

## Validity of $^{99m}\text{Tc}$ -DMSA renal uptake by planar posterior-view method in children

Eriko TSUKAMOTO,\* Kazuo ITOH,\*\* Chietsugu KATOH,\* Takafumi MOCHIZUKI,\*  
Toru SHIGA,\* Koichi MORITA\* and Nagara TAMAKI\*

*\*Department of Nuclear Medicine, Hokkaido University School of Medicine*

*\*\*Department of Radiology, JR General Hospital*

Renal uptake of  $^{99m}\text{Tc}$ -DMSA has been quantified by various methods. The aim of this study is to obtain a normal value for  $^{99m}\text{Tc}$ -DMSA renal uptake calculated by the posterior view method and age variation, and to assess its clinical validity. Scintigrams of 238 children (0–12 years) with  $^{99m}\text{Tc}$ -DMSA were reviewed. All the children had a clinical history of primary vesicoureteral reflux and/or neurogenic bladder, ureteral or urethral anomalies. Their kidneys were divided into two groups, “normal” and “abnormal” according to their scintigraphic findings and split renal functions. Percent renal uptake per injected dose (% RU) was quantitated from planar images at 2 hours after injection of an age-adjusted dose (26–95 MBq) of  $^{99m}\text{Tc}$ -DMSA. Calculated total % RU, individual % RU of the right and left kidneys (mean  $\pm$  sd) in patients with normal kidneys were  $40.7 \pm 5.0\%$ ,  $20.2 \pm 3.0\%$ ,  $20.4 \pm 2.7\%$ , respectively. There was no significant correlation between % RU and age ( $r = 0.231$ ). Longitudinal variation in the % RU in 9 patients ranged from 1.2% to 18%. Our conventional method for quantifying % RU is simple, practical and feasible in routine clinical practice, especially for children under follow up.

**Key words:**  $^{99m}\text{Tc}$ -DMSA, % renal uptake, normal value, age-dependency