A comparative study of evaluating renal scars by $^{99m}$Tc-DMSA planar and SPECT renal scans, intravenous urography, and ultrasonography

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The purpose of this prospective study is to compare 3 types of $^{99m}$Tc-DMSA renal scan [(a) planar, (b) x-ray type film static SPECT presentation (SPECT-1) and (c) dynamic three-view display of SPECT slices (SPECT-2)], intravenous urography, and ultrasonography in the diagnosis of renal scars. All these studies were performed in 130 pediatric patients, with urinary tract infection (42 patients), vesicoureteral reflux (37), and unilateral or bilateral small kidney(s) (51). The number of renal scars detected was highest with the $^{99m}$Tc-DMSA renal SPECT-1 scan and next came the $^{99m}$Tc-DMSA renal SPECT-2 studies. There is a significant difference (p < 0.05) between the ability of planar and SPECT-1 to recognize renal defects. However, SPECT-2 may provide the best stereotactic localization and image quality of all the methods.

Keywords: Tc-99mDMSA, SPECT, IVU (Intravenous urography), ultrasonography, renal scar