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Xpert MTB/RIF assay and early diagnosis of multi-drug resistant tubercular spondylodiscitis

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Introduction: According to WHO global report 2015, India ranks second largest country in terms of number of Tuberculosis patients. Though TB of the spine accounts for <1%, with the emergence of multidrug drug resistance makes it a challenge to medical field. It is mandatory to detect early and to make proper management plans in terms of chemotherapy. Few papers have reported about drug resistant tuberculosis. The aim is to evaluate the role of Xpert MTB/RIF assay in early detection of multi-drug resistant tubercular spondylodiscitis.

Patients & Methods: This is a retrospective study conducted from 2006 to 2013 in our tertiary care center on all patients who were treated for tubercular spondylodiscitis. Only culture/Xpert MTB/RIF assay positive patients were included in the study. Their demographic profile, type of MDR, diagnostic criteria, medications, drug related complications and cost per patient analysis was done. All MDR patients were treated with five drug regimens for a period of 24 months as per drug susceptibility tests and WHO recommendations. The outcome parameters analyzed included clinical, bio-chemical and radiological criteria to assess healing status.

Results: During this study period (7 years), total of 561 patients were treated for tubercular spondylodiscitis. 36 of them had Multi-drug resistant tubercular spondylitis (prevalence-6.4%) and 3 had extremely drug resistant tubercular spondylitis (prevalence -0.5%) proven by culture and or Xpert MTB/Rif assay. One patient died due to septicemia and five were lost to follow up. 30 patients with mean age of 29 years and with mean

post-treatment follow up of 24 months were enrolled. 77% had secondary MDR. 17 (56%) patients underwent surgery and the rest had biopsy for diagnosis. Among those patients who had surgery, 60% of the patients had neurological deficit. 26 (87%) patients had completed two years of therapy and were healed and rest four were still on MDR treatment. Analysis of Xpert MTB/RIF assay showed 100% sensitivity and 92.3% specificity to detect rifampicin resistance. Drug related complications (33%) included ototoxicity, hypothyroidism and hyperpigmentation of skin. The cost per patient analysis for MDR patient showed 70 times increase when compared to that of conventional 1st line anti-tuberculous chemotherapy.

Conclusions: In conclusion, prevalence of MDR tubercular spondylodiscitis is 6.4%, the sensitivity and specificity of GeneXpert test to detect MDR is 100% and 92.3% respectively. 10 patients (33%) had drug related complications. The cost of drugs for MDR tubercular spondylodiscitis is 70 times more than that of 1st line ATT for conventional tuberculosis.

Speaker Biography

I have completed my undergraduate (MBBS) and post graduate training (D. Ortho., M.S. Ortho., DNB Orthopaedics) in the field of Orthopaedics, at the Christian Medical College and Hospital, Vellore, India. I am currently working as an Associate Professor in the Spinal Disorder Surgery unit, Department of Orthopaedics. I am interested in academics and teaching. I am a resource person for Distance Education Program and Post graduate Diploma in Family Medicine. I regularly take classes for under graduate students, post graduate students and spine fellows. Tuberculosis is one among my favorite topics. I have couple of publications both in national and international journals.

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