

Radiofrequency ablation for the treatment of colorectal metastases in the liver

1 Guidance

- 1.1 Current evidence on the safety of radiofrequency ablation of colorectal metastases in the liver appears adequate. However, the evidence of its effect on survival is not yet adequate to support the use of this procedure without special arrangements for consent and for audit or research.
- 1.2 Clinicians wishing to undertake radiofrequency ablation of colorectal metastases in the liver should take the following actions.
- Ensure that patients offered it understand the uncertainty about the procedure's efficacy and provide them with clear written information. Use of the Institute's *Information for the Public* is recommended.
 - Audit and review clinical outcomes of all patients having radiofrequency ablation for the treatment of colorectal metastases in the liver.
- 1.3 Publication of research studies with outcome measures which include survival will be useful in reducing the current uncertainty about the efficacy of the procedure. The Institute may review the procedure upon publication of further evidence.

2 The procedure

2.1 Indications

- 2.1.1 Colorectal cancer arises in the colon or rectum. It is the second most common cancer in women and the third most common cancer in men in

the UK. Cancer will recur in around 50% of colorectal cancer patients within 5 years of initial diagnosis, with the liver being the most common site for metastatic disease.

- 2.1.2 The standard method of treatment for patients with liver metastases from colorectal cancer is surgical resection, but this operation is suitable for fewer than 10% of patients because of the number and distribution of tumours and/or the presence of other disease. Radiofrequency ablation is an alternative for patients for whom resection is unsuitable. It may also be suitable for patients who have had surgery and now require further non-surgical treatment, or for patients with a low-volume disease who prefer a less invasive treatment. Other treatment options that may be considered include systemic chemotherapy, radiotherapy, cryotherapy, alcohol injection and laser photocoagulation.

2.2 Outline of the procedure

- 2.2.1 Radiofrequency ablation (RFA) is a thermoablative technique that destroys tissue by heating cancer cells to temperatures exceeding 60°C. In RFA, temperature changes are induced using a high-frequency alternating current applied via an electrode or electrodes placed within the tissue to generate ionic agitation. RFA can be applied percutaneously, laparoscopically or intraoperatively.

2.3 Efficacy

- 2.3.1 Survival information was reported in two small comparative series on patients who had undergone radiofrequency ablation. In one

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This guidance is written in the following context:

This guidance represents the view of the Institute which was arrived at after careful consideration of the available evidence. Health professionals are expected to take it fully into account when exercising their clinical judgement. This guidance does not, however, override the individual responsibility of health professionals to make appropriate decisions in the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

study, mean survival for patients not suitable for resection and treated with RFA was 37 months (range 9–67 months) after treatment, with a 3-year survival rate of 52.5%. In the other study, patients had a mean survival of 44 months from diagnosis of liver metastases with a reported 5-year survival rate of 40%.

- 2.3.2 In six uncontrolled studies, survival after treatment ranged from 88% (7/8) at 2–6 months to 17% (1/6) at 11 months. One study also reported an estimated median survival time of 33 months after treatment with radiofrequency ablation. Comparisons between RFA studies and with other procedures are difficult, however, because of the different clinical scenarios in which RFA is used. There is also a lack of data on long-term outcomes. For more details, refer to the Sources of evidence (see right).
- 2.3.3 One Specialist Advisor stated that RFA can prolong survival in patients with colorectal metastases in the liver.

2.4 Safety

- 2.4.1 Few complications were reported in the studies. A systematic review reported complication rates after RFA that ranged from 0% to 33% (3/9). Complications included bile duct stricture, bowel perforation, wound infection, peritoneal seeding and postoperative bleeding. The number of patients included in the studies was small.
- 2.4.2 In one study, the rate of major complications in patients with metastatic disease was 2.3% (16/693). This included 501 patients who had metastatic disease from colorectal cancer. For more details, refer to the Sources of evidence (see right).
- 2.4.3 The Specialist Advisors listed pain, infection and haemorrhage as potential adverse events.

2.5 Other comments

- 2.5.1 The evidence is based on small numbers of patients.

- 2.5.2 Although the evidence suggests short-term improvement, long-term follow-up was lacking.
- 2.5.3 The CLOCC (Chemotherapy + LOCal ablation versus Chemotherapy) trial exists and is appropriate for some patients (www.ncrn.org.uk/portfolio/data.asp?ID=1270).

3 Further information

- 3.1 The Institute has published service guidance called *Improving Outcomes for Colorectal Cancer*, and published safety and efficacy guidance on radiofrequency ablation of hepatocellular carcinoma (IPG002) and selective internal radiation therapy for colorectal metastases in the liver (IPG093).
- 3.2 The Institute has also published technology appraisal guidance called *Colorectal cancer – capecitabine and tegafur uracil (TA61)* and *Colorectal cancer – laparoscopic surgery (TA17)*. For details of all of the Institute's guidance, visit www.nice.org.uk

Andrew Dillon
Chief Executive
September 2004

Information for the Public

The Institute has produced information describing its guidance on this procedure for patients, carers and those with a wider interest in healthcare. It explains the nature of the procedure and the decision made, and has been written with patient consent in mind. This information is available, in English and Welsh, from www.nice.org.uk/IPG092publicinfo

Sources of evidence

The evidence considered by the Interventional Procedures Advisory Committee is described in the following document.

Interventional procedure overview of radiofrequency ablation for the treatment of colorectal liver metastases, September 2003

Available from: www.nice.org.uk/ip248overview

Ordering information

Copies of this guidance can be obtained from the NHS Response Line by telephoning 0870 1555 455 and quoting reference number N0705. *Information for the Public* can be obtained by quoting reference number N0706 for the English version and N0707 for a version in English and Welsh.

The distribution list for this guidance is available on the NICE website at www.nice.org.uk/IPG092distributionlist

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MidCity Place, 71 High Holborn, London WC1V 6NA, website: www.nice.org.uk