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Adipose-derived stem cell therapy for osteoarthritis of the knee

Autologous stem cells have been used for decades by veterinarians for predominantly dogs successfully. In the last 10 years this has extended to human use and many trials are under way or have been reported already. The safety and efficacy has been published by many investigators. The CSN group published their first report of 1524 patients in February, this year in the *American Journal of Cosmetic Medicine*, demonstrating similarly. Osteoarthritis is an increasing major health issue consuming large amounts of health resources. Prior treatment has simply been supportive, with analgesia, physiotherapy, encouraging non-weight-bearing exercise, and awaiting an arthroplasty. This non-surgical minimally invasive procedure is well tolerated by adult patients of all ages. Stromal vascular fraction (SVF) containing high numbers of viable stem cells and many cytokines is deployed directly intra-articularly as well as intra-venously. The CSN treatment protocols were followed, having obtained IRD approval from the FDA in the USA, using strict sterile technique. AMSCs were quantified and viability noted. In a surprisingly high percentage of cases markedly improved quality of life, with less pain, better mobility, a reduction in weight and reactive depression results with a single treatment. Biomechanical abnormalities will not be corrected. Studies in Australia have demonstrated hyaline cartilage repair on T2 weighted MRI. AMSCs can replicate, differentiate and affect tissue repair with good clinical outcomes. Self-reported patient linear analogue pain scores are recorded over time for a 24 months postop period. Avoidance of surgery and anaesthetic risks, as well as lengthy rehabilitation post-surgery are common requests by patients seeking this treatment. Patients were treated in a private medical facility in New Zealand as a day stay outpatient procedure. Only local anaesthesia was used for lipoharvesting and as a skin bleb for knee injection. No LA was administered into any joint spaces. The results of treating over 200 knees will be presented. Pain relief is often immediate and sustained, reflecting the critical inclusion of the growth and healing factors (cytokines) in the SVF. No adverse outcomes have been reported in this series, other than minor bruising at the lipoharvest site. Nil infections have been seen. Audit of SVF sterility was undertaken.

Biography

Peter Chapman-Smith is the Director of the New Zealand Stem Cell Treatment Centre, based in Whangarei, NZ. He has been performing adipose-derived mesenchymal stem cell (AMSC)/SVF therapy for 3 years. He is an Affiliate Member of the CSN group in the US. This experimental technique offers hope for regenerative change, a popular nonsurgical option for osteoarthritis and for many medical disorders. As a Phlebologist and Appearance Medicine Physician, he regularly performs liposuction under tumescent anaesthesia. He presented on the use of AMSCs in the treatment of chronic low back pain at the 5th Tissue Engineering and Regenerative Medicine meeting in Berlin in 2016.

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