NICE guidance

Photodynamic therapy for localised inoperable endobronchial cancer

Interventional procedures guidance
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www.nice.org.uk/guidance/ipg137

1 Guidance

1.1 Current evidence on the safety and efficacy of photodynamic therapy for localised inoperable endobronchial cancer appears adequate to support the use of this procedure provided that the normal arrangements are in place for audit and clinical governance.

1.2 This procedure is a treatment option for patients with localised endobronchial cancer that is unsuitable for surgical resection. Clinicians should ensure that patients understand the aim of the treatment, especially when its purpose is palliation. Patients should also be informed of the alternative treatment options available. Clinicians should provide them with clear written information and, in addition, use of the Institute's information for the public is recommended.

1.3 Further research and audit will be useful in clarifying the indications and

benefits of this procedure.

2 The procedure

2.1 Indications

2.1.1 Localised endobronchial (non-small-cell) lung cancer describes disease in which malignancy is confined within the bronchial wall, with no radiographic or endoscopic evidence of lymph node involvement. Patients for whom surgical resection may be considered unsuitable include those with bilateral lung cancer, impaired respiratory function because of chronic obstructive pulmonary disease or other conditions posing high operative risk, those who have had previous resection for lung cancer, and those who refuse surgery.

2.1.2 The range of treatment options for lung cancer depends on the type and stage of the disease and the suitability of major surgery for the individual patient. Treatment options include laser ablation, endobronchial brachytherapy and external-beam radiation.

2.2 Outline of the procedure

2.2.1 Photodynamic therapy (PDT) involves injection of a photosensitising agent, followed a few days later by photoradiation of the affected area through a bronchoscope. This aims to reduce tumour bulk, so reducing symptoms caused by bronchial obstruction. Endobronchial debridement of necrotic tumour is required, commonly 48 hours after each treatment. The procedure can be repeated if necessary.

2.3 Efficacy

2.3.1 There were no randomised controlled or comparative trials comparing the efficacy of PDT with other treatment modalities. There was considerable heterogeneity among the studies included in the systematic reviews, with regard to both outcome measurements used and follow-up times reported. The complete remission rates following PDT ranged from

62% (16/26) to 85% (50/59) of lesions in different case series. Some subgroup analyses suggested that small lesions (in terms of diameter or surface area) respond to PDT better than larger lesions.

2.3.2 Where reported in case series, 5-year survival ranged from 43% among 36 patients with poor pulmonary or cardiac function to 72% among 21 patients who were surgical candidates. Other studies reported reduction of airway obstruction and improvement in self-reported quality of life after PDT. For more details, refer to the Sources of evidence.

2.3.3 The Specialist Advisors stated that there were no long-term comparative data on the efficacy of this procedure.

2.4 Safety

2.4.1 In one systematic review, eight studies reported adverse events. Mild to moderate symptoms of photosensitivity were reported in all studies. Very severe toxicity resulting from photosensitivity occurred in a minority of patients undergoing PDT.

2.4.2 Fatal haemoptysis within 1 month of treatment was recorded in 8% (3/38) of patients in one case series. Hypercapnic respiratory failure (requiring mechanical ventilation) occurred in 5% (2/38) and 4% (1/24) of patients following PDT. Some effects may be due to pre-existing pulmonary disease rather than the procedure. Other case series reported mild to moderate pulmonary events including short-term productive cough following PDT (the proportion of patients was not reported). For more details, refer to the Sources of evidence.

2.4.3 The Specialist Advisors listed photosensitivity as the main complication. Other potential adverse events were tissue necrosis leading to bleeding, and fistula formation.

2.5 Other comments

2.5.1 It was noted that a variety of laser systems is available and different dosage schedules may be used. These variations may have an effect on

safety and efficacy.

2.5.2 This procedure may be used in combination with other treatment modalities.

2.5.3 The heterogeneous groups of patients included in the studies and reviews made interpretation of the data difficult.

3 Further information

3.1 The Institute has issued guidance on the diagnosis and treatment of lung cancer. The Institute has also issued interventional procedures guidance on the use of photodynamic therapy for advanced bronchial carcinoma and cryotherapy for malignant endobronchial obstruction.

Andrew Dillon
Chief Executive
November 2005

Sources of evidence

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

'Interventional procedures overview of photodynamic therapy for localised, inoperable endobronchial cancer', November 2004.

Information for the public

NICE 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.

4 About this guidance

NICE interventional procedure guidance makes recommendations on the safety and

efficacy of the procedure. It does not cover whether or not the NHS should fund a procedure. Funding decisions are taken by local NHS bodies after considering the clinical effectiveness of the procedure and whether it represents value for money for the NHS. It is for healthcare professionals and people using the NHS in England, Wales, Scotland and Northern Ireland, and is endorsed by Healthcare Improvement Scotland for implementation by NHSScotland.

This guidance was developed using the NICE interventional procedure guidance process.

We have produced a summary of this guidance for patients and carers. Information about the evidence it is based on is also available.

Changes since publication

31 January 2012: minor maintenance.

Your responsibility

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

Implementation of this guidance is the responsibility of local commissioners and/or providers. Commissioners and providers are reminded that it is their responsibility to implement the guidance, in their local context, in light of their duties to avoid unlawful discrimination and to have regard to promoting equality of opportunity. Nothing in this guidance should be interpreted in a way which would be inconsistent with compliance with those duties.

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Endorsing organisation

This guidance has been endorsed by Healthcare Improvement Scotland.