Normothermic extracorporeal preservation of hearts for transplantation following donation after brainstem death

Information for the public
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What has NICE said?

This procedure is safe enough and works well enough for use in the NHS.

The condition

Heart failure means your heart doesn't pump enough blood to meet all the needs of your body. Usually this is because the heart muscle has become damaged. The term 'chronic heart failure' is used to describe heart failure as a long-term condition. The main symptoms of heart failure are breathlessness (either with exercise or at rest), feeling very tired and ankle swelling.

If you have chronic heart failure, your heart will need some help to do its job. Treatments

include: drug treatment; treatment to bring the pumping action of the heart chambers back in time with each other (usually with a pacemaker or sometimes with a defibrillator); surgery, for example, to repair a faulty valve; or a heart transplant.

Usually, a heart for transplantation is removed from a donor who no longer has any activity in their brainstem (the part of the brain that controls breathing and heartbeat), and has permanently lost the potential for consciousness and the capacity to breathe on their own (brainstem death). This donor heart is then preserved in a cold, oxygen-free environment until it is implanted into the recipient. Storing a heart in this way for a long time may damage it and affect how the heart works after the transplant.

NICE has looked at using normothermic extracorporeal preservation of hearts for transplantation following donation after brainstem death as another treatment option.

NHS Choices and NICE's information for the public about chronic heart failure may be a good place to find out more.

The procedure

Normothermic extracorporeal preservation of a heart aims to keep the donor's heart beating outside the body. A special machine is used to deliver warm oxygenated blood to the donor heart. The aim is to reduce the amount of damage to the heart after it has been removed from the donor, and to improve how it works once it has been transplanted. It can be used to preserve hearts donated after circulatory death (death that has been diagnosed and confirmed using heart and breathing criteria), as well as after brainstem death. This procedure has been used to store donor hearts for up to 8 hours before transplantation.

Benefits and risks

When NICE looked at the evidence, it decided that it showed normothermic extracorporeal preservation of hearts for transplantation following donation after brainstem death to be safe enough and work well enough for people with chronic heart failure needing a heart transplant. The 4 studies that NICE looked at involved a total of 337 patients. If you want to know more about the studies, see the guidance. Ask your health professional to explain anything you don't understand.

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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