UNM HOSPITALS

Glomerular Filtration Rate (GFR) - Gates Method

Special Instructions	**This study is a quantitative measurement of renal function. The pre-injection and post-injection syringe counts must be performed accurately.** **All of the radiopharmaceutical leaving the syringe must go into the patient's vein. Secure intravenous access is essential; dose infiltration invalidates the results. Do not use catheters with large reservoirs/tubing in which a significant quantity of the radiopharmaceutical may be trapped.** **All patients must have height and weight recorded (in cm and kg). If no recent measurements are available (within 1 month), perform measurement in the department.** **GFR Scans performed ONLY at UNMH at this time**

Radiopharmaceutical: Tc-99m DTPA

Dose (Adult/Pediatric): Refer to Nuclear Medicine Dose Chart

Route of Administration: Intravenous bolus injection of radiopharmaceutical

Patient Preparation: Patient should be well hydrated.

Equipment Setup:

Collimator (ECAM/SPECT-CT only): High resolution

Computer set up:

- UNMH-GFR workflow (Gates method)
- 64 x 64 matrix for all images
- Zoom 1.0 (greater for children)

Pre-injection and post-injection syringe counts (infiltration counts if needed):

- Dynamic acquisition
- Zoom 1.0 (greater for children)
- 1 min/image
- 1 image
- see below for additional details

For renogram portion:

- Dynamic acquisition
- Zoom 1.0 (greater for children)
- 1 min/image
- 6 images

Glomerular Filtration Rate (GFR) - Gates Method (continued)

Patient Positioning:

Supine

- Camera posterior for native kidneys, anterior for transplant kidney
- Kidney(s) centered in field of view (essential that entire kidney(s) be included in the images; bladder is not important)
- Include the injection site in the field of view, but next to the patient (if a peripheral IV) and not over the kidneys, so that any significant infiltration or retained radiopharmaceutical can be observed.

Procedure:

Pre-injection syringe count:

- Place special box from the radiopharmacy on top of the collimator on the camera head to be used for the acquisition (if transplant kidney, rotate the anterior head to the posterior position for this step).
- Place radiopharmaceutical syringe on top of the box (will be 30 cm from collimator).
- Count syringe for 1 minute.

Renogram:

- Position patient on imaging table as above. After injection, flush intravenous access well with normal saline to ensure that entire dose is delivered. Begin imaging immediately after injection.

Infiltration count:

- If a significant portion of the dose is suspected to be infiltrated or retained in the patient's venous access, an infiltration count should be performed for 1 minute over the infiltrated region (e.g, arm IV or port). When feasible, perform this count with the infiltrated region on the box (e.g., if it is on the patient's arm, and the patient can hold his/her arm on the box.)

Post-injection syringe count:

- Perform as pre-injection syringe count above; include the syringe and the stopcock or butterfly (if used).

Processing:

- The radiologist will process the images to obtain the glomerular filtration rate via the Gary Gates method.
- If available, the radiologist will input actual renal depths (to replace the estimated renal depths) determined from the midportion of each kidney to the posterior skin surface, if an appropriate cross-sectional imaging study is available.

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Items Required For Complete Study:

- Send Pre-injection counts, Renogram, and Post-injection counts data (three files) to Leonardo computers. The radiologist will process the images and send to PACS.
- Send one savescreen with posterior renogram images only (1 min/frame) to PACS
- Record patient's height and weight (in cm and kg) in technologist comments section
- Complete the examination in RIS