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**Microbiological and genotypic investigation of contacts of MDR-TB patients to determine the evidence of transmission of *M. tuberculosis* and polyclonality****Bhavna Maheshwari<sup>1</sup>, Hitender Gautam<sup>1</sup>, Nupur Sharma<sup>1</sup>, Rajat Prakash<sup>1</sup> and Anuj Bhatnagar<sup>2</sup>**<sup>1</sup>All India Institute of Medical Sciences-New Delhi, India<sup>2</sup>Rajan Babu Institute of Pulmonary Medicine and Tuberculosis-New Delhi, India

Unidentified or misdiagnosed cases and delay in receiving appropriate therapy increase the risk of transmission to contacts so investigation is important for intensified case finding. This study determines the tuberculosis disease among household contacts of MDR-TB patients (Multiple Drug Resistant Tuberculosis) along with the molecular evidence of polyclonal TB and transmission of strains from index patient. Culture and drug susceptibility test of isolates from sputum were determined using liquid culture. Thin layer agar plate was also used to obtain isolated colonies of multiple strains in samples. Spoligotyping and Reverse Line Blot Hybridization Assay (RLBA) were then performed using culture DNA to determine spoligotype families and molecular drug resistant pattern respectively and results were analyzed from 134 index patients and their 19 contacts having active MDR-TB (Total Contacts screened: 305). Among the index and contact cases, CAS1-DELHI, was found in 42.5%, 15.8%, EAI3IND in 21.6%, 21%; Beijing spoligotype families in 20%, 21% respectively. Samples from 39 index cases (29.1%) showed multiple MTB spoligotypes. It is found that disease prevalence among contacts, higher [6.22% (19/305)] than previous studies. Spoligotyping confirmed transmission in 18 contacts (94.7%) from their index case, one contact showed (EAI3IND) transmission from person outside of household, while index case showed clonal infection with Beijing spoligotype along with another infected contact. During pre-treatment and initial treatment phase, patient is potentially infectious and when investigated, contacts showed high prevalence of infection. Thus, contact investigation and molecular typing is imperative for early detection and treatment to cease the chain of transmission, overall success in control programs.

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