

“STEM CELLS”: THE SCIENCE AND EFFICACY

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We have entered the rapidly evolving stem cell age. The media saturates us with stories, hype and promises about stem cell wonders and cures. As clinicians, we witnessed the initial achievements in cell therapy unlocking the potential for actual organ repair and replacement. While academia and industry may eventually provide pharmaceutical “stem cells in a bottle,” there already exists an alternative clinical industry of stem cell treatment clinics offering cell therapies derived from adult tissues – particularly adipose tissue. These centers offer patients treatment options that they cannot obtain in many traditional doctors’ offices or large trials. In the US, same day surgical procedures permit physicians to transfer tissues rich in stem cells to damaged areas of the body providing patients access to regenerative therapies now. Same day surgical procedures that maintain sterility without risk of disease transmission support the very mission of the current FDA tissue handling rules. Thus, stem cells found in autologous fat, fetal cord tissues, blood and bone marrow extracted through a safe and near painless procedure afford such clinics the opportunity to help countless patients now.

In 2008, colleagues in Asia provided Dr. Mark Berman, an internationally recognized expert on fat grafting procedures, an improved way to harvest and process fat for grafting. Further, they had developed a method to procure stromal vascular fraction (SVF – rich in mesenchymal stem cells) from fat. Once safe enzyme materials were available, a technique to produce a closed sterile surgical method for producing SVF was modified.

The mention of stem cells raises tremendous controversy, such that the American public tends to presume two things: (1) that the cells in question are embryonic cells, harvested from the tissue of aborted fetuses, or dead fetuses created and altered in a laboratory for scientific purposes and (2) that actual operations using stem cells derived from human tissue will be a phenomenon of the distant future – they won’t be available here in the United States for at least another decade. Yet at California Stem Cell Treatment Center, patients have been receiving “stem-cell” injections since December 2010. If conventional thinking –places stem cells squarely in the future, how is it possible for us to offer leading edge treatment right now? And is this even legal?

Today, collaborating with colleagues in different medical specialties, treatments are offered for conditions that are quite different from original specialties, including heart disease, neurological disease, and muscular dystrophy. Patients with Hashimoto's Thyroiditis might be surprised to learn that there's a promising new treatment for this disease – however, they might not get the news from an endocrinologist, per se, but from a distinguished orthopedic surgeon with an interest in endocrinology.

HOW THERAPEUTIC STEM CELLS AUGMENT THE HEALING PROCESS

Many Scientists contend that when stem cells are injected or infused into a person, they tend to travel to those parts of the body that have suffered from some type of injury. At these sites of injury, the blood vessels typically have been damaged, narrowed, and constricted. These constrictions prevent the oxygen-carrying red blood cells from passing through to the tissues, which produces areas of reduced oxygen – a state known as hypoxia.” Since stem cells are relatively large, they become lodged in these narrowed and constricted blood vessels (where the low levels of oxygen are just what stem cells tend to thrive in; see “Oxygen and Early Human Development” below). In addition, the endothelial cells that form the inner lining of the damaged blood vessels express certain biochemical signals including cytokines and growth factors, which have been shown in laboratory studies to attract stem cells to the site of damage. Theoretically, once the stem cells arrive at the side of damage, they go about differentiating into the specialized cells required for tissue repair.

Many researchers believe that as the stem cells divide into more specialized cells, they are able to transform into new blood vessels, neurons (nerve cells), muscle tissue, eye tissue, pancreatic tissue, kidney tissue, liver tissue, bone marrow, lung tissue, and so on, depending upon where in the body they wind up and also on the local tissue environment, most likely due to the wealth of growth factors and other body chemicals that influence or govern many aspects of cellular activity contained in the tissues.

CONCLUSION

Ancient peoples observed instances of regeneration in animals, which inspired many ancient myths and esoteric medical practices but also formed the basis of modern research, into this field. And, of course, they saw instances of their own bodies' ability to renew and regenerate certain tissues such as skin and bone. Today, we know that at least some of this repair and regeneration is due to the activity of stem cells. Indeed, it appears that these versatile cells are one of the body's most important built-in repair mechanisms. When disease strikes, injured, or otherwise traumatized tissue sets the stage for marshalling stem cells to the "hot spot" where they apparently begin churning out compounds that help the body heal and, in some instances, actually are transformed into cells to replace those that are distressed or diseased.

Unfortunately, people's own stem cell supply may not be sufficient to meet the demand posed by a major illness or injury, or else may not respond to signals emanating from the damaged organ or tissue. The aging process may also compromise stem-cell response and subsequent activity, and so may conditions such as heavy metal toxicity that might tend to thwart signal responses or interfere with their ability to migrate, engraft, and proliferate. In these instances, there are medically effective interventions such as heavy metal detoxification and nutritional support that can help make the tissue environment less inhospitable to stem cells, after which stem cells can be introduced into a patient's body to help augment their own native stem-cell defenses. Human umbilical-cord stem cells are prime candidates for this purpose because they have a solid track record in terms of safety and at least preliminary evidence of being effective in helping the body deal with many health challenges.

So let's talk about one of the most successful forms of Stem Cell Treatment "through fetal cord tissue". By far one of the best forms of stem cell gathering and success rates of all sources. The attached review on bone marrow and umbilical cord blood human.

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