



CIGNA MEDICAL COVERAGE POLICY

The following Coverage Policy applies to all health benefit plans administered by CIGNA Companies including plans formerly administered by Great-West Healthcare, which is now a part of CIGNA.

**Subject Radiofrequency Ablation (RFA)
for Primary and Metastatic
Cancers of the Liver**

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Coverage Policy Number 0145

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 Percutaneous Ethanol Injection (PEI) for Liver Cancer
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Coverage Policy

CIGNA covers radiofrequency ablation (RFA) as medically necessary for the treatment of unresectable primary liver cancer and unresectable liver metastases.

General Background

Hepatic tumors can be caused by primary liver cancer, also referred to as hepatocellular carcinoma (HCC), or by metastasis to the liver from other tissues. The most common extrahepatic primary cancer associated with liver metastases is colorectal cancer (CRC). The only potentially curative treatments are surgical resection or liver transplantation. However the majority of patients with primary or metastatic liver cancers are not suitable candidates for surgical resection at the time of diagnosis due to the size, site and number of tumors, perivascular and extra-hepatic involvement, advanced or decompensated liver cirrhosis, poor hepatic reserve, and/or poor general health. In addition, chemotherapy and radiotherapy rarely produce a complete or sustained response in patients with advanced disease. HCC is associated with liver cirrhosis in 50–80% of patients; 5% of cirrhosis patients develop HCC. Other causes of the disease include hepatitis B and C infection, particularly in conjunction with alcohol abuse.

For treatment purposes, primary liver cancer patients are classified as having localized resectable, localized unresectable or advanced disease. Surgery with curative intent is not appropriate for patients who have multifocal disease, or poor hepatic reserve associated with cirrhosis, or if the tumor is in close proximity to major vascular or biliary structures that precludes margin-negative resection. Partial hepatectomy has been reported to result in five-year survival rates ranging from 10–30%. Liver transplantation is also considered for patients with localized disease that is unresectable. Even among patients who undergo resection with curative intent, recurrence is common. Despite treatment, many patients die of liver failure related to parenchymal replacement, from biliary obstruction, or from extrahepatic disease. Various locoregional therapies have been investigated for the treatment of primary and metastatic liver cancers including radiofrequency ablation (RFA), percutaneous ethanol injection (PEI); laser surgery; focused ultrasound (US); and thermal ablation by cryoprobes. These local ablative therapies also offer palliation for some patients who are not candidates for curative resection or liver transplantation (Roberts, 2003).

Radiofrequency Ablation (RFA)

RFA involves the delivery of alternating current through an electrode which is inserted in the center of the tumor. Only those areas through which RF current passes are heated to a cytotoxic temperature; thus, surrounding normal tissues are spared (Siperstein, et al., 2000). The percutaneous approach is generally used when the tumor burden is limited to one or two small (<3.0 cm in diameter) liver tumors, while the intraoperative or laparoscopic approaches are used for multiple tumors, bilobar tumors for which surgical resection may also be performed, large tumors (> 3.0 cm), or tumors that abut a major intrahepatic blood vessel (Curley and Izzo, 2000). Patients may receive adjunct or adjuvant therapy with chemotherapy, radiotherapy, immunotherapy or embolization to enhance the effects of RFA. Serious treatment-related complications, though generally rare, include needle tract seeding, subcapsular hematoma, portal thrombosis, hemoperitoneum, gastrointestinal bleeding, pneumothorax, symptomatic pleural effusion, ventricular fibrillation, and infection of the ablated tumor (ECRI, 2003).

Literature Review

The safety and effectiveness of RFA for liver cancer has been compared to that of other interventions in systematic reviews and meta-analyses of RCTs and uncontrolled studies (Lau and Lai, 2009; Cho, et al., 2009; Lopez, et al., 2006; Sutherland, et al., 2006; Galandi and Antes, 2004). RFA has been shown to be associated with improved survival rates compared to other local ablative therapies such as PEI. Bouza et al., (2009) analyzed data from six randomized controlled trials (RCTs) involving patients with unresectable HCC treated by RFA (n=396) and PEI (n=391). The survival rate showed a significant benefit for RFA over PEI at one, two, three and four years (i.e., 62%, 51% respectively). A meta-analysis of five RCTs (n=701) by Orlando et al. (2009) found overall survival to be significantly higher in HCC patients with cirrhosis after treatment with RFA versus PEI (Orlando, et al., 2009). Another meta-analysis of RCTs (n=4 trials) by Cho et al. (2009) reported a three-year survival rate 63%–81% in HCC patients treated with RFA versus 48%–67% treated with PEI.

