Division of Nuclear Medicine Procedure / Protocol

LIVER SPECT-SPLEEN WITH HEAT TREATED RED CELLS
UPDATED: December 2009

CPT CODE: 78205
Liver SPECT

Indications: To determine the presence of splenic tissue. This test can be used to identify asplenia and polysplenia.

Patient Prep: None.

Scheduling: Sixty (60) minutes for labeling process. The radiopharmacy must be given at least 24 hours notice to stabilize the heating block to correct temperature.

Imaging can be done 2 hours post injection. Allow 60 minutes of camera time.

Radiopharmaceutical & Dose: Tc-99m pertechnetate (TcO4) 5 mCi +/- 20% (4-6 mCi). Dose will be adjusted for patient weight according to nomogram. Dose range from 2.5 mCi to 7.5 mCi.

<table>
<thead>
<tr>
<th>Organ</th>
<th>Dosimetry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spleen</td>
<td>2.1 rad/mCi</td>
</tr>
<tr>
<td>Ovaries</td>
<td>0.005 rad/mCi</td>
</tr>
<tr>
<td>Testes</td>
<td>0.0017 rad/mCi</td>
</tr>
</tbody>
</table>

Imaging Device: Multi-head camera with LEHR collimator with CT/AC.

Red Cell Prep:
1. Label the red blood cells using the in-vitro method (Ultratag).
2. Prepare the Ultratag kit with 2 ml of blood, and 5-10 mCi of Tc-99m sodium pertechnetate.
3. Place the Tc-99m RBC in a heating block.
4. The temperature needs to be 49-54°C.
5. The temperature is extremely important, and should not fluctuate out of range.
6. Heat the Tc-99m RBCs for 20-30 minutes, occasionally swirling gently.
7. Remove the kit from the heating block and prepare the patient’s dose.
8. Let cool for 5 minutes, before injection.

Imaging Procedure: Obtain planar anterior and posterior images.

**Planar-Ant/Post**
Matrix: 256 x 256
Duration: 5 min/image

**Liver Spleen - SPECT/Hawkeye**
Matrix: 128 x 128
Acquisition: Contoured, 6° /30 sec/stop
CT/AC Range: Full

**Infinia Processing**
Reconstruct using Volumetric for Hawkeye Oncology

Display:
Display planar images by selecting study in image review, then selecting review.
Display SPECT/Fused images while in reconstruction.
**Interpretation:**
The presence of a spleen will be documented by the increased uptake in an organ relative to the normal blood pool background of liver, etc.

**PACS:**
Planar and SPECT images, including raw data and screen saves, should be sent to PACS. For SPECT/CT acquisitions, the SPECT and CT axial image sets should be sent to PACS.

**Comments:**
A Nuclear Medicine staff or resident physician should be consulted to determine if additional views are indicated. Before the patient leaves, a Nuclear Medicine staff or resident physician should check scans to determine if format size needs to be changed.

Reviewed By: S. Perlman, D. Fuerbringer, S. Knishka

Scott B. Perlman, MD, MS  Derek Fuerbringer, CNMT  Scott Knishka, RPh, BCNP
Chief, Nuclear Medicine  Manager, Nuclear Medicine  Radiopharmacist