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A STUDY ON TREATMENT OUTCOME OF NEW SPUTUM SMEAR POSITIVE TUBERCULOSIS PATIENTS AMONG TRIBAL POPULATION IN KURNOOL DISTRICT

COMMUNITY MEDICINE

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ABSTRACT

Background: India accounts for nearly 20% of the global burden of tuberculosis, with global tuberculosis ranking of 'one'. It is the leading infections cause of death in India. Around 1.8 million people are detected to have tuberculosis every year in India, of which about 0.8 million are new smear positive highly infections cases.

Aims & Objectives: To find out various treatment outcome rates of tuberculosis patients among tribal population. To study on factors influencing cure rates among tribal population.

Material & methods: The present study of treatment outcome of new sputum positive tuberculosispatients' is a prospective, community based study. Patients diagnosed and registered from IVth quarter of 2006 to 1st quarter of 2008 in Athmakur tuberculosis unit, Kurnool district are selected for prospective study. They are followed from the time of registration and treatment till the completion of treatment. The study is continued till the last registered tuberculosis case completes the treatment. All the cases were followed for sputum smear conversions, smear examination at the end of treatment regimen. Duration of study is 1year and 3 months.

Results: A total 45 tribal cases of Athmakur tuberculosis unit, Kurnool district were studied for treatment outcomes.31 (68.89%) were males and 14 (31.11%) were females. Male to Female ratio of 2.21:1 was observed among the patients. There is ahigh prevalence in .

Conclusion: The expected treatment outcome norms (cure rate > 85%, failure rate <4%, death rate <4%, default rate<5%, smear conversion rate >90%) were observed in the present study. Cure rate of 91.11%, failure rate of 4.4%, death rate of 4.4%, smear conversion rate of 93.33% were observed in the study, which shows that the implementation of Revised National Tuberculosis Control Programme in the study area has achieved the prescribed goals.

Key Words:Default, Failure, Patients, Tuberculosis

Introduction:

India accounts for nearly 20% of the global burden of Tuberculosis (T.B), with global TB ranking of 'one'. It is the leading cause of death in patient with infectious diseases in India. Around 1.8 million people are detected to have tuberculosis every year in India, of which about 0.8 million are new smear positive highly infectious cases. Over 0.4 million die of this disease every year (17% of global TB deaths). Total population suffering from active disease in India is around 14 million,of which 3.5-4 million (0.4% of total population) are positive for sputum acid fast bacilli.[1]

With the setback of National Tuberculosis Control programme in controlling T.B, the Government of India together with World Health Organization reviewed the National T.B programme keeping in view of the severity of the problem, launched its revised strategy i.e. 'Revised NationalTuberculosis Control Programme (R.N.T.C.P) in 1992.

The objectives of the programme are to achieve at least 85% cure rate through 'Directly Observed Treatment Short Course Chemotherapy (D.O.T.S) and case finding rate of 70% of estimated cases. This revised strategy was introduced in the country as a pilot Project since 1993 in a phased manner and has covered the whole country in 2006. Kurnool district of Andhra Pradesh with a population of about 37,71,414 is having tribal population of 2.15% distributed among four groups 1.Sugali 2.Chenchu 3.Yerukala 4.Yanadi. Their habitat is at the Nallamala forest area mostly remote and inaccessible for health care services.[2]R.N.T.C.P, programme was started in the Kurnool district on 24/3/2003 as part of Phase I of R.N.T.C.P, cure rates of >85% and case detection rates of 70% were achieved during the years 2006 and 2007. The R.N.T.C.P has 8 tuberculosis units and 44 designated microscopy centers in the district.

Objectives:

To find out various treatment outcome rates of tuberculosis patients among tribal population. To study on factors influencing cure rates among tribal population.

Material & Methods:

All the patients belonging to tribal population with new smear positive pulmonary tuberculosis (category I) who were registered from IVth quarter 2006 to Ist quarter 2008 in TB unit of Atmakur were included in the study (1year and 3months). A total 45 cases of category I was taken as study subjects. Exclusion Criteria: - All smear negative T.B patients and smear positive retreatment cases and extra pulmonary T.B cases of the same tuberculosis unit were excluded from present study. Patients who belonged to other castes were excluded from study.

Results:

In the present prospective study all the registered new sputum positive T.B. cases belonging to tribal community of Athmakur tuberculosis unit, Kurnool district were studied for treatment outcomes and factors influencing the cure rates.

