EUROPEAN JOURNAL OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES
http://www.ejbps.com

ISSN 2349-8870
Volume: 5
Issue: 3
469-473
Year: 2018

DEMOGRAPHIC CHARACTERISTICS AND SOME RISK FACTORS AMONG ALREADY DIAGNOSED TUBERCULOSIS PATIENTS UNDER RNTCP PROGRAMME IN RURAL AREA OF WEST GODAVARI DISTRICT.

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Article Received on 06/01/2018 **Article Revised on 27/01/2018** **Article Accepted on 16/02/2018**

ABSTRACT

Background: Tuberculosis remains a worldwide public health problem despite the availability of effective drugs and vaccination. India accounts for 1/4th of Worlds Incident TB cases in 2013. India bears approximately 30% of the world's burden of TB, with an estimated incidence of 85 per 100,000 new smear positive cases. **Objectives: 1.** To know the proportion of patients and its demographic variables association in relation to Tuberculosis patients registered under RNTCP 2. To identify some life style habits among the tuberculosis patients registered under RNTCP. 3. To find the DOTS categories in the study population. **Materials & Methods:** This was a community based cross sectional study carried out in the rural field practice area of Alluri Sitarama Raju Academy of Medical Sciences, Eluru, West Godavari, Andhra Pradesh during the period from July 2016 to August 2016. People diagnosed as cases of tuberculosis as per the RNTCP guidelines and currently receiving DOTS therapy in RHTC area of medical college. In Rural practice area TB registry about 40 cases were registered and also information taken from DOTS directory from District Tuberculosis Unit, Eluru. Of which 27 cases were selected through simple random method. Data was entered in MS office Excel 2007 Sheet. Data was represented in the form of tables and figures and necessary statistical tests like chi square tests were applied. **Results:** Out of 27 registered Tuberculosis (TB) patients, 18 (66.7%) were females and 9 (33.3%) were males. Maximum number of Tb patients in the age group of 30-50 yrs age group. There was no statistically significant association was found between age and sex of the TB patients (P>0.05). In the study population, 85% were nuclear families maintained family size less than or equalo 4 and 15% were having joint families family size > 4. Out of 27 study subjects, 37% of Tb people were having smoking habit and 41% of the TB patients were having alcohol consumption habit. In the study population, 52% were started on Category I and 48% were receiving Category II treatment. **Conclusions:** Based on the study results, smoking and alcohol habits people were more detected among Tuberculosis patients. More number of category II patients were also identified in the study population. The limitation of the study is it was conducted in a small sample of 27 subjects. Further In depth analysis through a qualitative approach may help to identify other reasons for increasing category II patients.

KEYWORDS: Age, Family size, Smoking, Alcohol consumption, TB categories.

INTRODUCTION

India bears approximately 30% of the world's burden of TB, with an estimated incidence of 85 per 100,000 new smear positive cases.[1] Globally tuberculosis remains a leading cause of death with 9 million new cases (56% of the cases occurred in Asia) in 2013.[2,3] Incidence of tuberculosis is greatest among those with conditions impairing immunity such as HIV infection and diabetes.[4-6] Tuberculosis (TB) is present in India since 1500 BC Rig-Veda described disease as "King of diseases". India is the second most populated country in the world, and one-fourth of global incident TB cases occur in India annually. However, several advances in the field of diagnosis and drugs have occurred and the disease has shown a downward trend. However new issues such as drug resistance, association of TB with diabetes, HIV, and Paediatric TB are a matter of concern. Tuberculosis is a chronic condition requiring treatment for at least a minimum of 6 months for new cases under the Revised National Tuberculosis Program. The retreatment cases and drug resistant Tuberculosis cases require longer durations of treatment. The DOTS

strategy is accepted as an effective strategy for improving patient compliance.[7]

In 2013, among the 9 million new cases of tuberculosis, 2.8 million cases occurred in India. Estimates of the urban and rural distribution of the annual risk of tuberculosis infection suggest that on average, smear-positive tuberculosis incidence in India is 69.2% higher in urban compared with rural areas. Crowded living conditions in urban districts are one possible factor. However, the increased prevalence of diabetes in urban areas may also play a role.[8-9]

Poor patient adherence to the treatment regimen is a major cause of treatment failure and of the emergence of drug-resistant TB. Previous research reported travel expenses, travelling to treatment centres, male sex, poor patient information and communication, alcoholism and homelessness as the major determinants of non-adherence to anti-TB treatment. Patient adherence to the standard anti-TB therapy in developing countries has been estimated to be as low as 40%, it leads to development of Category II variety TB more and more and difficulty to treat.[10,11] Behavioural and social research for ATT adherence is important particularly when epidemiology of the disease has changed. The present study was undertaken at the rural areas of West Godavari, India, to determine the extent of demographic factors, life style factors among TB patients receiving DOTS therapy. Hence this study was taken in a rural setting of West Godavari, Andhra Pradesh.

