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The Sensitivity and Specificity of a Urine Leukocyte Esterase Dipstick Test for the Diagnosis of Urinary Tract Infection in the Outpatient Clinic of Rajavithi Hospital
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Abstract

Background: Urinary tract infection (UTI) is frequently found in family physician clinics. The present study was designed to assess the reliability of a leukocyte esterase urine dipstick test in detecting UTI.

Objective: Compare the performance and reliability of leukocyte esterase dipstick urinalysis with microscopic examination for detection of clinically suspected UTI.

Material and Method: A retrospective descriptive study was conducted on 109 patients who visited the outpatient clinic with a clinical suspicion of UTI between November 2010 and July 2011. The subjects consisted of patients from the age of 15 years and over regardless of gender. A dipstick test (Combur-Test® M strip, Roche) was used. All dipstick-positive samples were processed to microscopic examination and urine culture was used as gold standard. Sensitivity, specificity, and predictive values were analyzed for the dipstick test (leukocyte esterase) as compared to microscopic examination. Statistical analysis was performed by using the t-test.

Results: The sensitivity of leukocyte esterase test and the combined leukocyte esterase and nitrite test were 63.6% and 66.7%, respectively. The presence of pyuria demonstrated the highest sensitivity (95.6%) and specificity (60.9%) for positive urine culture compared to the dipstick test. Statistical analysis revealed a significant correlation between the dipstick test (leukocyte esterase) and microscopic examination ($p < 0.001$).

Conclusion: Pyuria can be used to detect UTI instead of urine culture due to its significant incidence. In the present study, the presence of pyuria had a higher specificity (60.9%) compared to the dipstick test (44.2%). However, the significantly positive dipstick and pyuria results make the combined test more useful than the single test, and there is a statistically significant correlation between the dipstick test (leukocyte esterase) and the microscopic examination ($p < 0.001$). Therefore, the dipstick test (leukocyte esterase) can be used as a diagnostic tool in detecting UTI cases.

Keywords: Leukocyte esterase dipstick test, Pyuria, Urinary tract infection

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