Does the cyclic direct radionuclide cystography prefer to detecting vesicoureteral reflux in children? 
A prospective study

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Vesicoureteral Reflux (VUR) is the most common urological anomaly in children. Two techniques are available for detection of VUR which include the direct Radionuclide Cystography (RNC) and the Voiding Fluoroscopic Cystourethrography (VCUG). The RNC provides continuous monitoring with less gonadal radiation than VCUG, therefore, the purpose of this study was to evaluate whether cyclic RNC is superior to the single-cycle procedure for VUR detection in children. A total of 411 children were selected between January 2006 and January 2013. A narrow catheter was inserted into the urinary bladder. Under aseptic conditions and the urine was allowed to drain. The bladder was filled slowly with saline solution under hydrostatic pressure and then, 18 MBq of 99m Tc-pertechnetate was instilled into the bladder. Images were obtained during filling and post voiding phases. After the first micturition, the catheter was left in place and the whole procedure was repeated (cycled) under the same condition. By using a single-head computerized gamma camera equipped with a low-energy all-purpose collimator, visualization of the radiotracer was done. The t-test, the Chi-squared and the McNemar's tests were used for data analysis which were obtained by two separate nuclear medicine specialists. The mean age of the sample was 3.2 years. The overall agreement of both cycles in detecting VUR in the present study was 21.1%, the highest being in detecting moderate VUR (38.7%) and the lowest in detecting severe VUR (14.3%). If we had used a conventional RNC (first filling only) 58 (44%) mild VUR, 41 (38.7%) moderate VUR and 15 (53.6%) severe VUR, which were detected in the second cycle only, would be missed, making a total of 114 (43%) VURs missed. According to the 246 renal units cyclic RNC detected 26.8% more VURs than the conventional (one cycle only) RNC, (P<0.001). In conclusion, the cyclic RNC is superior to conventional RNC (one cycle only) for detecting VUR and the decision to perform cyclic RNC may be appropriate in children with clinically suspected VUR.

Biography

Arash Abbasi completed his MD at the age of 30 years from Tehran University of Medical Sciences (THMS) and Postdoctoral studies from Children’s Medical Center of THMS. He is pediatrics Nephrologist who is working at the Children’s Medical Center (a pediatrics center of excellence), Tehran, Iran. He has published some papers in reputed journals and has been serving as a Reviewer Board Member of pediatrics journals.

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