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A TREND ON GENDER INEQUALITY AND AGE DISCREPANCY IN PULMONARY TUBERCULOSIS AT KOLAR DISTRICT - INDIA

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ABSTRACT

In abundant countries, tuberculosis claims major global health problem and worldwide cause of demise. A study has been piloted in the Revised National Tuberculosis Control Programme center at R L Jalappa Hospital and Research center with a total number of 4797 patients between 2009-2012. Among the 588 sputum positive cases, 410 patients are males (69.73%) and 178 patients are females (30.27%) with a risk ratio of 2.3, 95% CI and P value <0.002. To adapt future intervention strategies at the community level, aimed to ensure and understand the perceptibly biased gender inequality and age discrepancy among new pulmonary tuberculosis patients.

Key Words: RNTCP, Tuberculosis, Age discrepancy, kolar district, India

Introduction:

Tuberculosis (TB) remains a major global health problem and ranks as the second leading cause of death from an infectious disease worldwide, after the human immunodeficiency virus (HIV). The Global Tuberculosis Report provides the latest information and analysis about the tuberculosis (TB) epidemic and progress in TB care and control at global, regional and country levels. In 2012, 182 Member States and a total of 204 countries and territories that collectively have more than 99% of the world's TB cases. It is primarily based on data reported by WHO's Member States in annual rounds of global TB data collection. [1] Nevertheless, the enormous global burden in 2011 envisages that 8.7 million new cases of TB and 1.4 million people died from TB. [2] In India, men seem to be more affected than women, with a male/female ratio of 2.30: 1.00. [3] This increased trend of pulmonary TB seen in men at all regions of the world with age and sex ratio.

Figure 1: Scaling up interventions to achieve global tuberculosis control: progress and new developments. The Lancet 2012; 371:1902-1913.

From the human total population only 5 to 10 percent exposed individuals going to develop the TB disease during their lifetime[4]. Many factors, including the virulence of the infecting strain, nutritional status, hygienic condition, age, ethnicity, genetic background, immunosuppression status, sex of the infected host may account for the greater susceptibility of individuals developing the disease than of the remaining healthy population.

However, several other biological sex-related factors may render men even more susceptible to pulmonary TB than women: sex steroid hormones, the genetic makeup of the sex chromosomes, and sex-specific metabolic features.[5] Differences between males and females in immune response could thus be part of an explanation of differences in symptoms, signs, forms and outcome of the tuberculosis. The immune response to tuberculosis may also be closely related to differences between males and females in type and concentration of non sex steroid and sex steroid hormones secreted.[6] However, the present study is taken up to find out the Gender inequality and age discrepancy in pulmonary tuberculosis in Kolar district - India.

Material and Methods:

A total number of 4797 patient visited to RNTCP at R L Jalapa Hospital and Research Center, India during the year 2009-2012 as suspected sputum positive cases for tuberculosis. Out of which 588 sputum positive cases were confirmed after sputum smear examination and considered for the present study. The secondary data is collected from the RNTCP to obtain the age and gender of the patients after obtaining the permission from the institutional ethical committee. Extra Pulmonary tuberculosis, HIV and other lung disease are excluded from the study.

Results:

Information was reviewed from January 2009 through June 2012. Five hundred eighty eight of 4797 suspected cases had conformed as sputum positive cases. Out of which 410 patients are males (69.73%) and 178 patients are females (30.27%) with sputum positive, the nature of distribution among male/female ratio 2.3, 95% CI and P value <0.002. However the increase in ratio of the men and women with exposure to the tuberculosis is higher in between the age group of 20 years to 60 years, where men are mostly exposed to the TB when compared with the women is doubled according to the Figure 2 showing the minimum and maximum male/female ratio for new smear positive tuberculosis ratio expected under the hypothesis of neutrality and were analysed with Mann-Whitney tests ($p<0.002$).

