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Detection of Beijing genotype of MDR *M. tuberculosis* by targeting *Rv2820* gene and their association with drug resistance mutations in *katG, rpoB* and *embB*

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Beijing genotype of *Mycobacterium tuberculosis* has attracted special attention due to its association with multi drug resistance and rapid transmission. The present study was undertaken to investigate the prevalence of Beijing genotype of *M. tuberculosis* and their association with drug resistance and clinical characteristics of TB patients. A total of 381 clinical isolates were cultured from more than 4000 TB patients' sputum samples from 2008 to 2014, of which the genetic profile was determined by using multiplex-PCR and Spoligotyping methods and the drug susceptibility testing to first-line anti-TB drugs was performed by using proportion method and MGIT960. Detection of mutations at *rpoB* codons (516, 526 and 531), *katG* codon 315 and *embB* codon 306 in Beijing and non-Beijing-strains were determined by MAS-PCR and DNA-sequencing. We also characterized a collection of *M. tuberculosis* isolates to see if Beijing strains had a higher rate of mutations in *katG*315, *rpoB*-RRDR region and *embB*306 gene. Multidrug-resistance was observed to be significantly associated with Beijing strains (p=0.03) and a strong correlation between Beijing strains and specific resistance mutations in *katG*315, *rpoB*531 and *embB*306 gene segments was also found (p=<0.0001, <0.0001 & 0.0014 respectively). These findings will help to understand the transmission and drug resistance related genetic characteristics of the Beijing/W genotype of *M. tuberculosis* and may provide a scientific basis for the development of new TB diagnostic tool for effective management and control of TB in countries with higher prevalence of Beijing strains.

Biography

Anamika Gupta has completed her PhD from Banaras Hindu University, India and Postdoctoral studies from National AIDS Research Institute, India. Currently, she is working with Boston University School of Medicine as a Visiting Researcher. She has published 13 papers in peer reviewed journals and 5 manuscripts are in process. She has also published 3 chapters in the books of international repute.

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