A large number of clinical studies of RFA for the treatment of primary and metastatic tumors of the liver have been published in the peer-reviewed medical literature (Baldan, et al., 2006; Chow, et al., 2006; van Duijnhoven, et al., 2006; Lermite, et al., 2006; Hildebrand, et al., 2006; Chen, et al., 2005; Lam, et al., 2004; Berber, et al., 2002). Colorectal metastasis is most commonly reported in the literature. Outcome measures have included tumor response, survival rates; local tumor control and recurrence and complications and mortality after RFA alone or in combination with adjunct or adjuvant therapy. A panel convened by the American Society of Clinical Oncology (ASCO) conducted a comprehensive systematic review of RFA for liver metastases from colorectal cancer. The literature reviewed included single-arm retrospective and prospective trials. A wide variability in the five-year survival rate (14%–55%) and local tumor recurrence rate (3.6%–60%). The reported mortality rate was 0%–2%, and the major complications rate was commonly reported to be between 6% and 9% (Wong, et al., 2010).

In general, results of studies indicate that RFA is an effective and relatively safe alternative for patients with HCC and liver metastases. RFA has been reported to be more effective for tumors < 5.0 cm in diameter compared to larger tumors with recurrence more likely in tumors measuring > 6.0 cm (Solbiati, et al., 2001; Livraghi, et al., 2003).

Professional Societies/Organizations

The Society of Interventional Radiology (SIR) position on percutaneous radiofrequency ablation for the treatment of liver tumors states that percutaneous RFA of hepatic tumors is a safe and effective treatment for selected patients with HCC and colorectal carcinoma metastases (Gervais, et al., 2009).

According to NCI, surgical resection is the standard curative modality for HCC. RFA may be considered for tumors smaller than 5 cm in patients with localized but unresectable liver cancer or for those with concomitant medical considerations such as cirrhosis or limited bilateral tumors (NCI, 2010). For patients with unresectable CRC hepatic metastases, RFA has emerged as a safe technique that may provide for long-term tumor control. There is no standard therapy for patients with advanced metastatic liver cancer (NCI, 2011).

The National Comprehensive Cancer Network (NCCN) guidelines for HCC state that patients who are not candidates for curative therapies (i.e., resection, transplantation) may be treated with locoregional approaches such as ablation (e.g., RFA, PEI cryosurgery) and transarterial embolization. For ablative therapies, all tumors should be amenable to ablation and accessible for percutaneous, laparoscopic, and open approaches. Tumors ≤ 3 cm are optimally treated with ablation (NCCN, 2011a). Similarly, the NCCN guidelines for colon cancer recommend considering ablative therapy of liver metastases only when disease is judged to be completely amenable to ablation (NCCN, 2010b). Ablative therapies (i.e., RFA or cryotherapy) are also among the recommended options for unresectable neuroendocrine liver metastases (NCCN, 2011c).

Summary

The results of the available clinical studies demonstrate that radiofrequency ablation (RFA) of unresectable hepatocellular carcinoma (HCC) and metastatic liver cancers is a relatively safe and efficacious procedure for the short-term local control of single or multiple tumors. There is some evidence from comparative studies that RFA may provide procedural morbidity and survival that is equivalent or superior to other minimally invasive or percutaneous techniques, such as transcatheter arterial chemoembolization (TACE) or percutaneous ethanol injection (PEI), in patients with small lesions. In addition, there are some limited data to suggest that RFA may provide similar outcomes as surgery in some patients; however, these findings must be confirmed in prospective, randomized trials. Although not curative, RFA may slow tumor progression and can provide palliation in patients with unresectable hepatic malignancies.

Coding/Billing Information

Note: This list of codes may not be all-inclusive.

Covered when medically necessary:

CPT®*	Description
47370	Laparoscopy, surgical, ablation of one or more liver tumor(s); radiofrequency
47380	Ablation, open, of one or more liver tumor(s); radiofrequency
47382	Ablation, one or more liver tumor(s), percutaneous, radiofrequency

ICD-9-CM Diagnosis Codes	Description
155.0	Malignant neoplasm of liver, primary
155.2	Malignant neoplasm of liver, not specified as primary or secondary
197.7	Secondary malignant neoplasm of liver
235.3	Neoplasm of uncertain behavior of liver and biliary passages

*Current Procedural Terminology (CPT®) ©2010 American Medical Association: Chicago, IL.

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Policy History

Pre-Merger Organizations	Last Review Date	Policy Number	Title
CIGNA HealthCare	8/15/2007	0145	Radiofrequency Ablation (RFA) for Primary and Metastatic Cancers of the Liver
Great-West Healthcare	3/14/2006	04.223.02	Radiofrequency Ablation (RFA) of Hepatic Tumors

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