Adding stem cells to common bypass surgery may reduce heart failure

April 5 2011

In a new research study under way at the Methodist DeBakey Heart & Vascular Center, surgeons are adding a patient's own stem cells to the heart during cardiac bypass surgery. The goal of this research study is to determine whether the stem cell infusion will generate new blood vessels and improve heart function more than what is seen through bypass surgery alone.

"The injection of stem cells may improve the effectiveness of the bypass," said Dr. Brian Bruckner, cardiac surgeon and principle investigator on the research study. "We perform a bypass to reroute blood flow around blockages in the coronary arteries. The injection of stem cells might enhance the bypass surgery by causing the formation of new blood vessels at the site of injection."

In this study, stem cells are harvested from a subject's own bone marrow in the operating room while the research subject is under anesthesia. After the bone marrow cells are harvested, the surgeon then begins the bypass procedure. These cells are simultaneously processed to separate stem cells from bone marrow. After performing the bypass, the surgeon then injects the stem cells into the patient's heart, and the procedure is complete.

The Methodist DeBakey Heart & Vascular Center is one of only three centers in the country to have this study available.

A potential benefit for study subjects is that the stem cells can be

delivered during the bypass surgery, rather than needing an additional procedure," said Dr. Kevin Lisman, cardiologist at the Methodist DeBakey Heart & Vascular Center and co-investigator in the study. "To be considered for this trial, patients must have an existing need for heart bypass surgery and must have an ejection fraction of 40 percent or less. Up to 42 patients will be enrolled in this randomized study nationwide."

The research team cannot guarantee individual benefits from participating in the study.

The technology that processes the stem cells was developed by Harvest Technologies and it sorts the cells quickly, enabling the procedure to be interoperative, rather than having the patient come in days before surgery for the bone marrow aspiration.

Provided by Methodist Hospital System