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Original Research Article

"A CLINICAL PROFILE AND OUTCOME OF AFB SMEAR POSITIVE PULMONARY TUBERCULOSIS IN A TERTIARY CARE CENTRE"

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ABSTRACT:

Background: Tuberculosis continues to intimidate the human race since times immemorial not only due to its effects as a medical malady, but also by its impact as a social and economic tragedy. At the dawn of the new millennium, we are still mute witnesses to the silent yet efficient march of this sagacious disease, its myriad manifestations and above all its unequalled, vicious killing power. In the developed world, it only went into hibernation for a while in the mid and late 1970s, to explode once again with advent of human immunodeficiency virus (HIV) infection and acquired immune deficiency syndrome (AIDS) pandemic in the 1980s.

OBJECTIVES:

1. To study the clinical profile of patients with AFB smear positive pulmonary tuberculosis in a tertiary care centre.

2. To determine the treatment outcome.

3. To determine treatment compliance among study population.

MATERIAL & METHODS:

Study Design: Prospective hospital based observational study. **Study area:** The present study was conducted in the department of TB & Respiratory medicine, M V J Medical College and Research Hospital, Hosakote, Bangalore, Karnataka. **Study Period:** 6 months.

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Study population: Patients diagnosed as sputum (or bronchial washings) AFB positive pulmonary tuberculosis, who visited outpatient department of Respiratory medicine. **Sample size:** study consisted a total of 90 cases. **Sampling method:** Simple Random sampling method.

Results: Among study population, 23.3% of cases were in the age group of 18 to 24 years, 33.3% of cases were in the age group of 25 to 34 years.14.4% of cases were in age group of 35 to 44 years. 13.3% of cases were in age group of 45-54 years and 5.5% of cases from 55-64 years.10% of cases were in age of >65 years.

CONCLUSION:

It can be concluded that from our study, among study population of 90 patients,63 patients completed the full course of treatment and all of them have been cured of tuberculosis. Therefore, success rate among those who have completed full course of treatment is 96.8%.

Key words: AFB smear positive pulmonary tuberculosis, bronchial washings, treatment outcome

INTRODUCTION:

Tuberculosis continues to intimidate the human race since times immemorial not only due to its effects as a medical malady, but also by its impact as a social and economic tragedy. At the dawn of the new millennium, we are still mute witnesses to the silent yet efficient march of this sagacious disease, its myriad manifestations and above all its unequalled, vicious killing power. In the developed world, it only went into hibernation for a while in the mid and late 1970s, to explode once again with advent of human immunodeficiency virus (HIV) infection and acquired immune deficiency syndrome (AIDS) pandemic in the 1980s.

In 1991, the World Health Assembly (WHA) resolution recognized TB as a major global public health problem and suggested two targets for National Tuberculosis Programmes, of detecting 70 percent of new smear-positive patients and curing 85perent of such cases by the year 2000 in an attempt to rejuvenate global TB control.

Thereafter, in 1993 WHO recognized the lethal impact of this disease and declared it a “Global Emergency”. The DOTS strategy was rapidly adopted all over the world and has become the standard of TB care.

During last decade, DOTS not only facilitated control of TB, but was also instrumental in establishing a system of documentation and generation of reliable epidemiological data on TB that were lacking in the pre-1990 period.

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STATISTICS IN INDIA (2016)[1]:

TABLE-1; Estimates of TB burden in india.

Estimates of TB burden, 2016	**Number (thousands)**	**Rate (per 100 000 population)**
Mortality (excludes HIV+TB)	420(320–530)	32(24–40)
Mortality (HIV+TB only)	12(6.6–19)	0.92(0.5–1.5)
Incidence (includes HIV+TB)	2 790(1 440–4 570)	211(109-345)
Incidence (HIV+TB only)	87(56–125)	6.6(4.3–9.4)
Incidence (MDR/RR-TB)**	147(95–199)	11(7.2–15)

TABLE- 2: TB case notifications in India

TB case notifications In India (2016)[1]	
Total cases notified	1 936 158
Total new and relapse	1 763 876
- % tested with rapid diagnostics at time of diagnosis	*17%*
- % with known HIV status	*72%*
- % pulmonary	*84%*
- % bacteriologically confirmed among pulmonary	*63%*

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Hence the present study was undertaken to study the clinical profile and outcome of AFB smear positive pulmonary tuberculosis in a tertiary care centre.

