عنوان مقاله:

[Optimization of Gate's technique for measurement of GFR during routine renal scan [Persian

محل انتشار:

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خلاصه مقاله:

Using Gate's technique for GFR measurement with Gamma camera, the patient is received ۵mCi of Tc-۹۹m-DTPA. By this amount of radioactivity, good quality renal scan is not possible. This study tries to optimize Gate's technique for GFR measurement during routine renal scan (with ۱۰-۱۵ mCi). Methods and materials: Scanning was performed for ۶۰ seconds from samples of Tc-۹۹m with activities of ۳, ۹, ۱۲, ۱۵ and ۱۸ mCi in a small syringe, with a ۳۰ cm distance from the detector. Another sample of ۱۲ mCi of Tc-۹۹m was imaged for ۵, ۱۰, ۱۵, ۲۰ and ۳۰ seconds. The same sample was again imaged for ۱۰ seconds in different distances (۱۰, ۲۰, ۳۰ and ۴۰ cm) from the detector. Each image was acquired ۱۰ times. Using rectangular region of interest (ROI), total count and maximum count per pixel were recorded for all images. Results: The total count revealed rising in the images form ۳ mCi to ۱۵ mCi samples while declining thereafter, suggesting paralysis of the Gamma camera in high activities. Maximum count per pixel was ۳۲۷۶۷ (۲ in ۱۵ power minus one) in all images except for the ۳ mCi sample image, suggesting saturation of the pixels in high activities. Also saturation of the pixels was note in images of ۱۲ mCi sample for more than ۱۵ seconds. No saturation of pixels was noticed within ۲۰-۴۰ cm distance from the detector. Conclusion: By optimization of the Gate's technique for GFR measurement, GFR can be calculated during routine renal scan. We suggest using ۱۰-۱۵ mCi of Tc-۹۹m-DTPA, with ۵-۱۵ seconds preinjected syringe count, ۳۰ cm distant from the detector. Comparison of GFR calculation using suggested technique with GFR estimation by creatinine clearance in ۹ patients, resulted in a significant and good (correlation coefficient (R=۰.۸۸۳, P=۰.۰۰۵.

کلمات کلیدی:

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