

Study of Tuberculosis cases under RNTCP attending Designated Microscopy Centre at Pravara Rural Hospital, Loni

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ABSTRACT

Pulmonary Tuberculosis is most common form of tuberculosis (TB). The present study was conducted to study the TB cases attending DMC cum DOTS centre at PRH, Loni. It is a retrospective record based study. TB patients information was collected from the record registers at DOTS centre. Out of 611 patients diagnosed, 188 (30%) are from the age group 0- 10 years. Extrapulmonary TB patients were more 222 (36%). New smear positive TB cases were 196 (32%). Total 61% patients were categorized in CAT- I, 9% in CAT-II & 30% in CAT III. Treatment completion rate was 93.69%. In view of the high success of DOTS strategy, the same is recommended to be continued. For transferred cases, a better system of follow up may be explored for monitoring all these cases.

Key words: DOTS, RNTCP, Treatment completion rate.

INTRODUCTION

Tuberculosis is a chronic infectious disease. One of the Key epidemiological indicators of TB in a community is the Annual Risk of TB infection (ARTI). It has been estimated that for every 1% ARTI, there are about 50 new pulmonary sputum smear positive cases (NSP) per 100,000 population per year. Pulmonary TB is the most common form of TB (more than 85% of all TB cases) while Extra-pulmonary TB can affect almost any organ in the body. The prevalence of TB infection in India is 30%.

Under the TB control programme, priority is given to smear-positive cases. Every smear positive person, if left untreated, has the potential to infect 10-15 persons per year, thereby increasing the pool of infected persons. In a well performing programme, cure rate of more than 90% can be achieved.^[1]

To combat Tuberculosis is the 6th objective to be

achieved by 2015 as per Millenium Development Goals (MDGs). MDGs are drawn from the actions & targets contained in the millenium declaration which was adopted by 189 nations & signed by 147 heads of states and governments during the UN millenium summit in Sept. 2000.

As per statement of Director General of WHO, DOTS strategy was most important breakthrough of the decade in terms of lives saved.

The W.H.O. recommended DOTS strategy (Directly Observed Treatment Short Course) was covered in the entire India by 24th March 2006.^[2-4]

Originally it was believed that anti-tuberculosis drugs needed to be given everyday to maintain drug concentrations. However, studies showed a lag period demonstrated by mycobacteria, which is the basis of intermittent treatment regimens^[3]

The only effective means by which 85% cure rate or more has been shown to be achieved on a programme basis is by the application of the DOTS strategy^[3].

The objectives of the study were designed to estimate the number of New Smear Positive (NSP) cases among the total number of suspects whose sputum was examined for diagnosis, to study the age & sex

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distribution of TB patients diagnosed, to study all the three variants of TB i.e. New Smear Positives, New Smear Negatives and Extrapulmonary TB, to study the OPD & IPD distribution, categorization of all TB cases diagnosed at DMC/DOTS attached to RMC, Loni and to assess whether the main objective in RNTCP is achieved.

MATERIAL & METHOD

A Retrospective record based study was done at Designated Microscopy and Treatment Center at Pravara Rural Hospital attached to Rural Medical College, Loni.

Total two years and six months data of all the TB patients i.e. from January 2006 to June 2008 was taken and the study was done from March 2009 to April 2009. The study included total 611 diagnosed TB cases at DMC cum DOTS center at PRH.

All TB patients diagnosed at DMC were included. Data was obtained from laboratory Register, treatment Register, treatment Cards; referral (Transfer) register maintained as per RNTCP rules & guidelines, also from monthly reports sent to District TB Centre.

RESULTS

Table 1: shows that 66% males were diagnosed for TB compared to 34% females. Total 104 patients completed DOTS treatment at PRH out of which 57% were males and 43% were females. One treatment default and four deaths were also seen in males. Out of 502 patients transferred & referred out of PRH, 67% were males & 33% were females. TB patients diagnosed upto age of 10 years were more i.e. 188 (30%) as compared to other decades of age group. Also there were many patients diagnosed in the age group 20-50 years.

