Gastric Emptying (Solid-Phase) Scan

Updated 9/8/2024

- **Indications**
  - To assess gastric emptying.
- **Radiopharmaceutical:**
  - 1.0 mCi Tc-99m sulfur colloid in egg meal by mouth (use oatmeal meal if the patient allergic to eggs or is vegan)
- **Meal**
  - Option 1 - Egg meal consists of 4 oz liquid egg whites, two slices of toasted white bread, 30 grams jam/jelly and 4 oz water.
  - Option 2 - Oatmeal meal consists of 1 oz plain instant oatmeal mixed with 4 oz water and 1 sugar packet. 10 oz water is also consumed.
  - The meal should be consumed in under 10 mins.
- **Patient Preparation:**
  - The patient needs to be NPO for 4 hrs (minimal) to 12 hrs (preferable) prior to the exam.
  - The patient should avoid prokinetic medications that increase gastric emptying speed for 2 days - metoclopramide (Reglan), erythromycin, tegaserod (Zelnorm), cisapride and domperidone (Motilium).
  - The patient should avoid medications that slow gastric emptying for 2 days - opiates, antispasmodic agents, nifedipine (Procardia), progesterone, octreotide (Sandostatin), theophylline, benzodiazepines and phentolamine.
- **Conflicting Examinations/Medications:**
  - No Nuclear Medicine exams within the previous 24 hrs.
  - No barium GI exams within the previous 48 hrs.
- **Pregnancy/Lactation:**
  - Pregnancy testing is only needed in potentially pregnant patients who state they could be pregnant. See Pregnant, Potentially Pregnant and Lactating Patients policy for specifics.
  - Breast feeding mothers should discard breast milk for 4-24 hrs following Tc-99m sulfur colloid administration.
- **Imaging Technique:**
  - Collimator - LEHR or LEAP
  - Photopeak - 140 keV 20% window for Tc-99m
  - Image Preset Counts - 60 secs/image
  - Matrix Size - 128 x 128
  - Patient Positioning - supine
- **Imaging Views:**
  - Begin imaging as soon as the patient finishes ingesting the radionuclide/meal.
  - Simultaneous anterior and posterior imaging with the calculated geometric mean is preferred over anterior-only imaging.
  - Obtain images at 0 mins, 30 mins, 1 hr, 2 hrs, 3 hrs and 4 hrs. Imaging can be stopped once the percent remaining in the stomach drops below 10%.
- **Notes:**
  - Normal gastric retention percents:
    - 30 mins - >70% retained
    - 60 mins - 30-90% retained
    - 2 hrs - <60% retained
    - 3 hrs - <30% retained
    - 4 hrs - <10% retained
  - Retention of more than 10% of the meal in the stomach at 4 hrs is abnormal and is the best discriminator between normal and abnormal gastric emptying.