



A BETTER WAY TO HEAL AND RESTORE

Adult stem cells lead the way to health

The issue of stem cell research has been on the front burner in Kansas in regard to the bill just passed by the Senate to promote bio-technology in Kansas (**HB2647**). The bill does contain some protection for embryos in that it requires that researchers follow federal guidelines when using government money, but Governor Sebelius found that to be "restrictive." She stated after passage of the bill: "I would prefer a bill that allows researchers to research. If we want to be cutting edge about what's going to happen to Kansas, my preference would be to let the academicians, the researchers, the scientists really define and decide what is appropriate." The bill now goes back to a conference committee to work out some differences in the House and Senate versions.

"Appropriate" research?

In our last *Family Concerns* we talked about the reasons for not promoting indiscriminate research and cloning of embryos. We examined the reasons why scientists, academicians and researchers should not be given *carte blanche* in their research just because it is possible.

Real Breakthroughs

In this edition of *Family Concerns* we are going to explore some real scientific breakthroughs in adult stem cell research and some good results from cord blood stem cells that are taken immediately after birth, frozen and stored.

Some of the *real* science that has been done and been successful:

- Italian scientists generated muscle tissue using adult rat brain cells. They hope to use this discovery to improve organ transplant surgery.
- University of S. Florida researchers injected brain cells, developed from human stem cells found in umbilical-cord blood into rats genetically engineered to have strokes. They reported that the stem cells "integrated seamlessly into the surrounding brain tissue, maturing into the type of cell appropriate for that area of the brain."
- Scientists at Massachusetts General Hospital have found that adult-islet stem cells can mature into pancreatic beta cells, the insulin-secreting cells that are depleted in diabetes.
- After undergoing adult pancreatic-cell transplants 11 out of 15 Type I (juvenile diabetes) patients are no longer taking insulin.
- The National Institute for Neurological Disorders and Stroke reports that a patient's own bone marrow can now be used to create nerve cells to repair brain damage.
- Heart specialist Bodo Eckehard Strauer successfully treated a patient with stem cells from the man's bone marrow.

- Doctors at Beaumont Hospital in Royal Oak, Michigan report that Dimitri Bonnville shows improvement after undergoing an experimental stem-cell transplant to help regain heart tissue lost in a massive heart attack.
- According to the *Washington Post*, researchers have improved the condition of a Parkinson's patient using his own stem cells. Just three months after the surgery, his motor skills improved by 37 percent. And, a year after the procedure, the patient's Unified Parkinson's Disease Rating Scale improved by 83 percent.

Some of the other discoveries that have been successful using adult stem cells are fighting brain tumors, retinoblastoma, multiple myeloma, neuroblastoma, non-Hodgkin's lymphoma, and renal cell carcinoma. These treatments have also cured other forms of cancer, including ovarian cancer, testicular cancer and breast cancer.

Conversely, some horrific things have happened when embryonic stem cells are used in human beings. A May 1996 *Neurology* article reported an instance where a patient suffering from Parkinson's disease died after embryo cells were transplanted into his brain. His autopsy revealed that his death had been caused by growth of bone, skin and hair in the brain, probably due to the "transformation of undifferentiated stem cells into non-neural tissues."

The Geron Corporation, the leading funder of embryonic research in the United States published startling developments. It reported that after transplanting human embryonic stem cells into rats' brains, the cells "did not readily differentiate into brain cells, but stayed in a disorganized cluster, and brain cells near them began to die." Patients treated with these cells risk serious side effects such as tumor formation, unstable gene expression (abnormal productions of proteins from genes) and inability to stimulate the cells to grow certain types of tissue.

Dr. Peter Andrews of the University of Sheffield, England says of the control and preservation of embryonic tissue, "Simply keeping human embryonic stem cells alive can be a challenge." Another research, Doug Melton, of Harvard University states that in his view, "[human embryonic stem cells] would degrade with time." Bioethicist Glenn McGee told *Technology Review* that "the emerging truth in the lab is that pluripotent stem cells [embryonic stem cells able to develop into all cell types] are hard to reign in. the potential that they could explode into a cancerous mass after a stem cell transplant might prove to be the Pandora's Box of stem cell research."

From this research it is easy to see that great success has been found with adult and umbilical cord blood research; why can't Kansas be on the cutting edge of finding real cures rather than playing around with embryos?

[Source: CWA Policy Paper: Adult Stem-Cell Treatments: A Better Way]