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NHS

National Institute for Clinical Excellence

Minimally invasive placement of pectus bar

This procedure is also known as the Nuss procedure

1 Recommendations

1.1 The evidence of the safety and efficacy of minimally invasive placement of pectus bar reviewed by the Interventional Procedures Advisory Committee was not adequate to support the use of this procedure without special arrangements for consent and for audit or research. Clinicians should ensure that the uncertainty about the procedure's safety and efficacy is understood by the parent or carer and where possible the child, and involve the child appropriately in arrangements for informed consent. The clinician should provide them with clear written information. Use of the information for the public, produced by NICE, is recommended. Clinicians should inform the clinical governance leads in their Trusts and ensure that appropriate arrangements are in place for clinical audit or research.

1.2 All those who have the procedure should be entered, subject to their consent, onto the Registry maintained at the Wessex Regional Centre for Paediatric Surgery, Southampton General Hospital. The Registry's Surgical Co-Directors are Mr Robert Wheeler and Mr David Weeden.

1.3 It is recommended that minimally invasive placement of pectus bar be referred to the Institute's Review Body, which should liaise with the Registry and prepare an analysis of its results for the Committee to consider. Further guidance will then be issued by the Institute.

2 The procedure

2.1 Indications

2.1.1 Pectus excavatum is the most common congenital deformity of the sternum and anterior chest wall. It occurs in 1 in 1000 live births, with a male predominance. It is a progressive condition, with the degree of chest deformity worsening as the child grows and develops.

2.1.2 The usual consequence of pectus excavatum is cosmetic and most patients have no cardiorespiratory problems. The indications for surgery are therefore usually psychosocial.

2.1.3 The alternative surgical treatment is open correction, also known as the Ravitch procedure.

2.2 Outline of the procedure

2.2.1 Surgery typically takes place in mid to late childhood. The procedure involves elevating the sternum with substernal metal bars to correct the deformity.

2.3 Efficacy

2.3.1 The Committee considered a large amount of evidence, all of which showed that this procedure had results comparable with the commonly performed open surgical procedure. For more details refer to the overview (see below).

Interventional Procedure Guidance 3

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.

2.3.2 Some specialist advisors were concerned about a lack of long-term results, whilst others believed long-term efficacy to be proven. Some specialist advisors believed the procedure to have a shorter operative time than the alternatives.

2.4 Safety

2.4.1 The Committee considered evidence indicating the procedure to be associated with a number of relatively common and potentially serious adverse outcomes. These include pneumothorax, pleural effusion, pericarditis, infection, haemothorax and bar displacement. For more details refer to the overview (see below).

2.4.2 Specialist advisor opinion indicated that cardiac perforation could occur during the procedure, although some specialist advisors commented that this is extremely rare. The specialist advisors believed bar displacement, pneumothorax and infection to be the most likely serious complications.

2.4.3 The risk of the complications outlined above may be reduced by the insertion of the bar or bars under thoracoscopic control.

2.5 Other comments

2.5.1 Reported studies have included adults and children, but outcomes may differ between different age groups.

2.5.2 The indications for surgery and incidence of complications vary substantially between studies.

2.5.3 The procedure causes substantial short-term morbidity.

3 Further information

3.1 The Advisory Committee will reconsider the procedure when analysis of the Registry data is available.

Andrew Dillon
Chief Executive
July 2003

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. The information for patients is available from www.nice.org.uk/IPG003publicinfoenglish

Sources of evidence considered by the Committee

The following sources of evidence were considered by the Interventional Procedures Advisory Committee.

Interventional procedure overview of minimally invasive placement of pectus bar, October 2002

Available from:
www.nice.org.uk/cms/ip/ipcat.aspx?o=56898

Ordering information
Copies of this guidance can be obtained from the NHS Response Line by telephoning 0870 1555 455 and quoting ref: N0244. Information for the public can be obtained by quoting reference number N0245 for the English version and N0246 for a version in English and Welsh.

Distribution. The distribution list for this guidance is available on the NICE website at URL www.nice.org.uk/IPG003distributionlist

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