Autologous Tenocyte Implantation For Gluteal Tendinopathy, 
an update with 24 month follow-up

A Prospective Pilot Study

Thomas Bucher, William Breidahl, Jay Ebert, Ming Hao Zheng and Greg Janes.

Abstract

Background/Aim

Autologous tenocyte injection (ATI) has shown promise in treatment of gluteal tendinopathy. Here we have updated study results with 24-month follow-up and correlation to the molecular profile of growth factor production by tendon cells.

Methods

All patients (n=12) recruited had a long duration of symptoms (mean 33 months) and had not respond to other non-surgical treatments. Tendon cells were harvested from the patellar tendon through a needle biopsy and propagated in a GMP-licenced laboratory. Cell suspension (at least 5x10⁶ cells) was injected into the site of pathological gluteal tendons under ultrasound guidance. All patients were assessed pre-treatment and at 3-, 6-, 12- and 24-months post-treatment with the Oxford Hip Score, Merle D’aubigne Postel Score, 36-item Short-Form Health Survey and a Visual Analogue Pain Scale. Magnetic Resonance Imaging was performed pre-treatment and at 6-months post-ATI treatment.

Results

Molecular evaluation of autologous tendon cells showed a profile of growth factor production in all of the injected cells. These growth factors include fibroblast growth factor, Platelet-derived growth factor beta and transforming growth factor beta. A single injection of tendon cells into the site of gluteal tendinopathy showed statistically significant improvements (p<0.05) in the VAS, OHS, MDP score, and the Physical Component Score subscale of the SF-36 at 3 months. Continued improvement was observed at 24 months. One patient opted to undergo surgery after 12 months. All patients completed the Patient Satisfaction Questionnaire at 12-months post-treatment: 67% (n=8) were either ‘satisfied’ or ‘highly satisfied’ with the outcome of their procedure. However, MRI assessment showed little notable changes in the radiological appearance of tendinopathic tissue due to the complexity of the anatomical features of gluteal tendon.

Discussion

ATI significantly improved clinical outcome in patients with chronic gluteal tendinopathy at 24 months. We remain guarded about the level of efficacy given the small sample size, however this study has shown promise to plan a larger randomised controlled study.