Platelet-Rich Plasma and Mesenchymal Stem Cells:

Our Powers Combined

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A lot of research, as well as quite a few of our blogs, have been dedicated to the healing power of Stromal Vascular Fraction (SVF), a multipotent “gumbo” of regenerative cell types, which supercharges the healing process, initiating repair and healing and restoring damaged tissues. When taken as a whole, this nearly-perfect biological cocktail has led to positive outcomes for a number of patients around the world, and taken the field of regenerative medicine in an entirely new direction. For the basis of this blog, we will be delving deeper into two of the vital ingredients of regenerative medicine, namely Mesenchymal stem cells (MSCs) and platelet-rich plasma (PRP).

MSC’s in Regenerative Medicine

Adipose-derived Mesenchymal stem cells (ADSCs) are valued in regenerative medicine owing, in part, to their relative ease of isolation, meaning that it is easily extracted and concentrated. The procedure is nearly completely painless, no more so than a simple injection by the doctor. Due to their presence throughout the body, adipose-derived stem cells, unlike bone marrow-derived stem cells procurement, do not require any recovery time. ADSC’s secrete a wide variety of growth factors which promote tissue regeneration and aid in overall healing. Most excitingly, adipose-derived stem cells can differentiate to meet the varied needs of the body. MSC’s have self-renewing (proliferative) properties and are proven to establish “multipotent differentiation.” For example, when injected into a failing heart, the stem cells create new blood vessels and heart muscle fibers to repair any damage. When injected into an arthritic joint, the stem cells differentiate to create new cartilage, bone, tendon, as well as connective tissue and blood vessels. Not content to simply halt the damage of degenerative conditions, mesenchymal stem cells actually do reverse the harm caused by degenerative disorders by repair and healing.
Platelet-Rich Plasma in Regenerative Medicine

Platelet-rich plasma, another important tool in regenerative medicine, is essentially a “ramped-up” version of the healing factors present in your blood. PRP has been utilized in medicine since the 1970’s for wound healing, and new research is showing its ability to do more than just that. Using a simple lab procedure, platelets are taken from the patient and concentrated to around 3-5 times the normal ratio of platelet to serum. This “super blood” is then injected into the healing site. PRP, like stem cells, also contains high levels of many growth factors necessary for healing. These growth factors, including stem cells, can stimulate both cellular proliferation (reproduction) and differentiation (the aforementioned ability to diversify and create a variety of tissue types as needed). The levels of stem cells in PRP are nowhere near the levels seen in adipose-derived treatments, as stem cells are less abundant in blood than fat tissue. Nevertheless, PRP is a valuable tool in the treatment of disease and the promotion of tissue regeneration.

The Best of Both Worlds

When viewed as two separate treatments, a case could be made for both MSC’s and PRP Therapy modalities combined. PRP is a proven wound healing intervention, giving a much-needed shot in the arm to the natural healing process. Stem Cell therapies have been shown to reverse the negative health consequences of a wide variety of diseases, from Osteoarthritis to Diabetes. Yet, when viewed as two aspects of a common therapy, the potential for the future of regenerative medicine is a bright one indeed. If as previously shown, PRP as a suspension matrix, increases the potential for the success of transplanted cells, then isn’t it fair to consider that PRP could positively contribute to the outcomes of Stem Cell therapy? Many studies describe the potential benefits of using PRP and stem cells in conjunction for tissue regeneration and traumatic wound healing. The PRP, which can function as a “scaffold” essentially supporting and anchoring the stem cells as they work to differentiate and proliferate, has also been shown to have inherent immunomodulatory factors of its own. This means that in addition to the platelet concentration, PRP also modulates the activity of white blood cells, which fight infection and foreign bodies within the wound area.
In conclusion, both Platelet-rich plasma and Mesenchymal Stem Cells have enormous potential as therapeutic interventions for pain, degenerative conditions, and wound healing. Research is being conducted to determine what other conditions, diseases, and disorders can effectively be treated using these methods. When studied alone, each of these modalities have merit in one area of medicine or another. But, when treated as two members of a treatment team, available separately or together at the point-of-care, the possibilities are astounding. As proud members of the Cell Surgical Network (CSN), you can be assured that we provide top-of-the-line care while helping our patients increase mobility and functionality. We help provide solutions for everything inflammatory, autoimmune or degenerative, ranging from Alopecia to Scleroderma, provide stroke recovery options, relief from Rheumatoid Arthritis, Parkinson's, and Neuropathy, in addition to a host of degenerative joint complaints. We are part of a giant research project, through the CSN that first addresses the safety, then the benefit, efficacy and predictability of stem cell deployment and outcomes in various disease entities. Our safety record has been published in a peer-review journal, which shows an excellent safety record to the procedure.

Contact Gulf Coast Stem Cell and Regenerative Medicine Center and let us show you what “Excellence with a Human Touch” means. For more information on the full list of diseases and disorders that we currently address, please call (866) 865-4823. Our facility is located at 1153-1155 Ocean Springs Rd., Ocean Springs, MS 39564. Alternatively, visit our website at www.gulfcoaststemcell.com.