Study: Use of stem cells to regenerate heart muscle in patients who have heart attacks

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Stem cell therapy for cardiovascular disease isn't a medical pipe dream - it's a reality today, although patients need to better understand the complex science behind these experimental treatments, according to the chief of Cardiology for the Cedars-Sinai Heart Institute.

In a 17-minute TEDxGrandForks talk now available on YouTube.com, Timothy D. Henry, MD, known for his innovative work in developing stem cell treatments for advanced heart disease patients, said he understands why so many are confused about the latest scientific findings.

Most people today "get our information from sound bites," and the issues surrounding stem cells are too complex to be fully explained in a single catchy phrase, Henry said, adding, "We have far too much controversy about stem cells and far too much hype."

Stem cell science has become "a political dividing line" with many opposing research into stem cells derived from human embryos, Henry said. However, he said, today's leading-edge clinical research focuses on stem cells derived from adults that can be scientifically programmed to become a specialized cell, such as a heart cell or a brain cell, thereby avoiding the ethical questions involved in embryonic research.

"Very few of the cells we give actually become muscle or actually become blood vessels," Henry said. "What they do … is increase growth factors" and encourage natural cells in the body to generate new, healthy tissue."

The Cedars-Sinai Heart Institute, directed by Eduardo Marbán, MD, PhD, is a world leader in studying the use of stem cells to regenerate heart muscle in patients who have had heart attacks. In 2009, Cedars-Sinai physicians conducted the first infusion of stem cells into heart attack patients, using stem cells grown from the patients' own heart tissue. The resulting study, published in February 2012 in The Lancet, showed that patients who underwent the stem cell procedure experienced a significant reduction in the size of the scar left behind by a heart attack. Patients also experienced a sizable increase in healthy heart muscle following the experimental stem cell treatments.

Currently, Henry is co-directing a new stem cell study with Raj Makkar, MD, director of Interventional Cardiology. The national trial, called ALLSTAR, uses heart cells from unrelated donors in an effort to reverse lasting tissue damage after a heart attack.

During his talk, Henry also expressed concern for patients who might be taken advantage of by unscrupulous clinics outside of the United States that offer stem cell "cures" for everything from neurological diseases to baldness. Patients also need to understand that stem cell science has a long way to go before regenerative medicine treatments are widely available.

"We have made major progress in the past 20 years but we still have needs," Henry said, particularly for advanced heart disease patients whose only hope is a transplant or a mechanical pumping device. "What we need to do is very well-designed studies that actually teach us something and take us to the next step. …There are significant challenges, but we can meet them."

Source:
Cedars-Sinai Heart Institute