In Table 1, it was observed that out of total 45 new sputum positive T.B cases, 31 (68.89%) were males and 14 (31.11%) were females, a male female ratio of 2.21: 1 was observed among the patients. High prevalence in males is significant with p value <0.001.

Maximum number of cases-40(88.89%) out of 45 cases belonged to age group less than 45 years. Similar findings were observed in both males (87.1%) and females (92.86%). High prevalence of cases in age group less than 45 years is significant with p value <0.001.

In Table 2, the sputum conversion at the end of intensive phase was 99.93%. Treatment outcome of present study subjects were 91.12% got cured, 4.44% were failure cases and 4.44% died during treatment. There were no defaulters.

In Table 3, cure rates are not influenced by age and sex. The observed high cure rate of 91.11% could be due to high compliance and treatment supervision by health staff. Hence the observed difference in cure rate among the two age groups (<35 years, > 35 years) is by chance, and is statistically not significant.

TABLE: 1. AGE AND SEX WISE DISTRIBUTION OF T.B. CASES

Age (Years)	No. of T.B. Cases		Total (%)
	Males (%)	Females (%)	
06-15 Yrs	01 (03.23)	01 (07.14)	02 (04.44)
16-25 Yrs	09 (29.03)	04 (28.57)	13 (28.89)
26-35 Yrs	08 (25.81)	05 (35.71)	13 (28.89)
36-45 Yrs	09 (29.03)	03 (21.44)	12 (26.67)
46-55 Yrs	02 (06.45)	00 (00.00)	02 (04.44)
56-65 Yrs	02 (06.45)	01 (07.14)	03 (06.67)
66-75 Yrs	00 (00.00)	00 (00.00)	00 (00.00)
Total	31 (100.00)	14 (100.00)	45 (100.00)

TABLE: 2. TREATMENT OUTCOME RATES OF NEW SPUTUM POSITIVE T.B. CASES UNDER R.N.T.C.P. COMPARED TO R.N.T.C.P. NORMS

	Sputum conversion rate	Treatment completed	Cure rate	Default rate	Failure rate	Death rate	Transferred out rate
RNTCP norms	>90%	<3%	≥ 85%	<5%	<4%	<4%	<3%
Prospective period	99.33%	---	91.12%	---	4.4%	4.4%	---

TABLE: 3. DISTRIBUTION OF CASES ACCORDING TO AGE & CURE RATE

Age Group	Cured of Disease	Not Cured	Total	Cure Rate (%)
Less than 35 years	26	1	27	96.30
More than 35 years	15	3	18	83.33
Total Observed	41	4	45	91.11
Chi square value x^2 = 0.926, p=0.336				

In Table 4, cure rate among males was 90.32% and among females it was 92.86%. The difference observed is by chance, hence there is no difference between cure rates of males and females observed in present study.

In Table 5, the cure rate among smokers was 87.5% and among non-smokers it was 91.89%. The observed difference in cure rate is insignificant. Though statistically insignificant, health education to patients must be given on the impact of smoking on health status.

In Table 6, cure rate among patients who had complaints for less than three months duartion was 94.28%. The observed difference in cure rates among the two groups is statistically insignificant.

TABLE: 4. DISTRIBUTION OF CASES ACCORDING TO SEX & CURE RATE

Sex of the Patient	Cured	Not cured	Total	Cure Rate (%)
Male	28	03	31	90.32
Female	13	01	14	92.86
Total	41	04	45	91.11
Chi square value x^2 = 0.084, p =0.772				

TABLE: 5. DISTRIBUTION OF CASES ACCORDING TO CURE RATE AND SMOKING

Status of Smoking	Cured	Not Cured	Total	Cure Rate (%)
Smokers	07	01	08	87.50
Non Smokers	34	03	37	91.89
Total	41	04	45	91.11
Chi square value x^2= 0.084, p =0.772				

TABLE: 6. IMPACT OF DURATION OF COMPLAINTS ON CURE RATES

Duration in Months	Cured	Not Cured	Total No. of Patients	Cure rate (%)
Less than 3 months	33	02	35	94.28
More than 3 months	08	02	10	80.00
Total Observed	41	04	45	-
Chisquare x^2= 0.593 , p=0.44				

Discussion:

In the present study it was observed that 42 cases (93.33%) out of 45 cases were converted from sputum positivity to negativity at the end of 2 months sputum follow up examination, remaining 2 cases were treatment failure and one case died during treatment.

