INDICATIONS:

1. Inflammatory lung process.
2. Progressive dyspnea.
3. Sarcoidosis.

*Exams ordered for indications which are not listed above need to be discussed with the Nuclear Medicine Physician.

SCHEDULING:

1. Notify the patient that only a radiotracer injection will be given on the first visit. A second appointment is required 48 hours later for imaging, which will require approximately one hour.

2. The most recent chest x-ray available should be requested for correlation.

RADIOPHARMACEUTICAL:

Ga67 Citrate, 5 mCi, IV

PATIENT PREPARATION:

1. No bowel preparation is required for quantitative lung imaging.

2. No gadolinium (MRI contrast) for 24 hours prior.

EQUIPMENT, PREPARATION AND PROCEDURE:

1. Wide field of view digital gamma camera, set up as described in the general gallium imaging protocol.

2. Scan 48 hours after injection.
3. Spot images: Obtain 8 minute anterior and posterior spot images of the chest (including the entire lungs and at least part of the liver), and an 8 minute posterior view of the back (centered on the kidneys). If possible, the patient should be seated, with chest or back against the collimator face. If the patient is unable to hold this posture, use the imaging table.

4. Check images with the physician before the patient leaves, to determine if additional views are needed.

**COMPUTER PROCESSING:**

1. Use the Elscint preset GAQUANT on Helix, SP6 or SPX.
   
   a. Posterior chest image: Define a region of interest that includes both lungs. Exclude the inferior scapular angles if these are prominent. If prior quant gallium performed, reproduce the ROI's.

   b. Back image: Set background regions of interest under both kidneys.

   c. Calculate total lung to background ratio for right lung, left lung, and both lungs.

   \[
   \text{Ratio} = \frac{\text{Average lung counts}}{\text{Average background counts}}
   \]

2. Must compare with prior study and draw comparable ROI.

3. Film: 2:1 quant images

**NOTES:**

1. The technique is described in Fajman et al., *AJR* 142: 683-688, April 1984. Normal = 1.06 ± 0.13, so values greater than 1.32 are considered abnormal.

2. Visual interpretation scale:

   4+ Intensity of activity greater than liver
   3+ Intensity equal to liver
2+ Intensity less than liver, but definitely abnormal
1+ Nonspecific accumulation of activity, intensity slightly above background.

REFERENCE:


Note: This protocol is in agreement with the Society of Nuclear Medicine Procedure Guidelines Manual, 1997, and ACR Standards, 2000-2001