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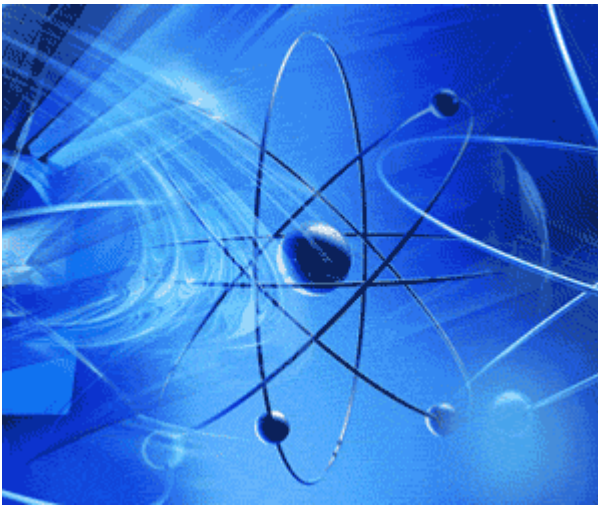
South Florida studies aim to mend hearts with patients' stem cells

Cardiac patients' own stem cells will be used

By Bob LaMendola

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Two studies starting in South Florida will, for the first time, test the long-dreamed vision that the body's own stem cells can be deployed to reverse the damage from heart disease.

The technique has worked in animals, but the new studies in humans will attempt to determine whether implanting stem cells can regrow or revive heart muscle killed or crippled by heart attacks, blocked blood vessels and other afflictions, researchers said.

"That would be an all-time first," said Dr. Joshua Hare, director of stem cell research at the University of Miami medical school and lead scientist of one study. "Stem cells have a lot of potential. For the heart, they appear to have a very high likelihood of success."

The results, expected in two to three years, will have implications for millions of Americans with heart disease, the leading cause of U.S. deaths.

Stem cells are primal matter with the ability to develop into many types of tissue. For more than a decade, scientists have theorized that the cells could be manipulated to grow new organs, replace damaged tissue and repair the harm caused by diseases, injuries and

accidents. So far, however, practical benefits have been few as researchers work to perfect the complex process.

Stem cells for heart disease have progressed faster than other areas. Of the two new heart studies, neither uses controversial stem cells drawn from human embryos, but instead uses adult stem cells extracted from the patient's own bone marrow.

Fort Lauderdale's Holy Cross Hospital is among 20 sites involved in the largest U.S. study of stem cells for the heart, and the first to test for success. Cardiologist Alan Niederman, a lead researcher, 11 days ago injected the first South Florida patient, John Bergen, a retired U.S. Navy SEAL from Deerfield Beach.

Bergen used to run marathons until he suffered a series of heart attacks starting in 1990. The heart attacks weakened him so much he cannot walk more than a few hundred yards without resting. He looks much older than his 55 years.

"This was a no-brainer. If my own body can heal me, why am I looking somewhere else?" Bergen said. "I've tried everything else. They can't fix me. This gives me some hope."

The study, funded by device-maker Baxter Healthcare, targets people with irreparably blocked blood vessels and heart muscle severely weakened by the lack of blood, a painful and debilitating condition called chronic myocardial ischemia.

About 150 patients nationwide will be given drugs that induce the bone marrow to release certain stem cells into the bloodstream, to be collected, concentrated and analyzed. Doctors then infuse them into the heart via a thin tube threaded through a blood vessel. In animal tests, the stem cells appear to have sparked new blood vessels to grow on the heart, reviving the dying tissue.

"It's the beginning of the next generation of cardiac research," Niederman said. "We put the material where it needs to be put, as far as we know, and the cells do the rest. How do they do it? We don't know."

Hare said his federally funded study based at the University of Miami will target 45 patients whose heart attacks have left scars of dead heart tissue, which have been regarded as muscle lost forever.

His team will use a needle to extract another type of stem cells from the patient's hip, then process them at a new stem cell "factory" being developed at the university. He will inject the cells into the dead areas of the heart, hoping new muscle will grow there to take over the beating power that had been lost.

Hare led a small, similar study that in March showed the process is safe but also suggested patients had improved heart function and fewer abnormal heartbeats after getting stem cell injections. The new study, still testing only for safety, improves the

process.

"We now treat heart attack patients by reopening the blockages and giving them medicine to help the blood flow. But none of the therapies try to reverse the injury," Hare said.
"That's the idea here."

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