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Autologous chondrocyte implantation (ACI) for treating cartilage damage in the knee

Understanding NICE guidance –
information for people with cartilage
damage in the knee, their families
and carers, and the public



Ordering information

You can download the following documents from www.nice.org.uk/TA089

- this booklet
- the full guidance on this appraisal
- a short version for health professionals – the quick reference guide
- the assessment report – details of all the studies that were looked at

For printed copies of the quick reference guide or information for the public, phone the NHS Response Line on 0870 1555 455 and quote:

- N0870 (quick reference guide)
- N0871 (information for the public)

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What is NICE guidance?

The National Institute for Health and Clinical Excellence (NICE) is the independent organisation responsible for providing national guidance on the promotion of good health and the prevention and treatment of ill health. One of NICE's roles is to produce guidance (recommendations) on the use of medicines, medical equipment, diagnostic tests and clinical and surgical procedures within the NHS in England and Wales.

To produce this guidance, NICE looks at how well the medicine, equipment or procedure works and also how well it works in relation to how much it costs. This process is called an appraisal. The appraisal process involves the manufacturer of the medicine or equipment for which guidance is being produced and the organisations that represent the healthcare professionals, patients and carers who will be affected by the guidance.

NICE was asked to look at the available evidence on the use of autologous chondrocyte implantation (ACI) to treat cartilage damage in knee joints. NICE was asked to provide guidance that will help the NHS in England and Wales decide when ACI should be used.

What is cartilage damage?

This guidance talks about a type of cartilage called articular, or hyaline, cartilage (different types of cartilage are found in the body, for example in the nose or ear, or in the windpipe). Articular cartilage is found in joints, including the knee joint. It covers the ends of the bones in the joint and stops them rubbing together when you move. It is also the body's natural shock absorber.

Unlike some other tissues in the body, when cartilage is damaged it can not easily repair itself. Cartilage damage can happen through a direct injury, often from playing sports, or it can happen spontaneously (a condition called 'osteochondritis dissecans', where a small fragment or fragments of bone and cartilage break off from the surface of the joint). In some people, mostly in young adults, the cartilage in the kneecap sometimes becomes softer ('chondromalacia patellae').

Damage to articular cartilage in the knee can cause symptoms that include pain or swelling of the knee, locking (where the knee gets stuck in one position) and giving way of the knee joint. Eventually, the damage can lead to 'osteoarthritis' where the joint is stiff and painful and movement is restricted.

What is ACI?

The aim of ACI is to make the knee joint function normally by replacing damaged cartilage with healthy cartilage grown from the patient's own cells. It is not used for people who already have osteoarthritis, or if there are other problems with the joint that need treatment that cannot be done at the same time as having ACI. In ACI, cartilage cells (called 'chondrocytes') are taken from the edge of the affected knee joint using a special telescope-like instrument inserted through a small cut. These cells are then grown in a laboratory for a few weeks, to increase the numbers of the cells. They are then implanted back into an area where the cartilage has been damaged to start new cartilage growth.

What has NICE recommended on ACI?

During the appraisal, NICE's Appraisal Committee read and heard evidence from:

- good-quality studies of ACI
- doctors with specialist knowledge of cartilage damage and its treatment
- individuals with specialist knowledge of the issues affecting people with cartilage damage
- organisations representing the views of people who will be affected by the guidance (because they have, or care for someone with, the condition or because they work in the NHS and are involved in providing care for people with the condition)
- agencies that provide services for ACI (such as growing the cells in the laboratory).

The evidence is summarised in the full guidance (see end for details). More information about the studies is provided in the assessment report for this appraisal (see end for details).

NICE has made the following recommendations about the use of ACI to treat cartilage damage in the knee within the NHS in England and Wales.

ACI is not recommended for treating knee problems caused by damaged articular cartilage, unless it is used in studies that are designed to produce good-quality information about the results of the procedure. These results should include measuring any improvement in patients' quality of life, and the benefits and risks of ACI over a long period of time.

If ACI is offered as part of a clinical study, the doctor should explain that there are uncertainties about the long-term benefits of this procedure and the possible risks, such as locking of the knee, infections and not being able to fully straighten the leg.

What should I do next?

If you or someone you care for has cartilage damage in the knee, you should discuss this guidance with your specialist or other healthcare professional looking after you.

Will NICE review its guidance?

Yes. The guidance will be considered for review in May 2008.

Further information

The NICE website (www.nice.org.uk) has further information about NICE and the full guidance on the use of autologous chondrocyte implantation that has been issued to the NHS. The assessment report, which contains details of the studies that were looked at, is also available from the NICE website. A short version of the guidance (a 'quick reference guide') is available on the website and from the NHS Response Line (phone 0870 1555 455 and quote reference number N0870).

If you have access to the Internet, you can find more information about cartilage damage on the NHS Direct website (www.nhsdirect.nhs.uk).

You can also phone NHS Direct on 0845 46 47.

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