

The efficacy and safety of autologous conditioned serum (ACS) injections compared with betamethasone and placebo injections in the treatment of chronic shoulder joint pain due to supraspinatus tendinopathy: a prospective, randomized, double-blind, controlled study

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Abstract

Aims: Autologous conditioned serum (ACS; marketed as Orthokine®) is an autologous blood product that has previously shown efficacy in treatment of joint osteoarthritis, spinal radiculopathy, tendon and muscle injuries in randomized controlled trials. In this 24-week, randomized, double-blind study, we compared the efficacy and safety of ACS with glucocorticoid (betamethasone) injections in chronic supraspinatus tendinopathy patients.

Material and methods: Thirty-two patients with chronic supraspinatus tendinopathy were enrolled in the study. The ACS group received four ACS injections once weekly over four weeks and the glucocorticoid group received three betamethasone injections once weekly over three weeks with a placebo (saline) injection at week 4 into the enthesis and paratenon of the supraspinatus tendon. Study endpoints were pain intensity (VAS) and Constant Shoulder Score (CSS) assessed at weeks 0, 4 and 24.

Results: Shoulder pain intensity improved after 4 weeks and significantly improved after 24 weeks in patients treated with ACS compared with those treated with glucocorticoids (pain intensity week 4: ACS=22.0, glucocorticoid=32.0; week 24: ACS=15.0, glucocorticoid=40.0). CSS improved to a similar extent in both groups after 4 weeks. After 24 weeks, ACS patients exhibited significantly greater CSS improvements than glucocorticoid patients. Adverse events (n=8) were reported in betamethasone patients.

Conclusions: Compared with betamethasone, ACS therapy improved joint function and reduced shoulder pain more effectively after 4 weeks of treatment; these improvements

were sustained to week 24. Combined with its favorable safety profile, ACS appears to be a more effective treatment than glucocorticoids and could enhance the quality of life in patients with chronic rotator cuff tendinopathy.

Keywords: autologous conditioned serum; betamethasone; chronic supraspinatus tendinopathy