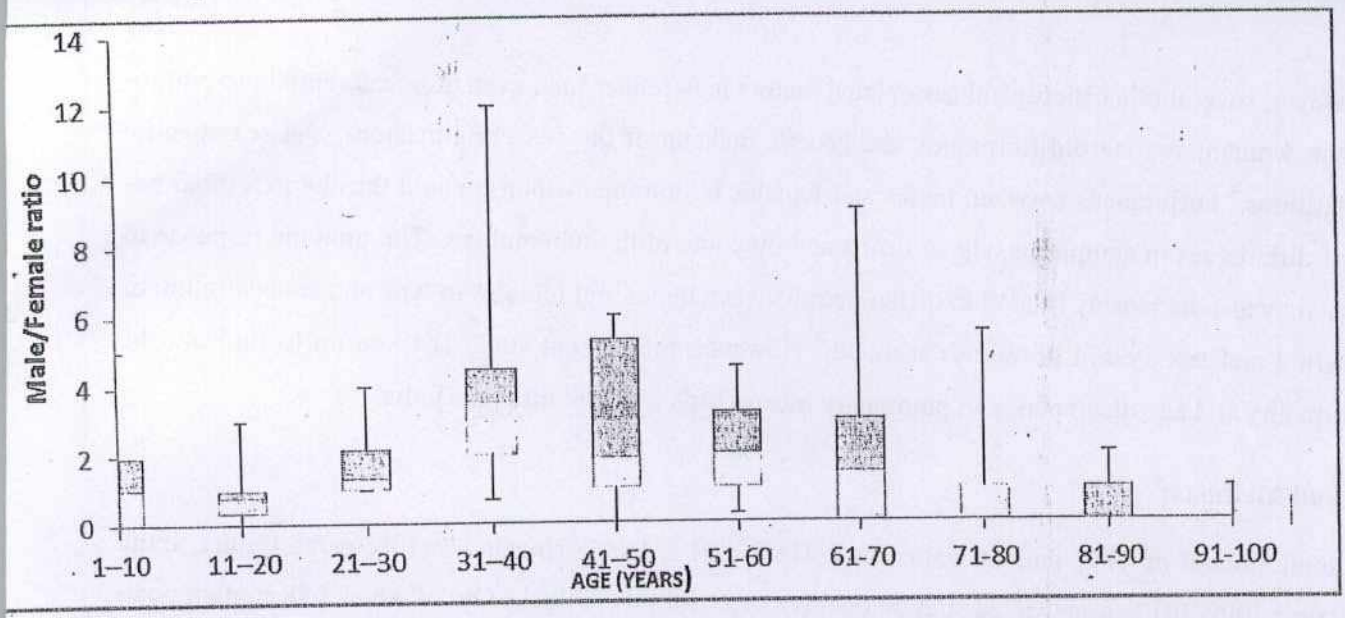

Figure 2: Box plot showing the 25th and 75th percentiles, together with the median, with whiskers showing the minimum and maximum male/female ratio for new smear positive tuberculosis ratio expected under the hypothesis of neutrality with difference in the age groups from (1-100years).

Discussion:

Although Tuberculosis control is a gender issue that has been neglected by the tuberculosis-control pro grammes. "Gender" refers not only to the physiological differences between sexes but also to the variety of behaviours, expectations and roles that exist within a social, economic and cultural context. A gender-based approach to Tuberculosis control will assist in understanding not only the biological and cultural differences between the sexes but also the structural violence leading to poverty, grossly inadequate health care resources, and increased risk of tuberculosis and death[6]. This survey documents a high rate of TB exposure in male when compared to the women strongly with respect to the gender and age discrepancy. According to the study described by miller et al strategies to ensure that women receive appropriate TB evaluation could provide a valuable opportunity for increasing the case detection[8]; however the present study also indicates that the rate of exposure of an individual to TB is higher in males when compared to the females.

The immune response to tuberculosis may also be closely related to differences between females and males in type and concentration of non-sex-steroid and sex-steroid hormones secreted. The present study also generates an idea about the age group especially between (25-60 years) are highly exposed to the tuberculosis in men probably because of their unswerving deeds and less in case of women exposed to TB might be a serious issue that should be taken up for the proper screening of the woman or to find out the mechanism that may be probably sex hormones as per the reviews described earlier. The present study will generate a path to unravel of sexual inequality in TB and to decipher the delicate mechanisms involved in natural and sex-associated resistance to TB where further studies can be designed for the development of useful tools for predicting prognosis and protection in future clinical trials.

Conclusion:

In many of the large prevalence surveys suggested that sex bias observed in pulmonary TB cases may result partly from genuine biological differences in male and female susceptibility to M. tuberculosis infection or the development of TB disease. This finding would not be particularly surprising, as many studies in humans and experimentally infected animals have established clear links between sex-specific factors, including steroid hormones and genetic variants, and the differential susceptibility of males and females to a number of other infectious and noninfectious diseases. However, the present study states that young women should receive an appropriate TB evaluation especially the age group between 25-60 years that could facilitates an opportunity for the proper detection of TB cases for endorsing unbiased and worldwide access to care.

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