

“Assess the prevalence of tuberculosis among the family members of PLHA sputum positive tuberculosis, through contact tracing in a selected district”.

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ABSTRACT- Contact screening of infected subjects among relatives of patients and household members is the best method of preventing the development of tuberculosis disease. A cross sectional exploratory cohort study was conducted among 122 family members of 34 index cases. Each contact was screened for symptoms of tuberculosis and symptomatically positive patients were instructed to undergo CBNAAT and chest X-ray. From 122 contacts 17 were symptomatically positive with an average of 13.93% whereas 100 (81.97%) were screened non-symptomatically. 17 symptomatically positive contacts were instructed to undergo for CBNAAT and chest x-Ray. CBNAAT testing was done for 7 (41.7%) individuals whereas the other 10 contacts (58.82%) were reluctant to provide sputum for CBNAAT. Among the 7 contacts who were tested for CBNAAT, M. TB was not detected in any of the samples. Despite Chest x-Ray was mandatory for all the 17 symptomatically positive patients, only 5 (29.41%) came willingly for radiological test. No significant impressions related to pulmonary tuberculosis was ruled out in the Chest x-Ray. On the other hand 12 (70.59%) contacts were uncooperative for radiographic screening.

Keywords - Prevalence, Contact tracing, PLHA sputum positive tuberculosis.

INTRODUCTION

Human Immunodeficiency Virus (HIV) is a lentivirus (a subgroup of retrovirus) that causes HIV infection and over period of time may turn into acquired immunodeficiency syndrome (AIDS).¹ Opportunistic infections (OIs) are infections that more frequently occur in varying severity in people with immune suppression, especially in People Living with HIV and AIDS (PLHA) compared to people with healthy immune systems, thus leading to “Immune Deficiency”.² Tuberculosis is a commonly occurring opportunistic infection in PLHA which causes death in patients with AIDS. According to Global Tuberculosis report (2017), 87% of new tuberculosis cases occurred in 30 high tuberculosis burden countries. Over 95% of tuberculosis deaths occur in low and middle income countries. WHO Tuberculosis statistics updates on January 2018 estimated the value of TB burden, India has third largest HIV epidemic in world. HIV adult prevalence in India was 0.35%. with an estimation of 62000 people died from AIDS related disease and an incidence of 2.79 million TB cases. Contact tracing helps in the identification of persons who may have been exposed to an infectious pathogen by an infected person and ensuring that they are aware of their exposure.³ Contact tracing enhances case finding and thereby increases the probability of cure.⁴ Furthermore, contact tracing helps to identify patients in initial stages of the disease, results in early treatment initiation, thus reduces the morbidity and infectiousness to others.

NEED OF STUDY

World Health Organization (WHO) reports approximately 2.8 million tuberculosis cases occur in India every year in which only 1.7 million cases are notified, where about one million tuberculosis cases get missed every year. It was observed in some studies that contacts of a tuberculosis patient are 10 to 60 times more likely to have the disease than the general population, and approximately 10-14% of all notified cases have been detected by contact screening. Therefore, the tracing of infected subjects among relatives of patients and household members is the best method of preventing the development of tuberculosis disease. RNTCP with National Strategic Plan 2012-17 has a vision of “Tuberculosis free India”. RNTCP provides various schemes such as free of cost, quality tuberculosis diagnosis and treatment services across country by systematic monitoring and accountability.⁵ Stigma and discrimination are major “road blocks” to universal access to HIV and tuberculosis prevention, treatment, care and support. Because of stigma patients avoid utilizing of health services unless it becomes severe.⁶ The purpose of the study is to improve the contact tracing among the family members of index cases to minimize the contagious state within the limited circle. Increased TB co-infections among the PLHA, underlying stigma and the need to track people through contact tracing strategies made the investigator to research on this area.⁷

PROBLEM STATEMENT

Assess the prevalence of Tuberculosis among the family members of PLHA sputum positive Tuberculosis, through contact tracing in a selected district.

OBJECTIVES OF THE STUDY

1. To screen the family members of PLHA with Sputum Positive for Tuberculosis.
2. To find out the prevalence of tuberculosis among the family members of PLHA with Sputum Positive Tuberculosis in a selected district.

REVIEW OF LITERATURE

The study conducted by Ghale.M, Deshpande .S and et all in Pune, India to find out the incidence of common opportunistic

infections in HIV infected individuals. A prospective study was conducted between September 2002 and November 2004 and incidence rates of specific opportunistic infections were calculated and evaluated clinically and immunologically. Patient with baseline CD4 counts of $<200/\text{mm}^3$ were six times more likely to develop opportunistic infection compared to those with CD4 count of $>350/\text{mm}^3$. The results showed that tuberculosis was the foremost common opportunistic infection with an incidence of 15.4 per 100 person. This study concluded by emphasizing the importance of excellent early diagnosis and management of HIV-TB-coinfection⁸.

Tuberculosis bacteriology with Quality assurance programme is designed to improve the reliability, efficacy and use of tuberculosis services in microscopy sputum smear test, CBNAAT testing, Culture and Drug Susceptibility Testing (DST), National Reference Laboratories (NRLs), State Level Intermediate Reference Laboratories with quality control, quality improvement, proficiency testing with quality control, quality improvement, proficiency testing under Revised National Tuberculosis Control Programme (RNTCP)⁹.

