

GoodHealth

A flexible friend to kick-start your heart

A THIN, 2ft-long flexible tube that can be implanted in only 15 minutes looks set to revolutionise treatment for heart disease.

The device, a radical new design of defibrillator, is inserted in the groin while the patient is awake and snaked through a vein until it gets to the heart. It is narrow enough to go through veins without impeding blood flow.

Once in position, the device permanently monitors the heart rhythm, senses if there is about to be a severe disturbance and, when necessary, delivers an electrical impulse to restore the normal rhythm.

'It's a major breakthrough in technology. Patients will no longer need to deal with having a permanent metal box under their skin, which is the current treatment,' says Dr Richard Stack, a heart specialist who developed the device, which could be in general use within two years.

Implanted defibrillators have helped thousands of patients with heart problems, with around 15,000 implanted in the UK.

Patients who have a heart attack may be at risk of further life-threatening arrhythmia, a disturbance or irregularity of the heartbeat.

Around 100,000 people every year die in the UK from sudden cardiac death.

Advances in the technology of ICD devices have led to smaller generators, but they are still larger than a pacemaker and

By **ROGER DOBSON**

need to be implanted in a pocket created surgically under the skin. The devices are expensive, although research suggests that for some patients they are better than drug treatment.

Some studies have shown that the average lifespan of an implantable defibrillator is around five to six years, depending on how often the device has delivered therapy and how it is programmed.

The surgery needed is one of the reasons blamed for a low take-up of the technology. The metal device can also be uncomfortable for the patient.

Some studies suggest that only 15 to 20 per cent of patients who should receive an implantable defibrillator actually get one. The idea of the new device is to make the implantation procedure much simpler and more cost effective.

The current devices also have wires or electrodes, which travel from the implanted devices to the heart to deliver the shock.

The secret of the new device is that all the equipment, including the electrodes, are contained in one long, snake-like tube.

Inside this are specially shaped, ultra-thin batteries, microchips and capacitors, which are electronic components that store an electronic charge and release it when required. If any part of the hard-

HOW IT WORKS



1 A tube containing the device is inserted into the groin and is snaked through the main vein

2 Once in place it is fixed with a step-like anchor

3 Device is switched on remotely and will deliver an electrical impulse to restart the heart

ware fails or an item needs renewing, the device is easily removed.

Once in place in the heart, the Percutaneous Implantable Cardioverter Defibrillator, or PICD, is secured in position with an anchor-type device, which attaches to tissue and stops it moving, it is then switched on remotely.

'We believe our life-saving device is a revolutionary technology that will redefine how we treat patients at risk of sudden cardiac death, and save thousands of lives of patients with heart rhythm disorders each year,' says Daniel Pelak, chief executive of InnerPulse, the firm that makes the PICD.

'It is an alternative to the currently available technology, which requires a more invasive surgical procedure. It is entirely encapsulated in a catheter and will be inserted intravenously through a vein in the groin.

Although the company is American, the first patients will be in Europe, he said.

'We expect the first patients to receive the device some time next year. It will be in general use nine to 12 months later.'

'A number of new sizes and shapes of implantable cardioverter defibrillators have recently been proposed,' says British Heart Foundation Professor, John Camm, at the University of London.

'The concept of encapsulating the defibrillator within a single tube is a novel one, and may increase the availability and affordability of ICD implantation, enabling more UK patients to benefit.'