Dimercaptosuccinic Acid (DMSA) Renogram

What is it?

A renal tracer (Tc-99m DMSA) is taken up by cortical tubules of the kidney and is for all intents and purposes not excreted. Since there is constant accumulation, the count rates emitted from the kidneys becomes incredibly high and as such the statistical accuracy of the difference between the kidneys is near perfect. This allows us to make various anatomic inferences (see indications below) and especially to calculate differential function. Dynamic renography e.g. DTPA and MAG-3 calculates differential renal function during the uptake phase prior to excretion of the tracers and unfortunately the uptake in this phase is count poor because the time between perfusion and excretion is so short. DMSA doesn’t suffer this problem. Furthermore, any damaged cortex e.g. through pyelonephritis or chronic renal failure can be visualized and subsequently followed up post-intervention.

What are the indications?

- To assess renal split function especially when global GFR is known.
- To assess for acute pyelonephritis and to exclude risk of scarring if no defects are present.
- To assess for scarring on follow-up DMSA (at least 6 months following pyelonephritis episode).
- Detection of focal renal parenchymal abnormalities
- Detection of associated abnormalities: abnormal duplex kidney, small kidney, dysplastic tissue, horseshoe kidney
- Detection of ectopic kidney.
- Confirmation of non-functional multicystic kidney.

What are the pitfalls of the study?

In effect, DMSA is a functional way to assess anatomical discrepancies between the kidneys and damage within each kidney. It can give no indication to the function of the kidney. For this purpose dynamic renography e.g. DTPA or MAG3 is better suited.

What does the patient need to know?

- The scan consists of injecting a low-dose radiotracer, which is taken up by the living tubules of the kidney. This is captured and measured allowing us to comment on any defects that may be present and tells us how each kidney functions relative to the other.
- No patient preparation is needed for this test.
- The test lasts about 20-30 minutes but in between the injection of the tracer and imaging, the patient is required to wait 3 hours to allow for the tracer to be taken up properly by the kidney. All this excludes reporting time.
- The radiation risks are significantly less than conventional radiological procedures.
- The patient should please inform us if pregnant or suspicious that she may be.
- Should the patient be breastfeeding the doctor should also be informed at the time of booking to determine how much breast milk should be expressed prior to the test for feeding the infant after the test?

Please refer your patient to theramednuclear.co.za for detailed information regarding the scan, preparation therefor, radiation safety et cetera.
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