

Optical coherence imaging to guide procedures on the arteries supplying the heart

Information for the public

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What has NICE said?

This imaging procedure is safe enough for use in the NHS but there is not much good evidence about how well it works. It should only be used if extra care is taken to explain the risks and extra steps are put in place to record and review what happens.

More research on this imaging procedure is needed. NICE is asking health professionals to send information about everyone who has the procedure and what happens to them afterwards to the [UK Central Cardiac Audit Database](#) so that the safety of the procedure and how well it works can be checked over time.

What does this mean for me?

Your health professional should fully explain what is involved in having this imaging procedure and discuss the possible benefits and risks with you. In particular, they should

explain the uncertainty about the evidence on how likely it is to improve your treatment. You should also be told how to find more information about the procedure. You should only be asked if you want to agree to this procedure after having this discussion.

Your health professional should ask you if details of your procedure can be collected.

Other comments from NICE

NICE said that because there are large numbers of people who might be offered this imaging procedure it is important to be sure that it works well, and this is why it is recommending further research on the procedure.

Coronary artery imaging

Imaging is used before and after procedures on the coronary arteries supplying blood to the heart to guide decisions about treatment (for example, by identifying narrowed or blocked areas) and to check whether treatments have worked. Current imaging methods include coronary angiography, in which contrast (a dye visible on X-ray) is injected into the arteries to obtain images, and ultrasound of the inside of the arteries.

NHS Choices (www.nhs.uk) may be a good place to find out more.

NICE has looked at using optical coherence tomography as another imaging option to guide treatment. Click on to the next page to find out more.

The procedure

Like coronary angiography, optical coherence tomography uses a thin flexible tube (a catheter), which is inserted into an artery in the groin or arm over a guide wire under local anaesthetic and moved into the coronary artery that is being investigated. In optical coherence tomography, the catheter tip emits near-infrared light to produce three-dimensional images of the inside of the vessels. The images are obtained at the same time as the contrast dye is injected through the guide wire, and may provide more detail than other methods such as ultrasound or conventional angiography.

Benefits and risks

When NICE looked at the evidence, it decided that there is not much good evidence to show that optical coherence tomography (OCT) works well. The 14 studies that NICE looked at involved a total of 1692 patients.

Generally, they showed the following:

- there were fewer deaths and heart attacks in patients who had procedures assessed by both OCT and coronary angiography imaging than in patients who had coronary angiography alone, but some patients who had both imaging methods needed further procedures
- in a study comparing OCT or ultrasound imaging to guide stent placement and expansion, the results were less good when OCT was used
- in a study where OCT results suggested that stent treatment of narrowed vessels was not needed, no patients had a heart attack within 5 months.

The studies showed that the risks of OCT during imaging included:

- puncturing or tearing of the arteries
- problems with the heart rhythm or rate
- multiple air bubbles or blood clots blocking the arteries
- the catheter breaking or a wire becoming trapped inside a stent
- short-lasting chest pain during the procedure.

One person who had a tear in an artery during the procedure died of a heart attack 7 days later, despite further surgery.

NICE was also told that there was a possible risk of emergency treatment being needed because of some of the problems described above.

If you want to know more about the studies see the guidance. Ask your health professional to explain anything you don't understand.

Questions to ask your health professional

- What does the procedure involve?
- What are the benefits I might get?
- How good are my chances of getting those benefits? Could having the procedure make me feel worse?
- Are there alternative procedures?
- What are the risks of the procedure?
- Are the risks minor or serious? How likely are they to happen?
- What care will I need after the procedure?
- What happens if something goes wrong?
- What may happen if I don't have the procedure?

Medical terms explained

Stent

A tiny wire-mesh tube used to hold a narrowed artery open. It is inserted through a catheter (tube) and expanded using a balloon that is then removed.

About this information

NICE [interventional procedures guidance](#) advises the NHS on the safety of a procedure and how well it works.

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Accreditation

