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Patients' stem cells limit heart damage

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DELIVERING STEM cells to a patient's heart in the crucial hours after a heart attack could dramatically improve survival and quality of life. That's according to the head of a pioneering clinical trial in Britain, who will give a public talk in Dublin on Thursday.

"Heart disease kills half of the population of Europe so it's very important," said John Martin, professor of cardiovascular medicine at University College London, who is leading a two-year trial to treat heart-attack patients with their own "intelligent" stem cells that can minimise and repair heart damage.

Current treatments to unblock arteries immediately after a heart attack help reduce deaths from acute attacks, but the approach doesn't address the damage that has happened to heart tissue, and this can lead to heart failure later on, explained Prof Martin.

"Even though you open up the artery, there has been damage to the heart already," he said. "Our objective is to stop that damage happening and repair the little damage that has occurred by putting the stem cells down the artery as soon after the attack as possible, so they are going to the heart and they tell it how to repair itself."

The trial, which started in April, looks at the impact of taking stem cells from a patient's own bone marrow sample to deliver a "rescue force" to the heart. "When you come into my hospital in an ambulance and the diagnosis is made of heart attack, you will be asked if you want to enter our trial," said Prof Martin. "We believe if we can get the cells in early we can stop the damage. So we try to get them in within four hours."

Half of the 100 patients in the double-blind trial, funded by the UK Stem Cell Foundation and private donations, have their own stem cells delivered to their heart and the other half get water. Then they get follow-up tests on heart function and quality of life, he explained.

Stem cells can reduce heart-attack damage by one-third in animal models, although scientists are not sure how it works, he said. "I have been very much criticised by other scientists saying I shouldn't do this until I know what is happening. I say it's so complicated we might never know how it works."

If the current experimental human trial proves successful, delivering stem cells could become a cost-effective hospital procedure for treatment following a heart attack, where the patient literally treats themselves with their own cells, said Prof Martin. "My expectation is that we will have a major effect on decreasing death and morbidity. [The trial] is a lot of time and effort and money but we are only doing it because we think it will have a major effect."

Prof Martin will deliver the Irish Heart Foundation's 2008 Mulcahy Lecture, Stem cells and gene therapy to repair the damaged heart - will it work and is it right? this Thursday, 7pm-9pm at the Ballsbridge Court Hotel (formerly the Berkeley Court Hotel) in Dublin. The event is open to the public.