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Baveja C P

Maulana Azad Medical College, India

Cartridge based nucleic acid amplification test (CBNAAT): A new tool in diagnosis of osteoarticular tuberculosis

Statement of the Problem: Osteoarticular tuberculosis is an important cause of mortality and morbidity in developing countries because of high prevalence. Microbiological diagnosis of osteoarticular tuberculosis is difficult since it is mostly a paucibacillary disease and the culture method takes long time for its diagnosis. The purpose of this study was to evaluate the results of CBNAAT over conventional methods for diagnosis of osteoarticular tuberculosis.

Methodology & Theoretical Orientation: Clinically suspected cases of osteoarticular tuberculosis having an abscess were enrolled in the study. A total of 45 samples were studied. Five milliliter of aspirate/Pus was obtained from each case and processed as follows: (1) Direct microscopy by Ziehl-Neelsen (ZN) Staining, (2) Culture on Lowenstein-Jensen (LJ) medium, (3) Culture in Mycobacteria Growth Indicator Tube (MGIT) and (4) CBNAAT analysis.

Findings: Out of the 45 samples tested, 19 (42.22%) were positive for *Mycobacterium tuberculosis* (MTB) by CBNAAT, 11 (24.44%) showed growth of *Mycobacterium tuberculosis* in MGIT, 9 (20.00%) showed growth of *Mycobacterium tuberculosis* on Lowenstein-Jensen medium and only 4 (8.89%) showed presence of Acid Fast bacilli on Ziehl-Neelsen staining. Of the 19 samples that were positive for MTB using CBNAAT, 3 (15.79%) samples were also detected as Rifampicin resistant.

Conclusion & Significance: The foremost benefit of CBNAAT for diagnosis of osteoarticular tuberculosis was that it was able to detect additional 10 cases as compared to LJ culture. The test results were available within 1 day, greatly decreasing the turnaround time. Through this study CBNAAT was found to have great potential for diagnosis of osteoarticular tuberculosis earlier than the conventional methods.

Biography

Baveja C P is the Director Professor and Head of Microbiology at Maulana Azad Medical College in New Delhi. He was awarded an International Fellowship at Royal Postgraduate Medical School and Hammersmith Hospital in UK. He has also conducted research work on Polymerase Chain Reaction at London School of Hygiene and Tropical Medicine. He has been teaching Microbiology to medical undergraduates for past three decades. He was honored with the Best Medical Educationist award in 2000. He has been mentoring postgraduates for the last 25 years. He has been involved in research work with particular emphasis on diagnosis of tuberculosis. He has supervised a number of PhD students with research work on tuberculosis. He is also the Nodal Officer and In-Charge for State Reference Laboratory for HIV testing.

bavejacp@gmail.com

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