Loma Linda Student Journal

Multimodality Minimally Invasive Treatment of Large Joint Osteoarthritis: A Pilot Trial of Stromal Vascular Fraction from Autologous Fat Combined with Platelet-Rich Plasma

Philip Giddings, Insiyah Campwala, Subhas Gupta

INTRODUCTION

Osteoarthritis (OA) is a degenerative joint disease that can cause severe pain in those affected. Currently, there are no therapeutic drugs available to treat osteoarthritis. While total joint arthroplasties (TJA) allow for improved function, there are no less invasive, yet effective procedures that can be done for patients unwilling or unable to undergo major surgery.

Platelet-rich plasma (PRP) has been shown to reduce the symptoms of OA when injected into the affected joint. Patients treated by this method alone have improved self-reported pain (at least a 50% reduction from original value) as well as lower extremity function. While the effects of PRP treatment on OA have been positive, treatment with SVF offers additional benefits that PRP alone cannot. SVF contains a significant amount of mesenchymal stem cells (MSC), which have great potential in the field of regenerative medicine. The potential to generate new cartilage in osteoarthritic joints goes beyond treatment of the symptoms offering a reversal of the harmful pathology. Considering the positive results seen from both SVF and PRP treatment, the reduced risk of surgical complication when compared to TJA, and the possibility for equal or greater pain improvement and joint functionality compared to TJA, we believed it would be advantageous to investigate a combined PRP and SVF therapy for relief of both mild and advanced stage OA.

MATERIAL AND METHODS

Patients with moderate osteoarthritis presenting with severe hip pain were selected for treatment. After a detailed informed consent process, patients were taken to the operating room for the proposed combination treatment. SVF was isolated using liposuction equipment, and PRP and SVF were centrifuged independently. With ultrasound guidance, a mixture of PRP (10mL) and SVF (10mL) was injected into the osteoarthritic hip joints of patients under general anesthesia. The Western Ontario and McMaster Universities Arthritis Index (WOMAC) scale was used to assess patients preoperatively and postoperatively to assess pain improvement.

RESULTS

WOMAC scores were 67/96 preoperatively, and 17/96 at five weeks post-op. This indicated a decrease in pain and increased mobility. The procedure was both efficient—taking approximately one hour of operative time—and cost effective. No intraoperative nor postoperative morbidities were found.

CONCLUSION

This new combination therapy offers a minimally invasive, low-risk and high-satisfaction treatment for osteoarthritic joints.

From Loma Linda University Medical Center (P.G., I.C., S.G.)
Accepted for publication: November 2017
The authors have no funding, financial relationships, or conflicts of interest to disclose.
Send correspondence to: pgiddings@llu.edu