Imaging in Febrile Urinary Tract Infections – Area of Debate: Correspondence

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To the Editor: We have read carefully the interesting Editorial Commentary entitled “Imaging in Febrile Urinary Tract Infections – Area of Debate” published in your journal [1]. In this review, Amarjeet Mehta exposes that there is a need of detailed evaluation protocols and risk stratification for vesicoureteral reflux (VUR) to prevent morbidity.

We have noticed that basic renal function tests (bRFT) are not mentioned in this review. We would like to remark that bRFT, mainly concentrating ability [(UOsm): maximum urine osmolality] may be useful to screen for severe vesicoureteral reflux.

In the knowledge that voiding cystourethrogram (VCUG) is an invasive, distressing, and associated-with-radiation-risk technique, we have recently reported a study to evaluate bRFT as screening tools to select patients for VCUG [2]. This study included 163 children up to 18 y of age who had a febrile urinary tract infections (UTI). All of the patients with severe VUR grades (IV or V) had a decreased UOsm. UOsm was significantly lower in the 27 children with severe VUR compared to 100 patients with normal VCUG ($p < 0.001$), and to 36 patients with VUR grades I to III ($p < 0.001$). In addition, renal concentrating ability between the presence of severe VUR (grades IV and V) and absence of VUR showed a sensitivity of 100%, specificity of 56%, positive predictive value (PPV) 38%, and negative predictive value (NPV) 100%. N-acetyl-beta-D-glucosaminidase (NAG)/creatinine ratio was significantly elevated in 20 children with severe VUR compared to 67 children with normal VCUG ($p = 0.003$), and to 20 patients with VUR grades I to III ($p = 0.009$).

On the other hand, the sensitivity of the UOsm determination has been demonstrated by our group in children with different degrees of kidney damage. The most frequently observed alteration in children in the Kidney Disease: Improving Global Outcomes (KDIGO) G1 stage was urinary concentrating ability defect (29%), higher than the frequency of children with increased urinary albumin excretion (12%). All children in KDIGO G2–G5 stages had alterations in water renal management [3].

Because VUR grades I to III are not associated with renal failure [4], there is need for tests that could help differentiate severe levels of VUR and, therefore, may help in selecting patients to undergo VCUG.

Declarations

Conflict of Interest None.

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