Age (Years)	Diagnosed at DMC, PRH		Transferred & Referred out		Treatment completed at PRH		Defaulter		Death	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0 - <10	116	72	76	42	38	32	00	0	00	00
10 - < 20	29	38	25	31	07	07	00	00	00	00
20 - < 30	52	45	47	41	08	03	00	00	00	00
30 - < 40	70	22	67	20	02	01	00	00	01	00
40 - < 50	54	14	29	12	02	00	00	00	00	00
50 - < 60	30	06	27	07	01	00	00	00	01	00
60 - < 70	40	08	37	06	00	02	00	00	01	00
70 - < 80	10	04	07	04	01	00	01	00	01	00
80 - < 90	01	00	01	00	00	00	00	00	00	00
Total	402 (66%)	209 (34%)	336 (67%)	166 (33%)	59 (57%)	45 (43%)	01	00	04	00
Grand Total	611 (100%)		502 (82.16%)		104 (17.02%)		01 (0.17%)		04 (0.65%)	

*The above table considers those patients diagnosed at other center, relapsed and transferred in PRH. Those patients receiving anti-TB treatment, does not figure in above table.

Table 1: Age and Sex Distribution of Tuberculosis Patients.

Table 2 shows that there was increase in sputum collection & diagnosis of smear positive TB patients since inception of the centre. Average diagnosis of New Smear Positive patients was 11.87%.

<i>Quarter</i>	<i>Sputum Collection</i>	<i>New Smear Positive (N.S.P.)</i>	<i>New smear negative</i>
Jan-March 06	65	11	19
April- June 06	91	18	15
July- Sept 06	118	13	22
Oct- Dec06	150	15	20
Jan- March 07	201	24	24
April- June 07	168	17	18
July- Sept 07	232	29	16
Oct- Dec 07	226	16	24
Jan- March 08	229	28	20
April- June08	170	25	15
Grand Total	1650	196 (11.87%)	193 (11.69%)

Table 2: Quarterly reports of Sputum Examination (Jan06-June08)

Table 3 shows that the OPD & IPD distribution of TB patients and it revealed major contribution from department of Medicine i.e., 77% & 47% respectively. IPD contribution of TB cases from Paediatric department was 43%. The other departments from which TB patients diagnosed were Surgery, Orthopaedics, Ophthalmology & Obs. Gynaecology.

Dept.	Medicine	Paediatrics	Surgery	Ortho	Ophthalm	Gynaec	Total
OPD	160(76.92%)	33 (15.86%)	6 (2.88%)	6 (2.88%)	1 (0.48%)	2 (0.96%)	208 (34%)
IPD	190(47.14%)	173 (42.92%)	8 (1.98%)	28 (6.94%)	3 (0.74%)	1(0.24%)	403 (66%)

Table 3: OPD & IPD distribution of TB patients

Table 4 shows that 373 (61%) patients were in Category I, 57 (9%) patients were in Category II and 181 (30%) patients were in Category III. PRH being a tertiary care centre, more number of seriously ill patients were placed in Category I.

Categorization	Cat-I	Cat-II	Cat-III	Total
Total diagnosed	373(61%)	57(9%)	181(30%)	611(100%)
Total transferred & referred	314(62%)	54(11%)	134(27%)	502(82%)
Total treated at PRH	59(57%)	01(1%)	44(42%)	104(17%)
Feed back from transferred cases	266(85%)	37(68%)	107(80%)	410(82%)

