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Gender Differences in Treatment Outcome of Tuberculosis Patients under the Revised National Tuberculosis Control Programme

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ABSTRACT

Background: Aim: The present study was undertaken to find out the sex differences in the notification rates and treatment outcomes of Tuberculosis (TB) patients, registered under the Revised National Tuberculosis Control Programme (RNTCP) in a rural Tuberculosis Unit (TU) in Thorrur, Warangal Dist., Telangana. **Methods:** This is a retrospective record based study was carried out among a total of 585 cases registered under the RNTCP between January'2011 to December'2012. Notification rates of TB, clinical forms of Tuberculosis and disease treatment outcomes recorded in the registers were analysed. Based on genders outcomes were defined in accordance with the standard RNTCP definitions. **Results:** Among the total of 585 patients 220 (80%) were male and 55 (20%) were female with male female ratio of 4:1. In patients less than 20 years of age the notification rates among males and females were similar. In other age groups male were more likely to be notified compared to females and the difference was statistically significant, while new smear positive and retreatment cases were significantly more than females, among females new smear positive and new extra pulmonary cases significantly lower. Among the new smear positive in females 39.3% were cured compared to 49.4% males which was again significant statistically. Male patients outnumbered female in all unfavorable outcome like death, failure, and default. **Conclusion:** The present study demonstrates a gender difference in the notification rates, clinical presentations and treatment outcomes of patients with TB integrated research is necessary to find the reasons for these differences. Such studies will be helpful in improving the efficacy of the RNTCP.

Keywords: Gender, Revised National Tuberculosis Control Programme (RNTCP), Tuberculosis, Thorrur, Warangal, Telangana.

INTRODUCTION

According to WHO data there are about 9.27 million new cases of Tuberculosis (TB) worldwide with about 2 million people from India alone.[1] It retains the foothold among population especially those with weak immunity or those living in poor socio economic conditions, despite implementation of effective control programme. It has remained a major cause of morbidity and mortality in all age groups of human population and the world.[2] Worldwide, more men than women are known to be suffering from TB. As the TB affects the most productive age groups, the impact of the disease is felt by the children and their families. In India also the prevalence of TB is higher among males as compared to females. Revised National Tuberculosis Control Programme (RNTCP) based on the Directly Observed Treatment - Short Course (DOTS) strategy was implemented in the country since 1993. A dots observer watches and helps the patients to swallow the drugs and ensures the treatment for entire course. DOTS is the only reliable and proven strategy of ensuring adherence to the treatment that proves effectives in controlling of TB as a mass basis.[3] The adoption of DOTS has given impression results with high treatment of success being reported from developing and industrialized countries.[4] There are approximately worldwide 9 million new cases occurring and 3 million people die from TB, annually. India accounts for 1/5th (one by fifth) of global TB burden. Currently, in India there are about 14 million suspected and about 35 million bacteriologically proven cases of Pulmonary Tuberculosis (PTB) with prevalence rate of 4.84/1000 population.[8] TB to kills more people in India than HIV, STD, Malaria, Leprosy and tropical diseases.

The direct and indirect costs of TB to the country amounts to 12,000 crores per year. The majority of patients who go to TB clinic have typically been under care of General Practitioners (GPs) at one stage or other.[7] The GPs can be useful is providing proper

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diagnosis, treatment, notification of cases and proper health education in the community. India's National Tuberculosis Control Programme (NTCP) was established in 1962, after reviewing of programme by National and International experts in coordination with WHO and Swedish International Development Association. It was found that the programme had made no epidemicity, impact, mainly due to poor care findings and low treatment completion rates.[5] As a result, in 1993, the Government of India developed RNTCP, based on the internationally recommended DOTS Strategy. The programme was initially implemented on a pilot basis in 1993 and was formally launched in 1997. The programme has covered the entire country by March'2006. The approved is based on passive surveillance. It is effectiveness will depends on the level of awareness of the community. Mycobacterium TB remains the world leading cause of death from a single infectious agent.[1,2] Every year about 8 million people develop this disease and some three million die of it. Over 95% are from developing countries including India.[3,4] It is noteworthy that most of the deaths from developing countries occur in person aged between 15 and 59 years, thereby making TB a leading cause of death within economically productive group of population.[5,6] Among the countries of high burden occur India, Indonesia, Pakistan, Bangladesh, China and Nigeria and the progress in the high incidence countries has been described as the key to global TB control.[7] Recently, there has been a resurgence in its prevalence in all over world where action control programme is in existence since decades. This is partly due to the crunch dual of Human Immuno deficiency Virus (HIV) – Infection as TB and the emergence of multidrug resistance TB that contribute a major public health problem for all age groups in both economically backward countries and technologically advanced nations. The WHO goal of TB control, which aims at reducing the amount of death rate by 40% for its present level 2.9 million to 1.7 million seems elusive.[2] This failure has been blamed on numerous factors among which is inadequate emphasis on the human dimensions of TB control.[8,9] Non-Compliance, a behavior parameter remains a major cause of poor utilisation of availability facilities results in multidrug resistance and therapeutic failures.[10,11] Different methods have been developed to promote adherence to Anti TB drugs. Then inbuilt monitory system,[2] and pill counts, combination tablets, blist packs, urine tests, hospitalisation and supervised things. Recently, directly observed therapy was introduced in all over the world to promote compliance. This method entails are outreach worker delivery of anti-TB drugs to the patients and observe the patients ingests his drugs. An increased notification rate of TB in men is seen in the Thorrur, Warangal District region, Telangana, India. RNTCP detects nearly three times more male than female TB patients. Gender differences have also been reported in the clinical forms of TB disease and in treatment. Adherence in cure rates in patients undergoing treatment for TB. The present study was undertaken to find out the sex differences in the notification rates and treatment outcomes of TB patients, registered under the RNTCP in a rural Tuberculosis Unit (TU) in Thorrur, Warangal Dist.,Telangana, India.

