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Stem Cell Stents for the Heart

A new heart treatment using stem cells is being developed at Sheffield University in Yorkshire. If successful, this new treatment could bring about a huge increase in the number of heart patients living longer.

Aimed at being inserted into the diseased arteries of the heart, scientists from the university are developing the world's first regenerative device utilizing stem cells. The scientists believe their invention, if successfully developed, could save thousands of lives.

Nearly seven million people worldwide die due to coronary artery disease every year; it is the leading cause of premature death in the UK. Currently the most common treatment for patients of coronary artery disease is stent implantation. In this procedure, a mini spring-like coil is fitted into furred up arteries of the heart. This widens the arteries and allows more blood to flow through.

However to make the body accept the stent instead of attacking it as an alien object and also to stop the heart from healing completely, the stent has to be covered in chemicals. This is not exactly in the best interests of the heart.

Through their new research, the scientists from Sheffield Universitys Centre for Stem Cell Biology are now attempting to prevent the defense mechanism of the body from kicking in against the stent. They aim to do this by coating the stents with human stem cells.

All tissue in our body is composed of stem cells, which are basically undeveloped body cells that can develop into different kinds of tissue. If extracted from embryos before they become 14 days old, the stem cells can be manipulated to grow into any part of the human body.

Researchers are presently using stem cells grown at laboratories in Sheffield for their research. The university is a world leader in the field of stem cell research and development. While the research will continue to be on animals for a few years to come, researchers are hopeful they can begin human trials quickly if everything works out as per their expectations.

Lead researcher Professor Harry Moore said, The chemical process up to now is very good but its not helping the heart cells heal. Sometimes, as a result, the artery that is trying to expand constricts again. But, by using stem cells, you can fool the body into thinking it is its own renewal.

We are hoping this will help us pioneer the next generation of stents which are more sophisticated, he said. The scientists believe their under development, new generation stents will also become the basis for a wider, more encompassing application in regenerative medicine.