OBJECTIVES:

1. To study the clinical profile of patients with AFB smear positive pulmonary tuberculosis in a tertiary care centre.

2. To determine the treatment outcome.

3. To determine treatment compliance among study population.

MATERIAL & METHODS:

Study Design: Prospective hospital based observational study.

Study area: The present study was conducted in the department of TB & Respiratory medicine, M V J Medical College and Research Hospital, Hosakote, Bangalore, Karnataka.

Study Period: 6 months.

Study population: Patients diagnosed as sputum (or bronchial washings) AFB positive pulmonary tuberculosis, who visited outpatient department of Respiratory medicine.

Sample size: study consisted a total of 90 cases.

Sampling method: Simple Random sampling method.

Inclusion criteria:

1. Patients of >18 years of age.
2. Males and females.
3. Patients willing to give consent for data collection.

Exclusion criteria:

1. Patients with extra pulmonary tuberculosis, malignancy.
2. HIV Positive patients.
3. Patients with recent solid organ transplantation or any other immunosuppression.

Ethical consideration: Institutional Ethical committee permission was taken prior to the commencement of the study.

Study tools and Data collection procedure:

Patients diagnosed as sputum (or bronchial washings) AFB positive pulmonary tuberculosis, who visited outpatient department of Respiratory medicine. Presumptive DRTB patient's sputum samples (or bronchial washings) were sent for gene Xpert (CBNAAT). Patients were followed at 2,4,6 months during treatment and assessed for clinical improvement in

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symptoms (cough, breathlessness, fever, weight gain and appetite) Sputum examination was done at 2,4,6 months during treatment. Patients were followed every 3 months for one year after completion of treatment.

Statistical analysis:

Data was summarized by Mean ± SD for continuous data, and percentages for categorical data. The association between variables was done by Chi-Square test/Fisher exact test/Proportion test for categorical data. All P-values less than 0.05 were considered statistically significant.

OBSERVATIONS & RESULTS:

Table 1: Age group distribution of study population

AGE(years)	No. of cases	percentage
18 – 24	21	23.3
25 – 34	30	33.3
35 – 44	13	14.4
45 – 54	12	13.3
55 – 64	5	5.5
≥65	9	10
Total	90	100

Among study population, 23.3% of cases were in the age group of 18 to 24 years, 33.3% of cases were in the age group of 25 to 34 years.14.4% of cases were in age group of 35 to 44 years. 13.3% of cases were in age group of 45-54 years and 5.5% of cases from 55-64 years.10% of cases were in age of >65 years.

Table 2: Gender Distribution

GENDER	NO OF CASES	PERCENTAGE
Male	**49**	**54.4**
Female	**41**	**45.5**
Total	**90**	**100**

Among study population,54.4% were males and 45.5% were females.

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Table 3: FAMILY INCOME

Family income (monthly)	No of cases	Percentage
< 10,000	72	80
10,000- 20,000	12	13.3
20,000 – 30,000	6	6.6
30,000 - 40,000	0	0
40,000 – 50,000	0	0
>50,000	0	0

Among study population,80% have family income below Rs10,000.13.3% have family income between 10,000 – 20,000.6.6% have family income between 20,000 – 30,000.0% patients had family income of more than 30000.

Table 4: ASSESMENT OF DURATION OF SYMPTOMS BEFORE PRIMARY CONSULTATION

DURATION OF SYMPTOMS (weeks)	NO OF CASES
0 - 4	12
4 - 8	18
>8	60

60 patients consulted doctor after 8 weeks. For 18 patients, duration of symptoms before consulting a doctor was about 4 – 8 weeks. 12 patients consulted doctor before 4 weeks.

