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Division of Nuclear Medicine Procedure / Protocol

BONE SCAN WITH WBC SCAN FOR "SECONDARY" OSTEOMYELITIS **CPT CODE: 78306, 78193**
UPDATED: APRIL 2010

Indications: To rule out secondary osteomyelitis or septic arthritis. This study is limited to situations with possible secondary infections, i.e. associated trauma, surgery, fracture, prosthesis, Charcot's joints, and superimposed cellulitis or skin ulceration.

Patient Prep: Same as Bone Scan. If skin ulceration is present, ask patient to bring a fresh dressing change to all appointments.

Scheduling: Schedule either:

- FIRST CHOICE: Both a Triple Phase bone scan (begin at 0800 with delays at 1500) and same day In-111 WBC scan.
- WHEN In-111 NOT AVAILABLE: Triple Phase bone scan (begin at 0800 with delays at 1500) and 2 days later Tc-99m-WBC scan (or a In-111 WBC scan).

Radiopharmaceutical & Dose:
In-111: 400-600 uCi
Tc-99m-MDP: 24-36 mCi
Dose adjusted for pt < 18 yrs of age and ≤ 45 kg. if adult pt weigh ≥ 127 kg, consult with NM physician.

Imaging Device: ME collimator in In-111 scan with or without simultaneous bone scan
HR collimator for Tc-99m scan

Injection: Images are obtained in the position that best separates the putative infected site from the prosthesis, skin ulcer, or soft tissue inflammation. Orthogonal views (views at 90 degrees to that already obtained) are then obtained, and other views as required.

Imaging Procedure #1:

(TPBS & In-111 WBC Scan)
Day 1: **Take care in labeling scans.**
At 0800:

- Draw blood for In-111 WBC scan
- Do Tc-MDP flow study

Reinject patient with WBC's immediately after labeling

At 1500, obtain combined Tc-99m and In-111 images. Use energy windows:

- Tc-99m = 140 keV, 20%
- In-111 = 247 keV, 20%

Day 2: **Take care labeling scans.**
At 24 hr, obtain delay images of TPBS and In-WBC scan. Use energy windows:

- Tc-99m = 140 keV, 20%
- In-111 = 247 keV, 20%

Imaging Procedure #2:

Day 1: Do bone scan

Day 3: Do Tc-99m WBC or In-111 scan
Use 20% 247 and 173 keV windows for In-111

Data Analysis: The following sets of images are produced for each day:

- Triple phase bone scan images
- In-WBC (247) images in combined In-111/Tc-99m scans

Use In 173 and 247 keV 20% windows if no simultaneous Tc-99m imaging performed.

Interpretation: Decisions concerning the presence or not of In-WBC focus is made (uptake occurs at bone scan), then a decision is made as to whether this is in bone or soft tissue.

Comments: A nuclear medicine staff or resident physician should be consulted to determine if additional views are indicated. This protocol is derived from reference: Schauwecker DS. Osteomyelitis: diagnosis with In-111-labeled leukocytes. Radiology 1989;171:141-146.

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