Your own stem cells can treat heart disease

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The largest national stem cell study for heart disease showed the first evidence that transplanting a potent form of adult stem cells into the heart muscle of subjects with severe angina results in less pain and an improved ability to walk. The transplant subjects also experienced fewer deaths than those who didn't receive stem cells.

In the 12-month Phase II, double-blind trial, subjects' own purified stem cells, called CD34+ cells, were injected into their hearts in an effort to spur the growth of small blood vessels that make up the microcirculation of the heart muscle. Researchers believe the loss of these blood vessels contributes to the pain of chronic, severe angina.

"This is the first study to show significant benefit in pain reduction and improved exercise capacity in this population with very advanced heart disease," said principal investigator Douglas Losordo, M.D., the Eileen M. Foell Professor of Heart Research at the Northwestern University Feinberg School of Medicine and a cardiologist and director of the program in cardiovascular regenerative medicine at Northwestern Memorial Hospital, the lead site of the study.

Losordo, also director of the Feinberg Cardiovascular Research Institute, said this study provides the first evidence that a person's own stem cells can be used as a treatment for their heart disease. He cautioned, however, that the findings of the 25-site trial with 167 subjects, require verification in a larger, Phase III study.

He presented his findings Nov. 17 at the American Heart Association

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Out of the estimated 1 million people in the U.S. who suffer from chronic, severe angina -- chest pain due to blocked arteries -- about 300,000 cannot be helped by any traditional medical treatment such as angioplasty, bypass surgery or stents. This is called intractable or severe angina, the severity of which is designated by classes. The subjects in Losordo's study were class 3 or 4, meaning they had chest pain from normal to minimal activities, such as from brushing their teeth or even resting.

The stem cell transplant is the first therapy to produce an improvement in severe angina subjects' ability to walk on a treadmill. Twelve months after the procedure, the transplant subjects were able to double their improvement on a treadmill compared to the placebo group. It also took twice as long until they experienced angina pain on a treadmill compared to the placebo group, and, when they felt pain, it went away faster with rest. In addition, they had fewer overall episodes of chest pain in their daily lives.

In the trial, the CD34+ cells were injected into 10 locations in the heart muscle. A sophisticated electromechanical mapping technology identifies where the heart muscle is alive but not functioning, because it is not receiving enough blood supply.

Source: Northwestern University (news : web)