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Diagnosis of Upper Urinary Tract Infection using Streptavidin Biotin Test in Urine Sediment. A New Approach Using Immunohistochemical Test for Determining the Site of Urinary Tract Infection

Abstract

Determining the site of infection of urinary tract in Urinary Tract Infection (UTI) is important for having proper management. Although several methods are currently available, they are still unreliable in distinguishing the upper and lower urinary tract infection, time-consuming and likely to introduce bacterial infection, as well as uncomfortable for the patients. The present study was aimed to determine and introduce the immunocytochemical approach using streptavidin biotin method for the detection of antibody-coated bacteria and compare the result to those obtained from bacterial cultures and urinalysis of the urine samples collected from the patients of the urinary tract infections. Eighty-two mid-stream urine samples from the urinary tract infections patients collected in 18 months were used. The diagnosis of the urinary tract infections was based on clinical signs, urinalysis and urine cultures. All samples were examined by streptavidin biotin method using anti human antibody monospecific IgG based on the principles of immunocytochemical approach. Results of the study indicated that the comparison of the streptavidin biotin on the result of bacterial culture and urinalysis methods showed the sensitivity of 85% and specificity of 80% and the positive predictive value of 80.1% and the negative predictive value of 84.2% and the efficiency of 82.2% to detect the antibody-coated bacteria in the patient of the upper urinary tract infections. In the cases of lower urinary tract infections, the sensitivity was only 20% and in the cases of complicated urinary tract, the infection was 63.6%. Diagnostic approach of the streptavidin biotin method showed no significant differences with those based on clinical examination and laboratory test. In conclusion, the streptavidin biotin method is a simple, reproducible, non invasive and more practical diagnostic approach with high validity in determining the site of infection in upper urinary tract. Therefore, it is recommended be applied for either routine diagnostic approach or for screening of urinary tract infection high risk patients.

Keyword : antibody-coated, bacteria, streptavidin, biotin, site, of, urinary, tract, infection,

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