ABSTRACT

A STUDY ON USE OF URINE DIPSTICK AS A RAPID SCREENING TOOL FOR EVALUATION OF UTI IN CHILDREN

AIMS AND OBJECTIVES OF THE STUDY:

The aim of this study was to detect the utility of urine dipstick in screening UTI in children. The objective was to determine the performance characteristics of urine nitrite and leukocyte esterase test compared with urine culture, which was set as the gold standard for diagnosing UTI.

METHODOLOGY:

Children of age 2-12 yrs of age with symptoms suggestive of UTI or febrile children with undetectable focus attending the outpatient department or getting admitted in ICHRC, Madurai medical college were evaluated for UTI using urine microscopic analysis, urine dipstick and urine culture. The study population included 262 Patients. It was a hospital based prospective study conducted in the year (Oct 2016-Oct 2017). The collected data were subjected to statistical analysis.

RESULTS:

Culture positive UTI was more common in females than male children >2yrs of age. Sensitivity, specificity, positive and negative predictive value of pyuria compared to urine culture were upto 64.7%, 80.6%, 68% and 78.1% respectively. Sensitivity, specificity, positive predictive value, negative
predictive value of Leukocyte esterase compared to urine culture were upto 90.1%, 78.7%, 73%, 92.6% respectively. Sensitivity, specificity, positive predictive value, negative predictive value of nitrite compared with urine culture were upto 92.5%, 92.5%, 87.9%, 90.8%. Sensitivity, specificity, positive predictive value and negative predictive value of combined dipstick compared with urine culture were upto 96%, 80.6%, 75.9% and 96.9% respectively.

The p value detected by chi square test was statistically significant <0.001 for all the four parameters.

**CONCLUSION:**

1) Sensitivity, positive predictive value and negative predictive value of urine microscopic analysis is very less. Hence it cannot be reliably used in screening for UTI.

2) Leukocyte esterase has a good sensitivity, moderate specificity, hence it is a good screening test for UTI.

3) Nitrite has good sensitivity and specificity, hence can be used reliably for diagnosing UTI.

4) Combined dipstick has a good sensitivity, specificity, positive and negative predictive values compared to urine culture. Leukocyte esterase alone has a good sensitivity, nitrite has a good specificity, combined dipstick has a good sensitivity as well as specificity, and can be used reliably for diagnosing UTI while awaiting urine culture reports.

**Keywords:** leukocyte esterase, nitrite, urine culture, microscopic analysis.