MATERIALS AND METHODS

The present study was retrospective review based study carried out at the Thorrur Tuberculosis Unit (TU), Warangal District, Telangana. The Tuberculosis Unit (TU) caters to a population of approximately 6,00,793. The majority population belongs to a lower socio economic status. The Thorrur Tuberculosis Unit (TU) has five DMC (Designated Microscopic Centres), Managed by Five Trained Laboratory Technicians and supervised by a Senior Tuberculosis Laboratory Supervisor (STLS). All the Microscopic Centers are attached to Peripheral Health Institutions and all DOTS Health Care provides in the institution have been trained RNTCP. A total of 585 cases registered in the Tuberculosis Unit (TU) for treatment between January' 2011 to December' 2012 were taken for study. All registered cases were stratified into males and females and results analyzed. The outcome cured and treatment completed and failure, died, defaulters and transferred out were accordance with the RNTCP definitions.[1]

RESULTS

Among the total 585 patients 220 (80%) were males, 55 (20%) were females with overall male-female ratio of 4:1. The proportion of male patients notified was significantly higher than females. In the age group of below 20 years, the notification rates in both the sexes were the same. With increasing age the notification rate among males increased with the highest notification rates seen among males in the age group of 40-60 years above [Table 1].

Table 1: Distribution of TB patients by age and sex group (n=585)

Age	No. of Male (%)	No. of Male (%)	Total (%)
<20 Years	25 (11.4%)	9 (16.4%)	34 (12.4%)
20-40 Years	40 (18.2%)	16 (29.1%)	56 (20.4%)
40-60 Years	110 (50.0%)	18 (32.7%)	128 (46.5%)
> 60 Years	45 (20.4%)	12 (21.8%)	57 (20.7%)
Total	220 (80.0%)	55 (20.0%)	275 (47.0%)

Among the males the proportion new smear positives and retreatment cases were significantly

higher whole among females. New Smear Negative, extra pulmonary cases were significantly lower in females [Table 2]. The cure rate in females was 53% compared to 74.8% in Males difference were statistically significant. The male patients outnumbered female patients all the like death, failure and defaulters [Table 3].

Table 2: Distribution of case detection by gender (n=585)

Diagnosis	No. of Male (%)	No. of Male (%)	Total (%)
New smear Positive	220 (49.4%)	55 (39.3%)	275 (47.0%)
New smear Negative	120 (27.0%)	31 (22.1%)	151 (25.8%)
New extra Pulmonary	30 (6.7%)	24 (17.1%)	54 (9.3%)
Retreatment	75 (16.9%)	30 (21.5%)	105 (18.0%)

Table 3: Different favorable and unfavorable outcomes in new smear positive cases by gender (n=320)

Different outcomes	**No. of Male (%)**	**No. of Male (%)**	**Total (%)**
Cured	190 (74.8%)	35 (53%)	225 (70.2%)
Treatment Completed	20 (7.95%)	10 (15.1%)	30 (9.4%)
Unfavorable Death	18 (7.1%)	12 (18.2%)	30 (9.4%)
Failure	15 (5.9%)	6 (9.2%)	21 (6.6%)
Default	11 (4.3%)	3 (4.5%)	14 (4.4%)

DISCUSSION

Non- compliance is cited a major obstacle to the control of TB at the level of Public health. It is also serious problem in the treatment of Individual patients and with development of drugs resistant strain. Therefore the individual and direct observed therapy has been welcome worldwide as an effective method to stop the trend. Increased cure rate observed in the present study may be due to the following advantages as derived from DOTS regular sputum of the patients, drug administration and supply of anti TB drugs free of charges. Pressure of opportunities for educating the patients by clinical staff is in the national history of the disease and control strategy and short term chemotherapy involved. Extra includes such as nutritional assistance, travel expenses to attend clinic and home visits when the patient failed to attend the clinic was involved. TB notification rates have been found to be similar in both sexes till puberty, followed by continuing widening of the gap between male and female cases. This difference becomes more pronounced after 40 to 60 years of age.[5] Present study reveals the notification rates of TB before the age of 20 years are similar in both the sexes. With increasing age the TB notification rates are higher in males. This difference is more marked in the age 40 years. Excess cases in male were noted even after adjusted for confounding factors like Income, Awareness and Social Stigma.[9] It is evident therefore the biological factors in addition to the socio-cultural factors to be large extent responsible in the decreased incidence of TB in the female especially in the reproductive age group. Difference in the cellular immunity and Anti bodies of CD4+ lymphocytes than men and Influences sex hormones have all been implicated in the decreased incidence of TB in female. Interestingly,[11] although the men have higher rate of TB women have a decreased incidence of extra pulmonary TB compared to men. In India higher incidence of TB treatment rates in females have been reported. Women are less likely to die, default or fail on treatment. Many patients with TB suffering from a wide range of social problem it include loneliness, poverty, psychological problems disorders. The cause of non-adherence to treatment in the population appears to be multifactor. The factor include psychologically poor economy, geography, disadvantages, Inadequate knowledge about treatment, Strategies most challenging attitude with demand in the prevent illness.

CONCLUSION

RNTCP Phase-II has been successfully in achieving and sustaining its stated objectives. The burden due to of TB has been reduced significantly due to effective implementation of the various components under the programme with the cooperation and support of all stakeholders. Achieving universal access is possible and necessary for controlling TB in the country. Ambitious plans have to be made under RNTCP (2012-2017) and executing there requires concerted efforts and support from all stakeholders with significant enhancement of budgetary support and continuing and community participation.

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