

Stem Cells: Politics, processes and potential

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After the inauguration of President Barack Obama, those on both sides of the stem cell research debate are expecting President Bush's curb on federal funding to be lifted.

Geron Corp. announced it had received approval from the U.S. Food and Drug Administration for the world's first study of a human embryonic stem cell therapy, testing its product on patients with acute spinal cord injury. The company reported it has spent "at least \$100 million on embryonic stem cell research" and it isn't alone in its quest.

So while the majority of public and private dollars are poured into embryonic stem cell research, advocates of other stem cell therapies are lobbying for a share, with strong clinical results behind them. The chasm between types of stem cells is nearly as wide as the divergence of opinion on the political and ethical issues. The impacts of a legislative change may depend heavily on the current administration's — and the public's — understanding of the science that is now becoming medicine.

Embryonic stem cells can develop into any cell of the body, and scientists have long hoped to harness them for creating replacement tissues to treat a variety of diseases. But to date no successful human treatment has been found using embryonic cells. The treatment research has been controversial because human embryos must be destroyed. Plus, the pluripotent quality of the cells poses many risks for adverse effects.

Cord blood cells, when saved or "banked," can address many serious diseases and are considered much safer than embryonic cells because they are autologous, meaning cells belonging to the patient, and the body will not reject its own cells. However, the availability of cord blood cells is limited and tissue matching is required.

Adult stem cells circulate throughout our bodies and act as natural healers. They have vast potential and limitless capabilities. As a treatment option, they are considered extremely safe because they are also autologous, coming directly from the patient's own blood, bone marrow, skin or fat. For more than 40 years, adult stem cells have been used to treat cancers, particularly leukemia.

Recent advancements in adult stem cell therapy have meant thousands of patients around the world have been helped for serious health conditions outside of cancer. The process begins with drawing of the patient's blood or marrow. The stem cells are then extracted in a biotechnology lab.

Bio-agents like growth factors are applied to expand the stem cell population and direct the cells to repair and regenerate specific tissue damaged by disease.

Just a few days later, the newly engineered cells are reintroduced to the patient's body by injection or through a catheter into the blood vessels. The patient generally returns home in one to two days and the regeneration process within their body begins.

Southwest Florida-based Regenocyte Therapeutic released data last month to the World Congress on Regenerative Biomedical Technologies on patients treated for heart, vascular and pulmonary diseases that were studied through one year after Adult Stem Cell Therapy. The report showed measurable improvement in congestive heart failure class status, breathing and kidney function. PET scans confirmed that adult stem cells have the ability to engraft themselves into areas damaged by heart attacks and turn into viable, new heart muscle.

Dr. Héctor José Rosario, professor of cardiology at Pontifical Catholic University School of Medicine and director of cardiovascular therapy for Regenocyte's Dominican division, stated in the report that "three months after treatment, cardiac nuclear scans of the areas treated reveal reversal of damage." The company's medical adviser, Athina Kyritsis, M.D., explains: "Regenocyte has been able to take patients off the transplant list, and we have been doing it consistently."

Dr. Kyritsis explains the potential to revolutionize medicine is great: "I believe we have only begun to discover what adult stem cells can accomplish in altering the course of diseases currently believed to be untreatable, with not only better clinical results than embryonic cell studies offer, but a long-term financial savings to society."

Regenocyte Therapeutic is using adult stem cell therapy to treat congestive heart failure, cardiomyopathy, peripheral artery disease, coronary artery disease, kidney disease, ischemic heart disease, pulmonary diseases and hypertension, and early senile dementia. The U.S. Clinical Center with complete diagnostic capabilities and its own catheterization lab is located in Bonita Springs, where there are 39 employees and associates. Physicians, treatment and laboratory facilities are also located in Israel and the Dominican Republic.

An educational seminar, "Turning Stem Cells into Medicine: Current Clinical Applications and Case Studies," will be held Saturday, March 7, at 1 p.m. at the Collier Regional Library headquarters on Orange Blossom Drive in North Naples. The program is free and open to the public, featuring Zannos G. Grekos, MD, who is director of Cardiology & Vascular Disease for Regenocyte Therapeutic. Dr. Grekos also is associate clinical professor of cardiology for Nova Southeastern University. In 2007, he was invited to brief the U.S. Senate Health Advisory Committee on the current state of stem cell research and has since lectured at international physician conferences from Washington to Dubai, U.A.E.

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