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International Conference on
Autoimmunity
October 13-14, 2016 Manchester, UK

Evaluation a cost effective less-sensitive enzyme immunoassay for estimating early HIV seroincidence

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Background & Aim: Usually molecular methods, such as the detection of viral RNA or proviral DNA are the most sensitive methods for early diagnosis of HIV type-1; these methods involve complex and expensive technologies and thus have remained largely unavailable in resource-poor settings in the developing world. In this study, we tried to employ new less sensitive HIV-1 immunoassay using avidity method in conjunction with the sensitive enzyme immunoassay to differentiate persons with recent and long-standing HIV-1 infections.

Methods: This study was conducted in tertiary care center in south India. Consecutive serum samples (n=261) obtained from HIV seropositive patients of more than 15 years of age. Written informed consent, Epidemiological, clinical and laboratory details were obtained from all participants. All cases of HIV-1 infection was tested with standard ELISA and confirmed by western blot test. These samples were further tested by avidity index method and affinity studies to distinguish patients with recent from established HIV-1. Avidity index ≤0.9 were taken as cut off value for recent HIV infection with duration of HIV for less than 6 months.

Results: Out of 261 patients, 26 patients were found with avidity test value of less than or equals to 0.9 and were classified as recent seroconvertors with antibodies appeared in serum for ≤6 months and 235 patients with avidity value of >0.9 were placed as long term cases with antibodies circulated for >6 months of duration. Out of 26 cases of recent infection one case was misclassified as recently infected using avidity immunoassay method while clinical history were suggestive of long term infection.

Conclusions: The avidity index immunoassay was developed for easy performance characteristics, inexpensive, time-saving and does not need sophisticated laboratory requirements. This technique can also be performed in field setting for identifying recent infections, although there are chances of misclassification is possible in individual who had long-standing infection. The identification of recent infections based on the combination of other methods needs further investigation to reduce misclassification and to find out true incidence of HIV at the earliest.

Biography

Vinay Khanna has completed his MBBS and MD Microbiology from Kasturba Medical College, Manipal University, Karnataka, India. He is presently working as an Associate Professor in Department of Microbiology, Kasturba Medical College, India. He has published 18 papers in indexed national and international journals.

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