NHS
National Institute for
Health and Clinical Excellence

Issue date: May 2005

Radiofrequency ablation for atrial fibrillation in association with other cardiac surgery

Understanding NICE guidance – information for people considering the procedure, and for the public

Information about NICE Interventional Procedure Guidance 121

Ordering information

You can download the following documents from www.nice.org.uk/IPG121

- this booklet
- the full guidance on this procedure

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

- N0860 (full guidance)
- N0861 (information for the public)

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ISBN 978-1-4731-9057-3

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About this information

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.

This information describes the guidance that NICE has issued on a procedure called radiofrequency ablation for atrial fibrillation that's usually done at the same time as other heart surgery. It is not a complete description of what is involved in the procedure – the patient's healthcare team should describe it in detail.

NICE has looked at whether radiofrequency ablation is safe enough and works well enough for it to be used routinely, at the same time as other heart surgery, for the treatment of atrial fibrillation.

To produce this guidance, NICE has:

- looked at the results of studies on the safety of radiofrequency ablation for atrial fibrillation and how well it works
- asked experts for their opinions
- asked the views of the organisations that speak for the healthcare professionals and the patients and carers who will be affected by this guidance.

This guidance is part of NICE's work on 'interventional procedures' (see 'Further information' on page 8).

About radiofrequency ablation for atrial fibrillation

Atrial fibrilliation is the medical name for when abnormal electrical signals in the heart cause the upper two chambers of the heart (the atria) to beat too quickly and not in a regular pattern. The effect is that the heart doesn't work as efficiently as it should and pumps lower

levels of blood than normal around the body. The person may feel dizzy or breathless as a result. They may also be aware of their heart beating quickly (the medical name for this is palpitations). Having atrial fibrillation is also linked with a higher risk of having a stroke.

Radiofrequency ablation

Surgical treatment for atrial fibrillation aims to stop the abnormal electrical signals from being spread through the electrical system of the heart. In radiofrequency ablation, heat is used to make scars through heart tissue in the atria. The scars may then interrupt the electrical signals and stop them from spreading and causing the problems. As the name suggests, the heat is produced from a source of radiofrequency energy. Scars may be formed on both the atria or on only the left-hand atrium. The surgeon may get to the tissue from inside the atrium or from the outside.

Radiofrequency ablation is usually carried out at the same time the person is having other heart surgery, and the NICE guidance described here has only looked at radiofrequency ablation when it is used in these circumstances. The most common type of surgery a person would be having is mitral valve surgery to replace or repair the mitral valve. The mitral valve is the valve that lets blood through from the left atrium to the left lower chamber of the heart (called the ventricle).

Other treatments

A person with atrial fibrillation may be offered medicines and/or electrical shock treatment (called cardioversion) to help to stop the atrial fibrillation. They may also be offered anticoagulant medicines to help to reduce the risk of a stroke happening.

The standard operation for atrial fibrillation, which is called the Cox maze procedure, involves making small cuts in the atria. There are also procedures that involve using heat from microwave energy or from ultrasound energy, or cold temperatures to produce scarring.

How well the procedure works

What the studies said

In one study, 9 out of 11 patients (82%) who had radiofrequency ablation and mitral valve replacement had a normal heartbeat 12 months after having the surgery. As a comparison, this was the case for only 3 out of 14 patients (21%) who had the mitral valve replacement but not the radiofrequency ablation.

In another study, 83 out of 102 patients (81%) who had radiofrequency ablation and heart surgery had a normal heartbeat when they were checked on around 12 months after the surgery. In comparison, only 3 out of 27 patients (11%) who had the heart surgery but not the radiofrequency ablation had a normal heartbeat.

What the experts said

The experts thought that the procedure was just a different way of doing the standard Cox maze operation.

Risks and possible problems with the procedure

What the studies said

Because patients in the studies usually had radiofrequency ablation at the same time as other heart surgery, it was difficult to be sure what problems in the studies happened specifically because of the radiofrequency ablation.

Six studies reported the numbers of patients who died while in hospital following the surgery. The figures went from 1 out of 132 patients (less than 1%) to 3 out of 40 patients (8%). One study that involved 103 patients said that 1 person had died because of damage to the oesophagus from the radiofrequency energy (the oesophagus is the tube that carries food from the mouth to the stomach). In another study, the authors said that none of the deaths that happened soon after the surgery seemed to be connected with the radiofrequency ablation.

In two studies, 3 out of 132 patients (2%) and 18 out of 234 patients (8%) had internal bleeding that needed further investigation after the surgery. Two studies also reported the numbers of patients that needed another operation after the original one – the numbers were 2 out of 234 (less than 1%) in one study and 16 out of 200 patients (8%) in the second study.

Other, less common, problems included the need to have a device put in to open up the aorta (which is a major blood vessel taking blood away from the heart), infection of the site where the opening in the chest was made, stroke, damage to the oesophagus and blood clots on the heart.

What the experts said

The experts said that the possible problems were damage to the oesophagus, heart block (which happens when the normal electrical signals that make the ventricles contract are partly or fully blocked), damage to the heart, and damage to important blood vessels around the heart.

What has NICE decided?

NICE has considered the evidence on radiofrequency ablation for atrial fibrillation. It has recommended that when doctors use it for people with atrial fibrillation, they should be sure that:

- the patient understands what is involved and agrees (consents) to the treatment, and
- the results of the procedure are monitored.

NICE has also recommended that a team of different types of healthcare professional should be involved in checking that a person is suitable for the procedure, and checking on them after they've had the surgery. Heart surgeons who carry out radiofrequency ablation should be specifically trained to use the radiofrequency equipment involved.

Other comments from NICE

Most of the patients in the studies NICE looked at were having mitral valve replacement and radiofrequency ablation. There was not much information about what happened in patients who were having other types of heart surgery at the same time as the radiofrequency ablation.

Radiofrequency ablation seems to work better in patients who have had atrial fibrillation for less than a year. Also, it might be difficult for surgeons always to know when they have produced enough scarring across the heart tissue.

What the decision means for you

Your doctor may have offered you radiofrequency ablation for atrial fibrillation. NICE has considered this procedure because it is relatively new. NICE has decided that the procedure is safe enough and works well enough for use in the NHS. Nonetheless, you should understand the benefits and risks of radiofrequency ablation for atrial fibrillation before you agree to it. Your doctor should discuss the benefits and risks with you. Some of these may be described above.

Further information

You have the right to be fully informed and to share in decision-making about the treatment you receive. You may want to discuss this guidance with the doctors and nurses looking after you.

The NICE website (www.nice.org.uk) has further information about NICE, the Interventional Procedures Programme and the full guidance on radiofrequency ablation for atrial fibrillation in association with other cardiac surgery that has been issued to the NHS. The evidence that NICE considered in developing this guidance is also available from the NICE website.

NICE has also issued guidance on microwave ablation and cryoablation for atrial fibrillation. The booklets describing these can be downloaded from www.nice.org.uk/IPG122publicinfo (microwave ablation) and www.nice.org.uk/IPG123publicinfo (cryoablation). NICE is also currently developing a guideline for the diagnosis and treatment of atrial fibrillation (see www.nice.org.uk/page.aspx?o=98520 for up-to-date information on this guideline).

If you have access to the internet, you can find more information on heart conditions on the NHS Direct website (www.nhsdirect.nhs.uk).

You can also phone NHS Direct on 0845 46 47.

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N0861 1P May 05 (POD)

ISBN 978-1-4731-9057-3