Table 5: ASSOCIATION WITH DIABETES

	NO OF CASES
DIABETES	18
NON DIABETES	72

Among study population,18 patients were diabetics.

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Table 6: AWARENESS OF DOTS

	Awareness of DOTS
yes	54
no	36

Among study population,54 patients knew about DOTS.

Table 7: NUMBER OF MDR TB CASES

Among study population,6 cases were diagnosed as MDR tuberculosis.

	MDR TB CASES
yes	6
no	84

Table 8: Outcome of study population

	No of cases	Percentage(%)
CURED	63	70
ON TREATMENT	20	22.2
MORTALITY	3	3.3
DEFAULTER	2	2.2
RELAPSE	2	2.22

Among study population,63 patients completed full course of ATT and have been cured, 20 patients are still on ATT, 3 patients expired,2 patients relapsed and 2 patients were Defaulters.

DISCUSSION:

The aim of our study was to know the clinical profile and outcome of sputum AFB smear positive pulmonary tuberculosis in tertiary care centre in the age group of 18years and above.

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Compliance among study population was studied. Number of MDR cases were determined. Number of patients who went on to take DOTS were determined. RNTCP awareness and duration of symptoms before primary consultation among study population was determined.

The present study has comparable results to WHO data of the year 2000. According to present study the age group between 25-34 is affected the most with a maximum of 30 patients accounting to 33.3% whereas WHO data suggests the same maximum in this age group with a slight difference in percentages.

In another study to know the treatment outcome in new sputum positive cases conducted by Kasi Srinivas et.al[2-6] had similar age distribution was seen with most of the patients in the age group of 20-45 years.

According to present study the male to female ratio was 1.1 with almost equal distribution among both sexes. WHO data of the year 2016 suggests a male to female ratio of 1.7 and kasi srinivas et.al[2] study suggests a male to female ratio of 2.2. The slight difference in the ratio is because of the difference in study population taken into account.

The survey carried out in Wardha District (Maharashtra)[7] is the only source of survey data (unpublished) linking tuberculosis in the community to socio-economic criteria. According to this study, of the total cases in women, 48 per cent were among those unemployed (include housewives)[8-12]. Whereas in the present study, out of the total 41 females, 85% (35patients) were unemployed and only 15% (6pateints) were employed.

In Present study, 80% patients have a monthly income of less than Rs10,000 and 13.3% have incomes between Rs 10,000 to 20,000. This indicates that most of patients were from low socioeconomic status which may have effect on nutrition, health education, living conditions (overcrowding). This relates tuberculosis to low socioeconomic status.

In Present study, 20% of the patients were diabetics. In a study done by shibu balakrishnan et.al,kerala [13-15] 50% were diabetics. Present study and the study by Shibu balakrishnan show that diabetes as a comorbidity is present in significant number of sputum positive TB cases.

In Present study, 60% of patients knew about RNTCP/DOTS treatment. All patients believed in the cure of tuberculosis by DOTS and preferred to take DOTS. A study was conducted in Houses of selected DOTS patients under Primary health centers of Kengeri, Kengeri satellite town, Kumbalagodu and K.Gollahalli. This study was on the treatment compliance in directly observed therapy for tuberculosis, revealed that 93% of study population was compliant to the DOTS.

The traditional risk factors for noncompliance like socio-demographic factors, timing, travel, cost of investigation and cost of therapy and long waiting period; were not major hurdles for treatment adherence. The toxicity of drugs was the major reason for defaulting for treatment. Compliance of DOTS was significantly high among those who have good knowledge about various aspects of disease. Still major hurdle is the inadequate health education.

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Present study Revealed 98% of study population was Compliant to the DOTS. Education of patient about disease, duration of treatment, significance of regular treatment, curable nature of disease with regular, complete course treatment might be reason for 98% compliance.

