



ABDOMINAL ULTRASOUND IS NOT A RELIABLE METHOD IN SECONDARY SCREENING OF ASYMPTOMATIC PATIENTS WITH MICROHEMATURIA

Goran Vojinović¹, Mirjana Manasić¹, Nenad Zec¹, Tamara Nešković¹, Maja Velinović¹, Ljubica Kovijanić¹, Olgica Peričin¹,
¹ General Hospital Pančevo, Pančevo, Serbia

INTRODUCTION

Microhematuria is defined as the presence of 3 or more red blood cells in the urine sediment, identified by a field microscopy. Prevalence of microhematuria in the general population ranges from 1 to 21%. The most common causes of microhematuria are infections, urolithiasis, glomerular diseases, cancer, prostatic hyperplasia, prostatitis, polycystic kidney disease, hydronephrosis, abdominal trauma, endometriosis, coagulopathies ...

OBJECTIVE

Determine a role of abdominal ultrasound as a noninvasive screening method in evaluating causes for microhematuria detected during general medical examination of asymptomatic adults



METHODS

This study included 90 patients (30 males and 60 females), aged 20-35, who presented in General Hospital Pančevo, in year 2015, solely for the evaluation of asymptomatic microhematuria detected through routine urine examination. All of the patients underwent an abdominal ultrasound examination as a secondary screening method in detecting causes for microhematuria. Following definitive diagnoses and outcomes were established: 1) urinary tract neoplasm, 2) urolithiasis, 3) hydronephrosis, 4) renal atrophy with a decrease in GFR, and 5) an absence of any definitive diagnoses. In theory, patients could have had two or more of the previously stated diagnoses. In establishing definitive diagnosis the following diagnostic procedures were used: computed tomography, endoscopy procedures, histologic and cytologic examinations, and biochemical analyses. Effectiveness of abdominal ultrasound was assessed in correlation with definitive diagnoses. The examination itself was conducted by a one physician.

RESULTS

Through the use of an abdominal ultrasound, diagnosis of urinary tract neoplasm was made in 8 patients, urolithiasis in 15, and hydronephrosis and renal atrophy were recorded in 11 and 3 patients, respectively. In 58 patients none of the aforementioned abnormalities were found. When the definitive diagnoses were established, urinary tract neoplasms were found in 5 patients, urolithiasis in 13, diagnosis of hydronephrosis was made in 11 and renal atrophy with a decrease in GFR in 3 patients. Absence of previously mentioned diagnoses was recorded in 58 cases. Sensitivity of an abdominal ultrasound examination in 4 categories of abnormalities found was 80% and its specificity 86%. In the case of screening for patients with hydronephrosis, abdominal ultrasound showed sensitivity of 92%, and specificity of 100%. To the contrary, in screening for urinary tract neoplasms, sensitivity was 63% and specificity 50%.

	Diagnose established by abdominal ultrasound	Final diagnosis
Urinary tract neoplasm	8	5
Urolithiasis	15	13
Hydronephrosis	12	11
Renal atrophy	5	3
Absence of any abnormality	50	58

Table 1. The number of patients diagnosed by abdominal ultrasound and after definitive diagnosis

	Sensitivity (%)	Specificity (%)
Urinary tract neoplasm	63	50
Hydronephrosis	92	100
Summary (neoplasm, hydronephrosis, renal atrophy, urolithiasis)	80	86

Table 2. The sensitivity and specificity of abdominal ultrasound examination observed when setting the diagnosis

CONCLUSION

Abdominal ultrasound is an uncostly and noninvasive method of examination, however, its ability for screening is limited. In hydronephrosis screening, ultrasound shows satisfactory results; nonetheless, urinary tract neoplasm and urolithiasis are easier to overlook. In conclusion, these results suggest that abdominal ultrasound is not a reliable method in secondary screening of asymptomatic patients with microhematuria.