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Paper #56

A Single PRP Injection Post Rotator Cuff Repair Improves Goutallier Grade Compared to Saline in a Double Blinded Randomized Controlled Trial

Martyn Snow, FRCS, UNITED KINGDOM
Faisal Hussain, MBBS, FRCS(Tr&Orth), UNITED KINGDOM
Tomasz Kowalski, MD, PhD, UNITED KINGDOM
Samir Massoud, FRCS, UNITED KINGDOM
Steve James, MBChB, FRCR, UNITED KINGDOM

The Royal Orthopaedic Hospital
Birmingham, UNITED KINGDOM

Summary:
A single subacromial injection of prp given 10-14 days post rotator cuff repair did not improve clinical outcome compared to normal saline, however it did prevent a deterioration in goutallier grade.

Abstract:

Aim

The aim of this study was to determine if a single subacromial injection of Autologous Platelet Rich Plasma (APRP) improves outcomes following rotator cuff repair.

Methods

All patients undergoing arthroscopic rotator cuff repair in our unit were asked to enter the trial. They must have had a symptomatic rotator cuff tear for at least 3 months which had failed conservative management. The tear had to be full thickness and between 1- 5cm. Patients were excluded if there was an associated subscapularis tear, osteoarthritis, previous proximal humeral fracture and a current insurance/compensation claim related to the index shoulder.

All patients were assessed using the American Shoulder and Elbow score (ASES), Constant score, Western Ontario Rotator Cuff score (WORC) and the disabilities of the arm, shoulder and hand score (DASH) pre surgery and at 6 and 12 months by a blinded researcher. Goutallier grading was undertaken on MRI pre-surgery and at 12 months post-surgery.

The patients were then randomized using a closed envelope system by an independent researcher. The rotator cuff was repaired according to the surgeons preferred technique.

Patients randomized to the treatment group received an Ultrasound guided injection of 6mls of activated PRP in the outpatient department at 2 weeks. The injection was prepared from 60mls of the patients' own blood and centrifuged using the GPS III system (BIOMET, Warsaw, IN). Patients randomized to the control group had 60mls of their blood taken and then discarded. They then received a 6ml injection of normal saline performed in a similar fashion under ultrasound guidance. The radiologist and patient was blinded as to which injection had been allocated.

Results

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There were 47 patients in the NS group and 40 in the PRP group. There were no significant differences between groups for age, sex, tear size, or associated pathology. The majority of the repairs in both groups were carried out using a double row suture bridge technique.

Of the 87 patients, 77 had imaging performed at 1year. The overall rate of re-tear (suguyer grade 4 and 5) was 21% in the control group verus 15.3% in the PRP group, this was not statistically significant (p 0.77). There was no statistical significance between the 2 groups for any grade (p 0.55)

There was no significant difference in the goutallier grade pre-operatively between groups. The goutallier grade was significantly higher in the normal saline group at 1 year post surgery when compared to the PRP group. Pre-operatively 10.5% within the NS group had grade 2 and 3 fatty atrophy, which increased to 23.5% at 1 year. In comparison, the PRP which increased from 10% to 13% (p 0.4)

Conclusion

A single subacromial injection of prp given 10-14 days post rotator cuff repair did not improve clinical outcome compared to normal saline, however it did prevent a deterioration in goutallier grade. There was a trend towards better rotator cuff healing at 12 months. There was a significant increase in goutallier grade on MRI post-surgery in the NS group compared to the PRP treated group despite no difference in healing rates.