In Present study, the first visit of 60 of the total 90 patients was after 8 weeks of symptoms. By the time most consulted a doctor they had extensive involvement of all lung fields unilaterally or bilaterally. In many cases, patients were initially treated by unqualified practitioners and chemists leading to a delay in diagnosis which further led to extensive involvement and also worrisome post tuberculous sequelae. Delay in diagnosis is a much bigger problem, as these patients spread infection to family members and members in the community.

According to WHO statistics of 20161 the treatment success rate of sputum positive cases in India remained consistently above 85% in new cases and around 70% in old cases.

Treatment Outcome: Among study population (90). 70% (63 patients) have been cured. 22.2% (20 patients) are still on treatment. 2.2% (2 patients) relapsed. 2.2% (2 patients) of study population were defaulters. Mortality of 3.3% (3 patients) was observed. The total number of MDR TB cases were 6 (6.6%) among study population. The final outcome of our study is yet to be determined accurately as 22.2% of the study group is still under treatment but we are optimistic as 70% of the study group has been cured of tuberculosis already.

CONCLUSION:

It can be concluded that from our study, among study population of 90 patients,63 patients completed the full course of treatment and all of them have been cured of tuberculosis. Therefore, success rate among those who have completed full course of treatment is 96.8%.

REFERENCES:

1. http://www.who.int/tb/country/data/profiles/en/,WHO TB statistics,2016.
2. International Journal of Research & Development of Health. Jan 2013; Vol 1(1): 5-10, a study on treatment outcome of new sputum smear positive tuberculosis patients among tribal population in kurnool district.
3. Annual status report TB INDIA 2016 Dec 16]. Available from http://tbcindia.nic.in/pdfs/TB%20India%20201 2%20 Annual %20 Report.pdf.
4. Focus on RNTCP in Andhra Pradesh 2005[cited 2012 Dec 12]. Available from http://tbcindia.nic.in/pdfs/FOCUS%204%20Q %2003.pdf
5. Gopi PG, Chandrasekaran V, Subramani R,Santha T, Thomas A, Selvakumar N, et al.Association of conversion & cure with initial smear grading among new smear positive pulmonary tuberculosis patients treated with Category I regimen. Indian J Med Res. 2006 Jun; 123(6):807- 14.
6. Chandrasekaran V, Gopi PG, Subramani R,Thomas A,Jaggarajamma K, Narayanan PR.Default during the intensive phase of treatment under dots programme. Indian J Tuberc. 2005;52(4):197-202.

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7. Indian J Med Res 120, October 2004, pp 248-276,Epidemiology current status in India.
8. Dolin PJ.Raviglione MC,Kochi A.A review of current epidemiological data and estimation of future tuberculosis incidence and mortality. WHO/TB/93.173. Geneva: World Health Organization; 1993.
9. Dye C, Scheele S, Dolin, P, Pathania V, Raviglione MC.Global burden of tuberculosis: estimated incidence,prevalence and mortality by country. WHO Global Surveillance and Monitoring Project. JAMA 1999; 282 :677- 86.
10. Zaki MH. On the epidemiology of tuberculosis in some selected countries: highlights and prospects for control and eradication, Part I. Am J Public Health 1968; 58 : 1692-712.
11. Zaki MH. On the epidemiology of tuberculosis in some selected countries: Highlights and prospects for control and eradication, Part II. Am J Public Health 1971; 61:843-54.
12. Indian Council of Medical Research: Tuberculosis in India. A sample survey 1955-58. Special Report Series No. 34.New Delhi: Indian Council of Medical Research; 1-121.
13. High Diabetes Prevalence among Tuberculosis Cases in Kerala, India.Shibu Balakrishnan mail, Shibu Vijayan et.al, DOI: 10.1371/journal.pone.0046502.
14. Jeon CY, Murray MB (2008) Diabetes mellitus increases the risk of active tuberculosis: a systematic review of 13 observational studies. PLoS Med 5: e152. doi: 10.1371/journal.pmed.0050152
15. Ezung T, Devi NT, Singh NT, Singh TB (2002) Pulmonary tuberculosis and diabetes mellitus–a study. J Indian Med Assoc 100: 376, 378–379.