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Stem cells offer new hope to patients with chronic chest pain

850,000 Americans suffer from chest pain that cannot be eased by medicine, surgery or angioplasty. A recent study published in *Circulation Research* may now give them hope.

The study showed that patients who had stem cells injected directly in to the heart reduced chest pain episodes and improved exercise capability compared to those who received a placebo.

This study was the first randomized, controlled trial that showed significant improvement in both chest pain and exercise capability indicating great promise for the future use of stem cells to improve heart function.

Timothy D. Henry, MD, Director of Research at the Minneapolis Heart Institute Foundation said, “This is a major advance for patients who have disabling chest pain and are not candidates for further bypass or angioplasty. Nearly 40 of the patients were enrolled at the Minneapolis Heart Institute® at Abbott Northwestern Hospital making us the highest enrolling site in the trial. This study is a major step forward for stem cell therapy for patients with cardiovascular disease.”

In the study, 167 patients at 26 U.S. medical centers were randomized to one of three injection groups using CD 34+ cells (stem cells that are important in building new blood vessels): low dose (100,000 CD34+ cells/kg body weight); high dose (500,000 CD34+ cells/kg body weight); or a placebo.

Among the study’s findings:

- At six months, low-dose patients had 6.8 angina, or chest pain, attacks per week – significantly fewer than 10.9 per week for those receiving placebo. High-dose patients had fewer episodes than the placebo group, but the difference was not statistically significant, so the results could be due to chance.
- At 12 months, the low-dose group had 6.3 episodes per week and the placebo patients had 11 episodes per week; high-dose patients had fewer angina episodes than the control group, but the difference remained insignificant. “Future studies looking at dosing levels will be key as we move forward with this therapy,” said Henry.
- The improvement in exercise tolerance at six months in low-dose patients was 139 seconds, which was significantly greater compared to the 69-second tolerance of the placebo patients. The high-dose group had a greater, but not significant, improvement than the placebo patients.

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Minneapolis Heart Institute Foundation

The Minneapolis Heart Institute Foundation (MHIF) is dedicated to creating a world without heart disease through groundbreaking clinical research and innovative education programs. MHIF's mission is to promote and improve cardiovascular health, quality of life and longevity for all.

Minneapolis Heart Institute®

The Minneapolis Heart Institute® is recognized internationally as one of the world's leading providers of heart and vascular care. This state-of-the-art facility combines the finest in personalized patient care with sophisticated technology in a unique, family-oriented environment. The Institute's programs, a number of which are conducted in conjunction with Abbott Northwestern Hospital, address the full range of heart and vascular health needs: prevention, diagnosis, treatment and rehabilitation.