Outcome evaluation of Platelet-Rich Plasma (PRP) and Autologous Conditioned Serum (ACS) versus commonly used intra-articular injectables (Hyaluronic acid and Steroid) for Early Osteoarthritis Knee

Dr Ankit Khurana,
Assistant Professor Orthopaedics
Dr BSA Medical college and Hospital, Rohini, Delhi

Contributing Authors: Dr Navneet Goel, Dr Gaurav Akhand
Dr BSA Medical college and Hospital, Rohini, Delhi

INTRODUCTION

INTRODUCTION: Plantar fasciitis which is a common cause of heel pain, often results in significant morbidity. In cases who are not responsive to initial conservative treatments, invasive procedures in the form of local infiltration of steroid are required but is riddled with complications. Local platelet-rich plasma (PRP) infiltration is an emerging alternative for this condition. However, whether it is more effective in reducing pain and improving function than other treatments (such as steroid injection, or whole blood) remains controversial.

AIM: The aim of present study was thus to compare two commonly used biologics (Platelet Rich Plasma/PRP and Autologous Conditioned Serum/ACS) to each other and to established therapies.

Methods

After required institutional clearances, all patients presenting with early primary osteoarthritis knee who had failed initial conservative management and received only unilateral knee injection were included. Patients in the PRP group were initially compared to the control groups (comprising the HA/hyaluronic acid group and the Steroid group). A further comparison was carried out with a matched cohort who had been administered ACS for the same indication earlier. Clinical outcome was evaluated using the Western Ontario and McMaster Universities Arthritis Index (WOMAC) questionnaire and Visual Analogue scale (VAS) pre-injection and at 6 months.
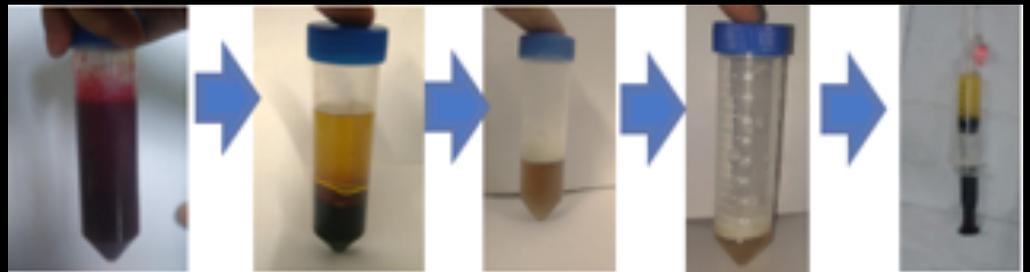
Results

ACS and PRP did not have any significant difference in terms of either WOMAC score (p=0.154) or VAS score at 6 months (p=0.850). The scores for both these orthobiologics were better than the control groups (HA group and Steroid group). Between the two control groups, HA group had better VAS scores as compared to the Steroid group (p=0.008).

Table 1: Association between Group and Parameters

Parameters	Group				p value
	PRP (n = 27)	ACS (n = 21)	Steroid (n = 28)	HA (n = 20)	
Age (Years)***	56.33 ± 4.37	50.81 ± 8.93	54.68 ± 5.00	51.85 ± 7.66	0.016
Gender					0.916
Male	9 (33.3%)	7 (33.3%)	8 (28.6%)	5 (25.0%)	
Female	18 (66.7%)	14 (66.7%)	20 (71.4%)	15 (75.0%)	
KL Grade					0.275
Grade 1	2 (7.4%)	7 (33.3%)	2 (7.1%)	3 (15.0%)	
Grade 2	16 (59.3%)	8 (38.1%)	15 (53.6%)	11 (55.0%)	
Grade 3	9 (33.3%)	6 (28.6%)	11 (39.3%)	6 (30.0%)	
BMI (Kg/m2)	31.48 ± 3.91	30.46 ± 3.57	31.19 ± 4.05	31.05 ± 3.39	0.827
VAS (Pre-Injection)	6.22 ± 1.34	6.14 ± 1.24	6.79 ± 0.96	6.15 ± 1.31	0.09
VAS (6 Months)***	3.07 ± 2.30	2.29 ± 1.45	6.32 ± 2.06	3.90 ± 1.62	<0.001
WOMAC (Pre-Injection)	48.04 ± 9.53	43.29 ± 16.15	44.61 ± 10.38	41.30 ± 9.60	0.104
WOMAC (6 Months)***	20.52 ± 14.53	11.33 ± 6.48	42.29 ± 21.13	25.40 ± 9.64	<0.001
Percent Change in VAS***	-53.07 ± 31.16	-61.24 ± 25.30	-7.99 ± 30.71	-35.21 ± 26.89	<0.001
Percent Change in WOMAC***	-59.71 ± 24.07	-70.10 ± 20.46	0.01 ± 62.08	-35.51 ± 26.01	<0.001

***Significant at p<0.05, 1: One-Way ANOVA, 2: Chi-Squared Test, 3: Fisher's Exact Test, 4: Kruskal Wallis Test

Conclusion

The clinical outcomes following intra-articular injection of ACS and PRP are better than controls (HA and Steroid), but a difference between the two orthobiologics could not be demonstrated.