



Title	Radiofrequency Ablation of Liver Tumors (Update and Re-Appraisal): A Systematic Review
Agency	ASERNIP-S, Australian Safety and Efficacy Register of New Interventional Procedures – Surgical PO Box 553 Stepney, Australia; Tel +61 8 83637513, Fax +61 8 83622077; college.asernip@surgeons.org
Reference	ASERNIP-S Report Number 56. ISBN 0-9098-44-78-X. Full text available: www.surgeons.org/asernip-s/ (publications page)

Aim

To update the ASERNIP-S review on radiofrequency ablation (RFA) for liver tumors (October 2002) and assess new studies on the safety and efficacy of RFA compared to other surgical and nonsurgical methods.

Conclusions and results

The original ASERNIP-S review included 12 studies, and this updated review adds 12 more. However, the limitations are much the same, ie, small sample sizes, short followup times, and a lack of comparability in outcome measures. Still, RFA generally showed larger, more complete areas of ablation and higher survival rates compared to other ablative techniques. Surgical resection showed a lower recurrence rate and increased time to recurrence compared to RFA. The two procedures are usually performed on different patient groups, with RFA being performed on patients unable to undergo surgical resection.

The conclusions regarding safety and efficacy of RFA remain largely unchanged, and the results are still inconclusive as regards RFA in treating hepatocellular carcinoma and colorectal metastases. Further studies on both forms of cancer need to contain adequate patient numbers and a focus on long-term local and overall recurrence and safety outcomes. Standardization of outcome measures across studies would benefit any analysis.

Recommendations

The ASERNIP-S Review Group agreed on the following classifications and recommendations:

Evidence: Average.

Safety: RFA is at least as safe as other treatments for liver tumors.

Efficacy: From the data, the efficacy of RFA cannot be determined in relation to other ablation techniques.

Methods

Search strategy: Studies were identified by searching MEDLINE, EMBASE, Current Contents, Cochrane Library, and Science Citation Index, from May 18, 2002 to April 14, 2006. Further electronic databases were searched in April 2006. This was supplemented by hand-searching recent conference proceedings and the Internet. Additional articles were found in the references of retrieved studies.

Study selection: Randomized controlled trials (RCTs), quasi-RCTs, and nonrandomized comparative studies assessing patients treated with RFA and one or more comparative intervention(s) were included. Patient safety outcomes and efficacy were assessed.

Data collection and analysis: Data were extracted by a researcher using standardized tables developed *a priori* and checked by a second researcher. Data were not pooled. Relative risks, weighted mean differences, or odds ratios and the 95% confidence intervals were calculated individually for the same outcomes in the RCTs and the quasi-RCT.

Further research/reviews required

- Conclusively determine the advantages and disadvantages of RFA for primary hepatocellular carcinoma or metastatic colorectal liver carcinoma over other ablative techniques.
- Compare the safety and efficacy of percutaneous, laparoscopic, and open approaches to RFA.
- Study the relationship of patient safety and efficacy outcomes and tumor size.
- Cancer registries should incorporate data related to treatment outcomes of ablative techniques for hepatocellular carcinoma and metastatic colorectal liver carcinoma.