The Union Ministry of Health and Family Welfare launched a door-to-door campaign on December 2017 for 15 days in country for early diagnosis, detection and treatment of tuberculosis (TB). This aimed to eliminate the tuberculosis disease and decrease the incidence to 90% by 2025 and mortality reduction to 95% by 2030 under Revised National Tuberculosis Control Programme (RNTCP). This is carried out by door-to-door campaign, health department workers, ASHAs (Accredited Social Health Activists) and Tuberculosis supervisors¹⁰.

RESEARCH METHODOLOGY

Research approach- Quantitative evaluative approach.

Research Design - Non-Experimental design based on Cross Sectional Cohort Research Design.

Setting of study - A Selected District.

Sample size - 122 family members of 34 index cases.

Sampling Technique - Non-Probability convenient sampling

RELIABILITY OF THE TOOL

Tool used for the research study is completely based on the Revised National Tuberculosis Programme's diagnostic algorithm for pulmonary tuberculosis of adults and children, provided by Central TB division and symptom screening for contact tracing was developed by WHO, CDC and RNTCP standard guidelines. The tool used for the study is reliable and standardized.

DATA COLLECTION

Permission for index case home visit was procured by the investigator from the administrative officials like District Tuberculosis Officer and accompanied by each Senior Treatment Supervisors of the respective 12 Tuberculosis Unit (TU) in the chosen district. Each contact was screened for symptoms of tuberculosis like cough, cold, loss of appetite, weight loss according to the Central Tuberculosis division – RNTCP guidance. If, they were symptomatically positive, then test for Chest X-ray and CBNAAT was carried out for clinical and microbiological confirmation of TB case. If the family members were also HIV positive then according to the RNTCP guidelines he/she can be directly screened for CBNAAT and X-ray without any specific TB symptoms. If in case, there was any case detected it would be reported to District TB officer through channels of HIV/TB Physician, Lab Technician and Senior Treatment Supervisor.

For all, children who are under 6 years, living under one roof with the index case are invited to take part in this research. If child was symptomatically positive, then test for Chest X-ray and CBNAAT would be carried out for clinical and microbiological confirmation of TB case. In case, if the child is diagnosed for HIV then according to the RNTCP guidelines he/she can be directly screened for CBNAAT and X-ray without any specific TB symptoms. If child is not able to produce good quality sputum, then Mantoux test will be done.

SCREENING INTERPRETATION

The assessment of tuberculosis prevalence through contact tracing were done on 122 family members among 34 index cases. Out of these members, 117 (95.90%) were adults and 5 (4.10%) were children. Each contact was screened for symptoms of tuberculosis like cough, cold, fever, loss of appetite, severe weight loss, night sweats and lymph node enlargement.

From 122 contacts 17 were symptomatically positive with an average of 13.93% whereas 105 were screened non-symptomatically. 17 symptomatically positive contacts were instructed to undergo for CBNAAT and chest x-Ray. CBNAAT testing was done for 7 (41.7%) individuals whereas the other 10 contacts (58.82%) were reluctant to provide sputum for CBNAAT. Among the 7 contacts who were tested for CBNAAT, M. TB was not detected in any of the samples.

Despite Chest X-Ray was mandatory for all the 17 symptomatically positive patients, only 5 (29.41%) came willingly for radiological test. No significant impressions related to pulmonary Tuberculosis was ruled out in the Chest X-Ray. On the other hand 12 (70.59%) contacts were uncooperative for radiographic screening.

Table-Representation for tuberculosis screening

Total Contacts Screened	Adults	Children	Total
Number	117 (95.90%)	5 (4.10%)	122(100%)
Presence of Tuberculosis Symptoms (Fever, Cough, Weakness & Loss of Appetite)	17 (13.93%)	0	17

Table- Percentage distribution of Symptoms among symptomatically positive 17 contacts

SYMPTOMATICALLY POSITIVE 17 CONTACTS	
CATEGORY	PERCENTAGE
COUGH	52.94
FEVER	58.82
LOSS OF APPETITE	41.17
FATIGUE	58.82
SWEATING AT NIGHT	5.88

LIMITATIONS OF THE STUDY

Enormous dropout from the investigations and screening was the main challenge faced during contact tracing. Lack of knowledge and awareness regarding TB, stigma and discrimination related to the illness could have been one of the many reasons for the dropout. This acted as an obstacle in proper screening and tracing of tuberculosis.

RECOMMENDATIONS

- The study can be done on a larger scale to bring out more prevalence rate.
- Qualitative studies can be conducted to assess the psychological vulnerability and resilience in diagnosing tuberculosis among the population.
- Studies can be undertaken to evaluate the barriers of TB contact tracing and develop interventions to improve health seeking behaviours for patients.

CONCLUSION

No any prevalence case of tuberculosis found among the family members of PLHA with Sputum Positive Tuberculosis in the selected population .Lack of cooperation for diagnostic screening test and drop-outs of the contact persons during the research study was the main challenge faced during contact tracing.

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