



Selective Internal Radiation Therapy

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Definitions

Selective Internal Radiation Therapy (SIRT) — Also referred to as radioembolization or yttrium-90 (Y-90) hepatic brachytherapy, is an outpatient transcatheter interventional technique whereby radioactive particles (Y-90 microspheres) are delivered directly to the liver tumor bed via the hepatic artery. Once implanted, the microspheres emit localized radiation.

FDA-approved radioactive microspheres include SIR-Spheres[®] (biocompatible) and TheraSphere[®] (insoluble glass).

Guideline

Selective internal radiation therapy (SIRT) is considered medically necessary when the following criteria are met:

- A. Unresectable and/or medically inoperable primary or metastatic liver malignancies
 1. Unresectable liver only or liver dominant metastases from neuroendocrine tumors (e.g., carcinoids, pancreatic)
 2. Unresectable primary hepatocellular carcinoma (HCC)
 3. Unresectable metastatic liver tumors from primary colorectal cancer
- B. The tumor burden should be liver dominant, not necessarily exclusive to the liver
- C. ECOG performance status should be 0 or 1 or KPS of 70 or more
- D. Life expectancy should be at least 3 months
- E. Radioactive Yttrium-90 (90Y) microspheres treatment is allowed only in the outpatient setting unless the documentation supports the medical necessity of inpatient treatment

Limitations/Exclusions

Only FDA-approved microspheres will be considered medically necessary.

Requests for the treatment of liver metastases from other primary malignancies, including breast carcinoma, ocular melanoma, cutaneous melanoma, and intrahepatic cholangiocarcinoma, will be considered on a case-by-case basis. These requests should be based on the lack of any known systemic or liver-directed treatment options for this individual in an effort to relieve symptoms and/or possibly extend life expectancy.

Radioactive Yttrium-90 (90Y) microspheres treatment is allowed only in the outpatient setting unless the documentation supports the medical necessity of inpatient treatment.

Revision History

October 9, 2015: Added ECOG performance score prerequisite and life expectancy language.

Applicable Procedure Codes

37243	Vascular embolization or occlusion, inclusive of all radiological supervision and interpretation, intraprocedural roadmapping, and imaging guidance necessary to complete the intervention; for tumors, organ ischemia, or infarction
75894	Transcatheter therapy, embolization, any method, radiological supervision and interpretation
77778	Interstitial radiation source application; complex
79445	Radiopharmaceutical therapy, by intra-arterial particulate administration
Q3001	Radioelements for brachytherapy, any type, each
S2095	Transcatheter occlusion or embolization for tumor destruction, percutaneous, any method, using yttrium-90 microspheres

Applicable ICD-10 Diagnosis Codes

C22.0	Liver cell carcinoma
C22.1	Intrahepatic bile duct carcinoma
C22.2	Hepatoblastoma
C22.3	Angiosarcoma of liver
C22.4	Other sarcomas of liver
C22.7	Other specified carcinomas of liver
C22.8	Malignant neoplasm of liver, primary, unspecified as to type
C22.9	Malignant neoplasm of liver, not specified as primary or secondary
C78.7	Secondary malignant neoplasm of liver and intrahepatic bile duct

References

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National Institute for Clinical Excellence (NICE). Selective internal radiation therapy for colorectal liver metastases. Interventional Procedure Consultation Document. London, UK: NICE; May 2013. <http://www.nice.org.uk/guidance/ipg401>. Accessed September 12, 2016.

Sirtex Medical Inc. SIR-Spheres (Yttrium-90 microspheres). Package Insert. Rockville, MD: U.S. Food and Drug Administration, Center for Devices and Radiological Health; November 2014. <http://www.sirtex.com/media/29845/ssl-us-10.pdf>. Accessed September 12, 2016.

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