Orthopaedic Connection

Stem Cells

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Transforming patient information into patient understanding.

I have told you at times that what I write about are things I know about from personal experience and am using in my practice.

I am not using stem cells in my practice! I need to make that perfectly clear at the outset.

I just felt that it was time to give you some information that I have gained by reading and listening. And there are some aspects about stem cells that have major Orthopaedic Surgery application. OK? Good, here we go.

Regenerative Medicine

Never heard of it before? That's Ok. Don't feel like you live in a cave! It isn't a specialty like Orthopaedic Surgery. It is a term for the emerging field of medicine that will someday be able to regenerate healthy organs and parts of our body like cells and tissues that are diseased or damaged.

How? By using various types of stem cells which can produce certain cells or in some cases all types of cells.

Bone marrow transplant is an example of how this technology is being used right now. So at this time stem cells in medicine are confined to the lab or a few small trials in humans besides their use in bone marrow transplants.

What Are Stem Cells?

Think of stem cells as the body's raw material. An embryo 4 days old consists of 150 cells.

Embryonic stem cells can make more of themselves or they can begin to change and become more specialized cells (but still very immature) that make up the body's tissues and organs.

Once embryonic stem cells begin to change most of the stem cells begin to specialize and move in a direction of becoming specific tissues and organs. But not all. There are adult stem cells found in very small amount in most tissues and organs. Adult stem cells are specialized and are limited in the kind of cells they can make.

Other Stem Cells

- Umbilical cord cells
- Amniotic fluid cells are in between embryonic stem cells and adult stem cells.
- Induced stem cells were found in 2007; they are adult stem cells that can be genetically programmed to become like embryonic cells.

Controversy And Problems

Embryonic stem cells are hugely important due to their ability to develop into cells and tissues that are impossible to obtain in other ways.

Religious, ethical and legal problems abound as everyone knows.

The Good

Scientists have made major breakthroughs in changing embryonic stem cells into more specific cell types.

The Uncertain

- The stem cells might not survive
- Could they form tumors?
- Could they change into something unintended?
- Will there be immune system rejection?

This may be a good place to stop for this week as I am out of column space. I have lots more to tell you about stem cells including some information about how they will be used to help future patients and Orthopaedic Surgeons treating these patients.

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Website, Your Orthopaedic Connection, Archive of all previous GCH articles.

Please check it out. Be well.

Dr. Haverbush