB. 2008 RNTCP report revealed that HIV and TB coinfection in India was 1.2% and our results more or less par with the national estimated figures ([10]). For the effective implementation of RNTCP programme motivated and trained DOT agent and TBHV (Tuberculosis Health visitor) are required for achieving of RNTCP objectives and reduction in the dropouts number and also useful for the network strengthenning of the programme.

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