NICE guidance

Artificial trapeziometacarpal joint replacement for end-stage osteoarthritis

Interventional procedures guidance
Published: 23 February 2005

www.nice.org.uk/guidance/ipg111

Your responsibility

This guidance represents the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, healthcare professionals are expected to take this guidance fully into account, and specifically any special arrangements relating to the introduction of new interventional procedures. The guidance does not override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

All problems (adverse events) related to a medicine or medical device used for treatment or in a procedure should be reported to the Medicines and Healthcare products Regulatory Agency using the Yellow Card Scheme.

Commissioners and/or providers have a responsibility to implement the guidance, in their local context, in light of their duties to have due regard to the need to eliminate unlawful

discrimination, advance equality of opportunity, and foster good relations. Nothing in this guidance should be interpreted in a way that would be inconsistent with compliance with those duties. Providers should ensure that governance structures are in place to review, authorise and monitor the introduction of new devices and procedures.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

1 Guidance

1.1 Current evidence on the safety and efficacy of artificial trapeziometacarpal (TMC) joint replacement for end-stage osteoarthritis appears adequate to support the use of this procedure provided that the normal arrangements are in place for consent, audit and clinical governance.

1.2 Most of the evidence was based on a single type of joint prosthesis. The range of prostheses used is continually changing and clinicians are encouraged to submit their results to the appropriate joint replacement registry for evaluation of long-term outcomes of different types of prosthesis.

2 The procedure

2.1 Indications

2.1.1 Osteoarthritis of the hand joints is a common condition that deteriorates over time, although the severity of symptoms, rate of deterioration and functional effects are variable. Artificial trapeziometacarpal (TMC) joints are primarily used to treat the pain of severe end-stage osteoarthritis.

2.1.2 Conservative treatments for osteoarthritis of the hand include anti-inflammatory and analgesic medication, and steroid injections. Other treatments include complete joint excision without replacement (also called excision arthroplasty), native graft arthroplasties (in which the

patient's own tissue, typically tendon, is interposed in the space left after joint excision) and fusion of joints (arthrodesis).

2.2 Outline of the procedure

2.2.1 A general anaesthetic is usually used and a tourniquet is applied to the affected arm to maintain a blood-free operation site. An incision is made over the diseased joint and the tendons are retracted. The joint is removed with an oscillating saw, and a prosthetic joint (typically made of a silicone-based material) is inserted in its place. A splint is applied to the fingers.

2.3 Efficacy

2.3.1 The five studies reviewed described a total of 257 patients. In one small randomised controlled trial comparing silicone prosthesis arthroplasty with tendon arthroplasty, the proportion of satisfied patients was similar in the two groups (80% versus 85%; 12/15 and 11/13 patients, respectively). The mean pain reduction was also similar in both groups of patients. A non-randomised comparative study of 89 patients reported significantly less pain at 12 months in 50 joints treated with a silicone prosthesis arthroplasty, compared with 54 joints treated with sling excision arthroplasty ($p < 0.01$). Patients in the silicone prosthesis group reported better function for most tasks (statistically significant for being able to carry a milk bottle and taking off the handbrake of a car), but there was no statistically significant difference in patient satisfaction between the two groups. A case series of 58 patients with a mean follow-up of 16 years reported that maximal improvement was achieved at 5 years. A small case series reported that 88% (22/25) of patients had less pain than before the procedure after a mean follow-up of 6.5 years. For more details, refer to the sources of evidence section.

2.3.2 The specialist advisors considered that the long-term benefits of this procedure need to be compared with the long-term benefits of established procedures such as excision arthroplasty and joint fusion.

2.4 Safety

2.4.1 Four studies comprising a total of 242 patients reported on safety of the procedure. In 3 studies, between 6% (4/62) and 20% (6/30) of implants had to be removed. The reasons for removal were listed as subluxation, fracture, dislocation, infection, pain, stiffness, and silicone synovitis. One study of 90 patients reported that components loosened in 16% (13/79) of replacement joints after a mean follow-up period of 6 years. Two studies reported that a small number of patients had reflex sympathetic dystrophy after the procedure (3% [2/58] and 4% [1/25] of patients). For more details, refer to the sources of evidence section.

2.4.2 The Specialist Advisors considered that the main potential adverse effects include infection, stiffness, nerve injury, silicone synovitis and failure of the joint replacement.

3 Further information

3.1 The Institute has issued guidance on artificial metacarpophalangeal and interphalangeal joint replacement for end-stage arthritis.

Sources of evidence

The evidence considered by the Interventional Procedures Advisory Committee is described in the overview to this guidance.

Information for patients

NICE has produced information on this procedure for patients and carers ('Understanding NICE guidance). It explains the nature of the procedure and the guidance issued by NICE, and has been written with patient consent in mind.

Update information

Minor changes since publication

January 2012: minor maintenance.

ISBN: 978-1-4731-4537-5

Endorsing organisation

This guidance has been endorsed by Healthcare Improvement Scotland.