

Artificial metacarpophalangeal and interphalangeal joint replacement for end-stage arthritis

Interventional procedures guidance
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www.nice.org.uk/guidance/ipg110

1 Guidance

- 1.1 Current evidence on the safety and efficacy of artificial metacarpophalangeal (MCP) and interphalangeal (IP) joint replacement of the hand for end-stage arthritis 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 Arthritis 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 metacarpophalangeal (MCP) and interphalangeal (IP) joints are used primarily to treat the pain of severe end-stage arthritis.
- 2.1.2 Conservative treatments for arthritis 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 Four studies reported efficacy data on a total of 125 patients and 202 joints. Pain relief was the main outcome reported. In three studies, the proportion of joints with less pain after the procedure ranged from 97% (67/69) to 100% (31/31). Two studies, including 74 joints with osteoarthritis, reported that there was no significant improvement in the range of movement, but another study reported that 71% (22/31) of joints had improved power and 81% (25/31) had improved dexterity. Two studies reported that 95% (18/19) and 87% (27/31) of patients were

satisfied with the result of the surgery, after mean follow-up of 3 years and 6 years, respectively. For more details, refer to the [sources of evidence](#).

- 2.3.2 The Specialist Advisors noted concerns regarding the long-term benefits compared with the use of arthrodesis.

2.4 Safety

- 2.4.1 A systematic review, including 70 articles (15,556 MCP and IP joint replacements), reported on complications. The most common complication was change to surrounding bones, including bone cysts, osteolysis, resorption and heterotopic bone formation, in 4% (577/15,556) of implants. Other complications included implant fracture in 2% (352/15,556) of joints, implant loosening in less than 1% (114/15,556) and infection in less than 1% (86/15,556). Removal of the implant was necessary in 1% (143/15,556) of joints. The reasons for removal included implant fracture, infection, loosening, pain and synovitis. Two small case series reported that 7% (5/69) and 3% (1/31) of implants had fractured after mean follow-up periods of 3 years and 6 years, respectively. For more details, refer to the [sources of evidence](#).

- 2.4.2 The Specialist Advisors listed potential adverse effects including stiffness, loosening of the prosthesis, generation of wear debris, bone resorption, nerve injury, wound haematoma, silicone synovitis, infection and prosthesis fatigue.

2.5 Other comments

- 2.5.1 This procedure is primarily used to treat pain in end-stage arthritis.

3 Further information

- 3.1 NICE has issued [guidance on artificial trapeziometacarpal joint replacement for end-stage osteoarthritis](#).

Information for patients

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

Sources of evidence

The evidence considered by the interventional procedures advisory committee is described in the [overview to this guidance](#).

Update information

Minor changes since publication

January 2012: minor maintenance.

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Endorsing organisation

This guidance has been endorsed by [Healthcare Improvement Scotland](#).