OBJECTIVES

1. To know the proportion of patients and its demographic variables association in relation to Tuberculosis patients registered under RNTCP
2. To identify some life style habits among the tuberculosis patients registered under RNTCP.
3. To find the DOTS categories in the study population.

MATERIALS AND METHODS

Study Design and Setting

This was a community based cross sectional study carried out in the rural field practice area of Alluri Sitarama Raju Academy of Medical Sciences, Eluru, West Godavari, Andhra Pradesh. These Designated Microscopic Centre's (DMCs) maintains a well established medical record system, having health data of each and every patient.

Study period:

This study was conducted from July 2016 to August 2016.

Target Population: People diagnosed as cases of tuberculosis as per the RNTCP guidelines and currently receiving DOTS therapy in Rural Health training Centre (RHTC) area of Medical College.

Sampling procedure

Calculation of sample size: As per WHO (2014), global Tuberculosis report 2014 an estimated 9 million people developed Tuberculosis which is equivalent to 126 cases per 1,00,000 population. One of the rural area of West Godavari is Akiveedu, which is our rural field practice area of Alluri Sitaramaraju Academy of Medical Sciences, Eluru. The mandal area of Akiveedu covering 24,506 (Twenty four thousand five hundred and six only) population as per 2011census. Of which our Rural health centre covers 11,996 population. As per WHO report existing incidence of Tuberculosis among the present population the estimated sample was 15. To get adequacy of result and better statistical tests application total number of sample 27 cases were collected. In Rural practice area TB registry about 40 cases were registered and also information taken from DOTS directory from District Tuberculosis Unit, Eluru. Of which 27 cases were selected through simple random method.

Ethical clearance

Institutional ethics committee approval was taken before conducting the study. Informed consent in local language was obtained from patients before including them in the study.

Data and Statistical Analysis

Data was entered in MS office Excel 2007 Sheet and compiled as percentages. Data was represented in the form of tables and figures and necessary statistical tests like chi square tests were applied.

RESULTS

Table 1: Age and sex wise distribution of study population.

Age in Years	Male	Female	Total
18 - 30	1 (33.3%)	2 (66.7%)	3 (100%)
30 - 50	10 (62.5%)	6 (37.5%)	16 (100%)
50 - 60	6 (85.7%)	1 (14.3%)	7 (100%)
> 60 years	1 (100%)	0 (0%)	1 (100%)
Total	18 (66.7%)	9 (33.3%)	27 (100%)

Out of 27 registered Tuberculosis (TB) patients, 18 (66.7%) were females and 9 (33.3%) were males. Maximum number of Tb patients in the age group of 30-50 yrs age group. There was no statistically significant association was found between age and sex of the TB patients (P-0.32, 1df, $X^2 - 0.94$).

Table 2: Occupation of Study Population

Occupation	Number	Percentage (%)
House Wife	8	30%
Labourer	6	22%
Agriculture	7	26%
Others	6	22%
Total	27	100%

Maximum number of Tuberculosis subjects are house wives which accounts 30% and followed by labourers accounting for 22%.

Table 3. Education status in the study population

Education	Number	Percentage (%)
Illiterate	6	22%
5th std	10	37%
upto 10th std	8	30%
Upto 10th -12th std	2	7%
Degree Completed	1	3.7%
Total	27	100%

In the present study, 37% studied upto 5th standard and only one candidate completed graduation.

Table : 4: Number of Family members in the study population.

No. of Family members	Number of families	Percentage (%)
< 4	23	85%
> 4	4	15%
Total	27	100%

The above table clearly shows that all nuclear families maintained family size less than or equal to 4.

Table 5: Habits of the study population.

Habits	Number	Percentage (%)
Smoking	10	37%
Alcohol consumption	11	41%

Out of 27 study subjects, 37% of Tb people were having smoking habit and 41% of the TB patients were having alcohol consumption habit.

Table: 6: Treatment Categories of TB in study population.

Category of TB	Number of people	Percentage (%)
Cat – I(new cases)	14	52%
Cat – II(previously treated)	13	48%
Total	27	100%

In the study population, 52% were started on Category I and 48% were receiving Category II treatment.

Table 7: Any other Co-morbidity in addition to TB in study population.

Co - Morbidity	Number	percentage%
Diabetes (DM)	3	11%
HIV	1	3.75%
> 1 disease (mixed disease)	1	3.75%
Total	5/27	18.5%

About 18.5% were having other comorbidity in addition to Tuberculosis. Of which, 11% were having diabetes and 3.75% TB patient having HIV.

