

Coronary artery stents

**Understanding NICE guidance –
information for people with heart
disease, their families and carers, and the
public**

October 2003



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Copies of this booklet can be ordered from the NHS Response Line; telephone 0870 1555 455 and quote reference number N0334. A version in Welsh and English is also available, reference number N0335. Mae fersiwn yn Gymraeg ac yn Saesneg ar gael hefyd, rhif cyfeirnod N0335. The NICE technology appraisal on which this information is based, *Coronary artery stents*, is available from the NICE website (www.nice.org.uk). Copies can also be obtained from the NHS Response Line, reference number N0341.

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What is NICE guidance?

The National Institute for Clinical Excellence (NICE) is part of the NHS. It produces 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 coronary artery stents in operations for a form of heart disease called coronary artery disease. NICE was asked to provide guidance that will help the NHS in England and Wales decide when coronary artery stents should be used.

What is coronary artery disease?

The heart is a muscle that needs a constant supply of oxygen and nutrients to keep working. These are carried in the blood, and the vessels that carry blood to the heart muscle are called coronary arteries.

Coronary artery disease (also called coronary heart disease) happens when a fatty substance builds up in the walls of the arteries, making the space inside narrower. There are several coronary arteries, and any of them can be affected. Often, two or more arteries are narrowed in this way.

The narrowing of the arteries may mean that they are not supplying enough blood to deliver all the oxygen the heart muscle needs. This is a particular problem when the person is taking exercise, when the heart needs to work harder.

The most common symptom of coronary artery disease is angina, which is pain or a feeling of tightness in the chest, which can often spread to the back, shoulders and arms. An attack of angina is usually brought on by physical activity. In severe cases, a narrowed artery becomes blocked, and this causes a heart attack. In a heart attack, blood cannot reach part of the heart muscle, and the part that's affected dies.

What are coronary artery stents?

Coronary artery stents are tiny wire-mesh tubes that are used during one kind of operation for coronary artery disease.

These stents are placed into the narrow coronary artery during a procedure called balloon angioplasty (the more accurate medical name for this is percutaneous transluminal coronary angioplasty, or PTCA for short). A stent with a tiny balloon inside it is attached to the end of a thin tube (called a catheter), and inserted into a vein in the groin. The catheter is then guided round the body until the tip reaches the narrowed part of the coronary artery. The balloon is gently inflated to open up the artery.

The stent is made of wire mesh. When the balloon is inflated, the stent expands. The balloon is then let down and removed, leaving the stent in the artery. The stent keeps its shape after the balloon is removed and holds the artery open.

Balloon angioplasty can be done without using a stent, but a stent normally keeps the artery open for longer. Even with a stent in place, the artery can sometimes become narrowed again within a few months. Some stents are now

coated with a drug that is slowly released into the artery to try to stop this happening. These are called drug-eluting stents, and the stents without a coating of a drug are called bare-metal stents.

What has NICE recommended about coronary artery stents?

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

- high-quality studies of coronary artery stents
- doctors with specialist knowledge of coronary artery disease and its treatment
- individuals with specialist knowledge of the issues affecting people with coronary artery disease
- organisations representing the views of people who will be affected by the guidance (either because they have, or care for someone with, coronary artery disease, or because they work in the NHS and are involved in providing care for people with the condition)
- the manufacturers of stents.

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 stents in operations for coronary artery disease within the NHS in England and Wales.

A stent should normally be used during balloon angioplasty in a person who has angina or has had a heart attack.

The decision on which type of stent to use should depend on the person's symptoms, and on the size and shape of the narrowed part of the artery. A drug-eluting stent should be used if the person has angina, and the inside diameter of the artery is less than 3 mm across, or the narrowed area is more than 15 mm long. There are several different drug-eluting stents, which contain different drugs. NICE recommends stents that contain either a drug called sirolimus, or one called paclitaxel, because most of the research has been on these.

If more than one artery is narrowed, doctors should make the decision on which type of stent to use for each artery separately.

This guidance covers treatment for people who would normally be offered some form of balloon angioplasty. NICE has not made any recommendations on using stents to treat people who have had a heart attack in the previous 24 hours, or people who had a clot in the narrowed artery.

What should I do next?

If you or someone you care for has coronary artery disease and you have been recommended to have some form of balloon angioplasty, you should discuss this guidance with your doctor.

Will NICE review its guidance?

Yes. The guidance will be reviewed in November 2004.

Further information

The NICE website (www.nice.org.uk) has further information about NICE and the full guidance on *Coronary artery stents* 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. The guidance can also be requested from the NHS Response Line by phoning 0870 1555 455 and quoting reference N0341.

If you have access to the Internet, you can find more information about coronary artery disease and angina on the NHS Direct website (www.nhsdirect.nhs.uk). You can also phone NHS Direct on 0845 46 47.



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