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Iranian Journal of Nuclear Medicine

Volume 14, Issue 25, 2006, Page29

Diuretic effect on the measurement of differential renal function using ^{99m}Tc -DMSA in patients with hydronephrosisDabbagh-Kakhki, V.^{ab}, Ebrahimi-Rad, M.^a, Zakavi, S.R.^a, Hoseinion, M.^a^a Imam Reza Hospital, Mashad University of Medical Sciences, Mashad, Iran^b Nuclear Medicine Department, Imam Reza Hospital, Mashad, Iran

Abstract

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Introduction: It has been suggested that calculation of differential renal function (DRF) using ^{99m}Tc -DMSA may lead to overestimation of the function of an obstructed kidney. The aim of this study was to evaluate the effect of diuretic administration on the determination of DRF using ^{99m}Tc -DMSA scintigraphy in patients with dilated pelvis. Methods: Thirty three patients, aged from 2 months to 66 years (19.27 ± 20.83 years, 22 males, 11 females), in whom unilateral hydronephrosis had been documented by ultrasonography and diuretic renography were included in the study. ^{99m}Tc -DMSA scintigraphy was performed in all patients 3 hours after tracer injection. Immediately after the standard study, furosemide was injected in all patients, and 30 min later anterior and posterior images were obtained. DRF was calculated for each patient and from each ^{99m}Tc -DMSA study by using the geometric mean method. Results: We did not observe any significant difference in all patients between the DRF values obtained before and after diuretic administration (the DRF value of the affected kidney was thus taken into account) ($P=0.35$). When we compared DRF values obtained from standard and from diuretic DMSA studies, the mean of the differences was only 0.18% and the SD was only 1.09%. In 17 patients (group1), diuresis renography revealed an obstructive curve pattern while 16 patients (group 2) had a nonobstructive dilated renogram curve pattern. There were again no significant differences between DRF values obtained before and after diuretic injection in each group Conclusion: In view of our study, diuretic administration seems to be an unnecessary intervention because it has no effect on the accuracy of DRF measurements using ^{99m}Tc -DMSA scintigraphy in patients with a dilated collecting system whether it is obstructed or not.

Author keywords

 ^{99m}Tc -DMSA; Differential renal function; Diuretic; Renography

Indexed Keywords

EMTREE drug terms: furosemide; succimer tc 99m; tracer

EMTREE medical terms: adolescent; adult; aged; article; calculation; child; clinical article; controlled study; diuresis; drug effect; echography; female; geometry; human; hydronephrosis; infant; kidney function; kidney scintiscanning; male; medical documentation; pelvis; renography

Chemicals and CAS Registry Numbers: furosemide, 54-31-9; succimer tc 99m, 65438-08-6

ISSN: 16812824 Source Type: Journal Original language: Persian

Document Type: Article

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