Cure and conversion rates were linearly associated with initial smear grading. [3] Degree of smear positivity has a strong influence on smear conversion. Present study with 93.33% of sputum smear conversion rate at 2/3 months coincides with above study that present study observes good cure rate of 91.11% at the end of treatment of 45 cases. According to R.N.T.C.P. guidelines the prescribed norm for 'sputum smear conversion rate' was >90%. The present study finding of sputum smear conversion rate of 93.33% is higher than prescribed norm. This could be attributed to the treatment compliance by the patients.

Chandrasekaran V et al in their study at Tiruvallur district stated that among enrolled smear positive cases,15.4% were defaulters in the age group of ≥45 years and 8.6%in the age group of <45 years which is more than our study findings.[4]

N.Pandit et al (2004) in their on 'Treatment compliance under D.O.T.s T.B' found that, out of 100 patients, 93 patients are compliant with the treatment and they also observed that compliance is not associated with any sociodemographic factors (age, sex, education, income).[5] High compliance was observed among cases when high knowledge was provided through health education by the health staff.

Present study findings are similar with the findings of above study done by N.Pandit et al., that, high compliance rates are observed with intense health education. All the 45 cases were adherent to the treatment irrespective of age, sex, education income status.

Balbay O et al found that the adherence rate in non smokers was significantly higher than that of smokers, (81.4% and 52.4%) which is similar to present study.[6]

In the present study on tribal people it is observed that local voluntary organizations like 'Baktha Kannapa tribal welfare society' and 'G.Pulla Reddy Rural Welfare Society' are contributing food grains and other domestic support to the T.B.patients. Hence good compliance rates are achieved through support from voluntary agencies, Integrated Tribal Development Agency (I.T.D.A) and other local tribal societies. In the present study good compliance of 100% was achieved through motivated local tribal D.O.T providers.

B.M.Cariappa (1981) in his report on 'Role of Voluntary Organization in T.B.Control' stated that,tuberculosis control work should not be considered as a duty of medical profession alone. Its success depends largely on the contributions of the people themselves.[7]

Wilkinson (1994) in his study on 'compliance and completion rates in tuberculosis among rural community' observed that, more than 90% treatment completion rates were achieved through well structured services and utilizing all community resources.[8] The present study has achieved 100% compliance rates through native tribal women health volunteers as D.O.Ts providers throughout the study area.

R. Balasubramanyam et al., (1995) in their study on 'involving tribal youth in T.B. control programme' observed good treatment outcomes of more than 85% cure rate through making tribal youth parters in T.B.control programme.[9] In the present study it is observed that, local tribal youth were not yet made use of in the RNTCP. Since tuberculosis is a social disease community participation in the programme is mandatory.

S.Prasad (1997) of National Tuberculosis Institute (NTI) Bangalore, in his article on 'case holding of T.B. patients', stated that, good case holding can be achieved through good educational programme for patients an prompt default action by DOTs providers.[10] In the present study also, the local community health workers are regularly motivating the patients through health education. Hence cure rate of 91.11% was achieved.

In the present study a cure rate of 91.11% could be due to high compliance rate, committed tribal DOT providers and effective supervision by health staff. In the present study cure rates are not influenced by age, sex, literacy, income status.

Summary & Conclusion:

Male to female ratio of 2.2:1 was observed. Out of total 45 cases, 40 cases belonged to age group less than 45years and remaining 5 cases belonged to age group more than 45 years. Among non-smokers 91.89% were cured. Association between smoking and cure rate among smokers and non-smokers in cure rates is not significant(P value >0.70). The difference observed between cure rates of two groups of patients with duration of complaints less than 3 months and more than 3 months, is not significant. Sputum conversion rate at the end of intensive phase was 93.33%. The expected treatment outcome norms of R.N.T.C.P (cure rate $\geq$ 85%, failure rate <4%, death rate <4%, default rate<5%, smear conversion rate >90%) were achieved in the present study. Cure rate of 91.11%, failure rate of 4.4%, death rate of 4.4% and smear conversion rate of 93.33% were observed in the study. This shows that the Implementation of R.N.T.C.P in the study area has achieved the prescribed goals.

The association between the cure rates and age of the patient, sex, duration of complaints, smokingfound to be statistically insignificant (p value >0.05).

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