DISCUSSION

Out of 27 registered Tuberculosis (TB) patients, 18 (66.7%) were females and 9 (33.3%) were males. Maximum number of Tb patients in the age group of 30-50 yrs age group. The distribution of patients according to Gender and age is as per the distribution reported in India. Tuberculosis affects the adult age group in their most productive age group.[1,2] Maximum number of Tuberculosis subjects are house wives which are about one-thirds of total subjects followed by labourers accounting for 22%.Tuberculosis in women can have long term effects such as secondary infertility and can create more orphans than any other disease.[1] Tuberculosis is also considered to be a social diseases and affects the poor. In the current study, it was observed that one-fifth of the subjects were daily labourers. Tuberculosis is considered as a Social disease affecting the most vulnerable population. Though the treatment for tuberculosis is available free under RNTCP, the chronicity of the condition leads to inability to perform work for days together. This causes the economic burden to the family to increase.[7-9]

In the present study, 37% studied upto 5th standard and only one candidate completed graduation. The distribution of literates in the present study (88%) was more than the National, State and district parameters of literacy, as per the information from district census handbook, Census of India. West Godavari is one of the more economically developed districts of Andhra Pradesh and there was an increased awareness about education among the population.

A Meta analysis identified that Tobacco, alcohol and diabetes, are significant individual risk factors but in combination are associated with triple or quadruple the risk of development of recent active TB.[13-15] The current study is a descriptive study, with a small sample size moreover the study subjects were only tuberculosis patients receiving DOTS. Hence the risk assessment for alcohol, tobacco and diabetes could not be assessed. The prevalence of diabetes in the present study was less when compared to other studies.[16-18] However role of smoking and Diabetes as risk factors has been recognized by the Revised National TB control programme. The rise in prevalence of Diabetes Mellitus in India has made it to be a significant risk factor for TB and it is proposed in

the RNTCP that there should be a bi-directional referral system for screening Diabetes patients for tuberculosis and vice versa.

Wen C-P, Chan T-C, Chan H-T, Tsai M-K, Cheng T-Y, Tsai S-P et al[16] studied in Taiwan on some risk factors of association with tuberculosis and this study attempts to quantify smokers' risks on subsequent TB mortality and the change in such risks after smokers quit smoking. In this prospective cohort study, the TB mortality risks of smokers, never smokers and former smokers were compared, by using the Cox proportional model to estimate the hazard ratio (HR) of TB. The cohort, consisting of 486,341 adults, participated in standard medical screening programs since 1994, including 5,036 with self-reported TB history. Of 15,268 deaths identified as of 2007, 77 were coded as TB. The overwhelming majority of TB deaths (83%) occurred among those without self-reported TB history. Given the high smoking prevalence and the high Hazard ratio, smoking accounted for more than one-third (37.7%) of TB mortality in Taiwan. Smokers reported less TB history but died more from TB than those who had never smoked. This study concluded that smokers had very high TB mortality, as much as nine times those who had never smoked, but once they quit, the risk reduced substantially and was similar to those who never smoked. Smoking cessation could reduce nearly one-third of tuberculosis deaths.

Patra J, Jha P, Rehm J, Suraweera W et al[17] studied in 14 high burden tuberculosis countries revealed that adjusted for age and education, the risks of active TB were significantly associated with diabetes in both sexes, with ever drinking in men and with ever smoking in women. Stronger dose-response relationships were seen in women than in men for smoking amount, smoking duration and drinking amount showed a stronger dose-response relationship in men. In men, the risks from joint exposures were statistically significant for diabetics with diabetics who smoked (RR=3.8), and diabetics who drank alcohol (RR=3.2).

CONCLUSIONS

Based on the study results, maximum number of Tb patients in the age group of 30-50 yrs, house wives occupation and slowly previously treated people number are increasing in our study. This reflects drug resistant strains will be increased in the community leads to difficult to treat and moreover increase transmission of Tuberculosis from one person to other. Finally it leads to obstruct the quality of life of individuals and indirectly leads to DALY increases, country economy drains. Tobacco, alcohol and diabetes, are significant individual risk factors but in combination are associated with triple or quadruple the risk of development of recent active TB. These risk factors might help to explain the wide variation in TB across countries. Need more number of long term cohort studies are required to substantiate the present study finding and as this study sample is less and it was a short term studentship project under ICMR.

ACKNOWLEDGEMENTS

Special gratitude to all the study participants and their cooperation made us to complete this study successfully.

Source of funding: Under short term studentship (STS) project, Indian Council of Medical Research, New Delhi, India.

Conflict of interest: None

Institutional ethical Committee clearance taken.

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