

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

Tzu-Chen YEN,* Wei-Peng CHEN,** Shu-Lian CHANG,* Yan-Cherng HUANG,* Chung-Pin HSIEH,***
Shih-Hwa YEH* and Ching-Yuang LIN**

*Departments of *Nuclear Medicine and **Pediatrics, Veterans General Hospital-Taipei
and National Yang-Ming Medical College*

****Department of Pediatrics, Taipei Municipal Women's and Children's Hospital*

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.

Key words: Tc-99m DMSA, SPECT, IVU (Intravenous urography), ultrasonography, renal scar