

## **Shoulder injections with autologous conditioned serum reduce pain and disability in glenohumeral osteoarthritis: longitudinal observational study**

Maciej J. K. Simon, Vivian E. Aartsen, Jennifer A. Coghlan, André Strahl and Simon N. Bell

**Background:** Currently, non-surgical treatments for glenohumeral osteoarthritis (GH-OA) mainly aim to reduce pain. Autologous conditioned serum (ACS), Orthokine, an interleukin-1 inhibitor from the patient's own blood has an anti-inflammatory effect. The objective was to determine whether intra-articular injections of this ACS improved symptoms in patients with GH-OA and delayed the need for a shoulder replacement.

**Methods:** A total of 36 consecutive patients, 40 shoulders, with OA received up to 6-weekly intra-articular injections of ACS were included. Imaging of GH-OA, range of motion, visual analogue scale (VAS) pain, Shoulder Pain And Disability Index (SPADI), American Shoulder and Elbow Surgeons and Constant scores were assessed pre-injection and post treatment at 3 months. At a minimum of 2 years, VAS and SPADI scores and whether anyone had progressed to a shoulder replacement were recorded.

**Results:** Outcomes 3 months post-ACS injections demonstrated on average statistically significant improvement ( $P < 0.05$ ) of all measurements: SPADI ( $54.3 \pm 21.5$  vs  $43.7 \pm 23.7$ ), Constant score ( $50.5 \pm 14.1$  vs  $57.1 \pm 17.4$ ), VAS pain ( $4.8 \pm 2.2$  vs  $3.7 \pm 2.4$ ) and range of motion. Of these, 16 shoulders progressed to a shoulder replacement, nine cases quickly ( $0.6 \pm 0.2$  years) and seven cases were delayed by  $3.1 \pm 1.7$  years. The other 18 cases had significant improvement in pain, SPADI ( $58.0 \pm 19.6$  to  $31.8 \pm 21.4$ ;  $P < 0.01$ ) scores and no progression to a shoulder replacement at  $3.6 \pm 1.0$  years follow-up. There was no correlation of glenoid Walch score or joint space with clinical outcome parameters.

**Conclusion:** ACS injections in the shoulder joint for OA can reduce pain and disability, and postpone the need for a shoulder replacement.

**Key words:** autologous conditioned serum, glenohumeral osteoarthritis, intra-articular injection, nonoperative management, shoulder