



Austin Radiological Association

Nuclear Medicine Procedure

Y-90 TheraSpheres

(Yttrium 90)

Overview

- Yttrium90 (Y-90) embedded into nonbiodegradable glass microspheres is selectively administered by intraarterial hepatic injection giving high doses of radiation to the tumor and sparing the liver parenchyma. Post procedure imaging may be performed utilizing Bremsstrahlung radiation.

Indications

- Treatment of Hepatocellular Carcinoma under a Humanitarian Device Exemption

Examination Time

- 120 minutes prep and administration
- 30 minutes post procedure imaging

Patient Preparation

- NPO for interventional procedure.

Equipment & Energy Windows

- Gamma camera: Large field of view, preferably a dual head camera.
- Collimator: High energy
- Energy window: 100% window centered at 90 keV.
- Matrix of 256 X 256 and a Zoom of 1.00

Radiopharmaceutical, Dose, & Technique of Administration

- Radiopharmaceutical: Y90 TheraSphere.
- Dose: 81 -540 mCi.
Ordered by interventional radiologist and patient specific.
- Technique of administration: Endovascular administration to be done in IR suite.

Patient Position & Imaging Field

- Patient position: Supine
- Imaging field: Entire lungs, liver and pelvis.

Acquisition Protocol

- Imaging may begin immediately after recovery period.
- Acquire images in the ANT, POST, of chest and abdomen
5min or 500k counts each

Protocol Summary Diagram



Data Processing

- Dual intensity processing: one to view possible lung shunt and one to view distribution in the liver.

Optional Maneuvers

- None

Method for timely correction of Data Analysis and reporting errors and notification of referring parties

- Data Analysis and reporting errors are reported to the interpreting physician and appropriate clinic manager for timely correction and notification of the referring physician via report addendum or STAT call if error is significant.

Principle Radiation Emission Data – Y-90

- Physical half-life = 64.1 hours (2.67 days)
- Decays to stable Zirconium -90.

<u>Radiation</u>	<u>Energy (keV)</u>
Beta	936.7

Dosimetry - Tc-99m-Macroaggregated Albumin

- <30 Gy to lungs (<3000 rad), which is individually assessed and managed.