

^{99m}Tc -DMSA: Comparison with ^{203}Hg -Chlormerodrin

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Results of in vivo study in rats and the clinical evaluation of ^{99m}Tc -dimercaptosuccinic acid (^{99m}Tc -DMSA) provided in kit form are presented.

This agent was stable, and free $^{99m}\text{TcO}_4^-$ was not detected after 6 hours of preparation on thin-layer chromatogram.

The distribution of ^{99m}Tc -DMSA and ^{203}Hg -chlormerodrin in rats was measured by serial autopsies.

The maximum renal concentration of ^{99m}Tc -DMSA was 25.2% of administered dose at 3 hours and persisted up to 24 hours. That of ^{203}Hg -chlormerodrin was 86.2% at 3 hours and then the renal activity decreased gradually.

^{99m}Tc -DMSA was only accumulated in the renal cortex but ^{203}Hg -chlormerodrin was accumulated not only in the cortex but in the medulla on macroautoradiograms of rats.

The estimated absorbed radiation dose from 1 mCi of ^{99m}Tc -DMSA was total body 0.014 rad, kidneys 0.582 rad, male gonads 0.010 rad, and female gonads 0.013 rad respectively.

In the clinical evaluation of these agents, the images with ^{99m}Tc -DMSA were better than those with ^{203}Hg -chlormerodrin. For example, the scintiphotos with this new agent succeeded in visualiz-

ing the contracted kidneys in a case with chronic renal failure due to chronic glomerular nephritis having BUN of 370 mg/dl and a 56 mg/dl serum creatinine.

We had an interesting experience that the scintiphoto with ^{99m}Tc -DMSA visualized the affected kidney in a case with renal stone which was not visualized on that with ^{203}Hg -chlormerodrin.

^{99m}Tc -DMSA angiograms were useful for differential diagnosis of spaceoccupying lesions.

Lateral aspects were easily obtained and they delineated more clearly space-occupying lesions occasionally.

Combined liver-kidneys scintiphotos were obtained by injection of ^{99m}Tc labeled liver scanning agent 1 hour after injection of ^{99m}Tc -DMSA.

This combination was very useful for delineation and detection of space-occupying lesions of the liver and/or kidneys.

We think ^{99m}Tc -DMSA should be used for static study and ^{99m}Tc -DTPA and/or ^{131}I -hippuran for dynamic study.

Our conclusion is that ^{99m}Tc -DMSA is an excellent and safe renal cortical imaging agent and ^{203}Hg -chlormerodrin should not be used clinically.

Clinical Evaluation of Renoscintiphoto for Cadaveric Allotransplant

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Recently cadaveric allotransplantation had gradually increased in our country. Between Nov. 4, 1975, and March 10, 1976, 7 cadaveric transplantations were performed in the Kitasato University Hospital. All of them were studied with scinticamera. A total of 32 ^{99m}Tc -DTPA images were reviewed.

Because of its many complications, scinticamera is more useful and important after cadaveric transplantation. These sensitive atraumatic studies are without risk and can be easily repeated.

The patients were examined in the supine position with an Anger camera (Nuclear Chicago HP). An injection of 4 mCi ^{99m}Tc -DTPA was given