Table 4: Category wise Distribution of TB patients

DISCUSSION

The DOTS strategy was first suggested in India by experts from National TB Institute in Bangalore & Tuberculosis Research Center Chennai in 1950s & 60s but it was not accepted & National TB control programme was started in 1962. In 1992 national wide review was conducted with assist of SIDA & WHO in collaboration with Govt. of India & many other evaluation studies (datta, gothi, suryanarayan) also highlighted their reasons for failure of NTCP. The Revised National TB Control Programme (RNTCP) was thus started in 1997 with DOTS as WHO recommended strategy^[5]

There is increase in sputum collection and smear positivity every year in PRH, due to the sensitization workshop organized for staff, postgraduates, nurses & interns. World TB day is observed every year on which Information, Education & Communication activities like article in news paper, speech on local akashwani radio, awareness among auto rickshaw drivers, sensitization of female health volunteers, health awareness through a telemedicine programme in Institute- Namaste Doctor are carried. Core Committee meetings are conducted regularly to monitor and improvise the activities thereby increasing case detection. Out of 611 diagnosed cases, 208 (34%) were OPD patients, where as 403 (66%) were IPD patients. Three hundred seventy three (61%) were diagnosed as seriously ill and were categorised in CAT-I which included new smear positive and seriously ill smear negative & extrapulmonary patients. Examples of seriously ill Extrapulmonary includes meningitis, disseminated TB, TB pericarditis, peritonitis, bilateral or extensive pleurisy, spinal TB with neurological complications & intestinal & genito-urinary TB. Out of 502 patients referred & transferred out feedback was received from 82% which implies a good system of case holding i.e. patients are not lost anywhere due to 100% coverage of DOTS in country. Out of the 104 patients who completed their treatment in our centre,

50% patients were extrapulmonary, 38% were smear negative and 11.90% were smear positive. According to RNTCP it should not be less than 5% because of the high prevalence of TB amongst Indian population. Hundred percent cure was achieved as no patient was smear positive at the end of treatment. One smear negative had defaulted.

Treatment completion thereby achieved in New Smear Negative & Extra Pulmonary (excluding smear positive) was 93.69%. Investigations done for diagnosis of 222 (36%) Extra Pulmonary Tuberculosis cases had X – Ray in 37 (16%), Biopsy in 39 (17%), CT – Scan in 38 (17%), C.S.F. in 88 (40%), Body Fluids examination in 13 (6%), Culture in 7 (3%). INH prophylaxis was given to 16 patients below age group of six years.

In a study by Sharma SK, Tahir M et al, four years data was taken in which out of 768 patients, cure was achieved in 92% (71 of 77) new smear positive patients, treatment completion was achieved in 91 out of 100 extra pulmonary TB and 75% (46 of 61) of smear negative TB. Overall treatment success was achieved in 86% (229 out of 266).^[6] In this study, the treatment success was achieved in 93.69% patients

Study by Sophia V, P.S. Jagannatha showed the treatment outcome of NSP patients, in which 24.7% patients defaulted from treatment, 2.2% deaths and the treatment success was 67.9%^[7]. Cure rate in this study was 100% thus fulfilling objective of RNTCP.

Another study at JNMC Aligarh by MD shamim Akhtar, D K Pandey et al showed total 475 patients put under DOTS compared with self administered group & showing a cure rate of 81%. There were 65% males & 35% females. The sex wise distribution are almost similar in both the studies with 65% males & 35% females reported at JNMC.^[8] Seventy six percent were pulmonary while 24% were extrapulmonary, treatment completion was 87%, default was 5%, failure rate was 3%, relapse was 3%. Where as in this study, treatment completion was achieved in 93.69%. There

was no single failure or relapse reported. Thus involvement of Medical colleges is playing vital role in Tuberculosis control in terms of diagnosis, treatment, appropriate referral, awareness activity for community/private practitioners, training of undergraduate, postgraduate students, Interns and all concerned staff who shall help to achieve TB related MDG in a long run.

State and Zonal meetings conducted by the TB control societies should be attended by medical college members to update the knowledge and implement the changes timely in their DOTS centre & discuss the same in their core committee meetings held at medical college.

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