



AN ASSESSMENT OF CLINICAL OUTCOMES OF PRP THERAPY IN OA KNEE-A PROSPECTIVE STUDY

Orthopaedics

Dr. Mohik Makkar*

Junior Resident, Department of Orthopaedics, Rohilkhand Medical College and hospital, Bareilly, U.P, India. *Corresponding Author

Dr. Anant Agarwal

Assistant Professor, Department of Orthopaedics, Rohilkhand Medical College and hospital, Bareilly, U.P, India.

Dr. Nipun Patel

Junior Resident, Department of Orthopaedics, Rohilkhand Medical College and hospital, Bareilly, U.P, India.

ABSTRACT

Background- PRP is an autologous mixture of highly concentrated platelets and associated growth factors and other bioactive components produced by centrifugal separation of whole blood used in OA knee. The purpose of the study was to evaluate the role of PRP in management of OA knee and its clinical outcome in term of decrement in WOMAC and VAS scores up to 12 months follow up. **Method-** 100 patients with 150 knees (65 female, 35 male) with Kellgren-Lawrence grade 1, 2, 3 and 4 aged between 50 to 72 years evaluated between November 2023 to October 2024. All patients were treated with 6 ml of intra-articular PRP injection at day 1 and at the end of 1st, 3rd, 6th and 12 months and evaluated on each visit with WOMAC and VAS scores. **Result-** Among, 100 Patients (150 knee) Decrement in WOMAC score for KL grade 1 (43.26%), grade 2 (30%), grade 3 (27%), KL grade 4 (6%) at the end of 12 months follow up. Decrement in VAS score for KL grade 1 (57%), KL grade 2 (42%), KL grade 3 (28%), KL grade 4 (3%) at the end of 12 months follow up. Decrement in WOMAC and VAS score were statically significant with p value (<0.05) at 12 months follow up for K.L. grade 1, 2 and 3. Decrement was not statically significant for K.L. grade 4. **Conclusion-** This outcomes of result shows that PRP therapy is minimal invasive and effective in reduction of knee pain and stiffness and improvement in quality of life only in patients with early stages of osteoarthritis knee.

KEYWORDS

Platelet rich plasma, WOMAC, VAS, OA

INTRODUCTION

Osteoarthritis (OA) is estimated to be the fourth most common cause of disability.¹ It may be the most prevalent joint condition worldwide in adults.² At least 19% of Americans aged 45 and older are estimated to have knee OA, representing approximately 80% of the disease's total burden.³ Because of lifestyle changes and higher life expectancies, osteoarthritis is becoming much more common; from the mid-1900s, osteoarthritis in the knee has increased by 100%.⁴ There is systematic data on the prevalence from western nations, such as the United States, where 20 million people are thought to be affected, with a frequency of more than 60% in those over 70 years of age. The prevalence of osteoarthritis varies between 17.6% and 60.6%, according to data from community surveys carried out in both rural and urban areas of India.⁵ This dual action of PRP, both anti-inflammatory and regenerative, makes it an attractive option for treating OA, particularly in patients who wish to avoid or delay surgical intervention. The importance of PRP lies in its ability to address both the symptoms and the underlying pathology of OA.

AIMS AND OBJECTIVES

To evaluate clinical and functional outcome of PRP therapy in knee osteoarthritis.

MATERIAL AND METHODS

After Approval from ethical committee we prospectively analysed 100 patients (150 knees) of osteoarthritis knee coming to the orthopaedics department at Rohilkhand medical college between November 2023 to October 2024 fulfilling exclusion and inclusion criteria.

Inclusion Criteria

Patients (50-72 years) with clinical symptoms of osteoarthritis knee and the radiologic signs of knee with OA Grade 1, 2, and 3 and 4 according to Kallgren and Lawrence classification for more than 1 year with failure to reduce symptoms after analgesics.

Exclusion Criteria

Infection in and around knee, history of severe trauma to the knee, immune compromise state, collagen vascular diseases, any malignant disorders, clotting disorders, taking anticoagulant and antiplatelet medications, history of intraarticular knee injections of corticosteroids, abnormal blood cellular counts.

Statistical Analysis

Data were analysed using GraphPad Software (Inc.7825 Fay Avenue, Suite 230 La Jolla, CA 92037 USA). Data from Kellgren-Lawrence

grade and WOMAC score/VAS score, MRI cartilage thickness were evaluated by the paired t test. P -value < 0.05 was accepted as statistically significant for all tests.

OUTCOME ANALYSIS

Patients were evaluated using Western Ontario and McMaster Universities Arthritis Index (WOMAC) and Visual Analogue Score (VAS) at day 1, at the end of 1st, 3rd, 6th and 12th month on follow up.

RESULTS AND OBSERVATIONS

Mean age of patients under study was 63.21 years. 100 Patients (65 females, 35 males) with 150 knees were evaluated

Table 1: Mean Age Under Study Was 63.21

	No. of Patients	No. of knee
Male	35	52
Female	65	98

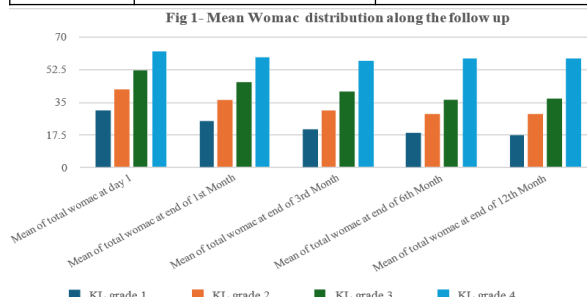


Table 2: Mean VAS Along The Follow Ups

KL grade	Mean of total VAS at day 1	Mean of total VAS at end of 1 st Month	Mean of total VAS at end of 3 rd Month	Mean of total VAS at end of 6 th Month	Mean of total VAS at end of 12 th Month
KL grade 1	4.72	3.06	2.5	2.3	2
KL grade 2	5.89	4.5	3.8	3.4	3.4
KL grade 3	7.21	5.5	5.5	5.2	5.2
KL grade 4	8.12	7.8	7.8	7.6	7.8

- In our study only KL grade 1, 2 and 3 showed statically Significant improvement (p value<0.05) in WOMAC
- VAS score at 12month follow up.For KL grade 4 OA there is no statically significant
- Improvement in WOMAC and VAS score.
- No major complications were noted in our study which is Comparable with other study reports and signifies the Safety profile of autologous PRP intra-articular injections.
- No infection, fever, or other major adverse events Occurred among study subjects. 7 patients had mild Effusion and pain after the injections, which persisted for Not more than 4 days.
- Mean platelet concentration was about 5-fold increase in Mean platelet concentration.

DISCUSSION

Platelet-rich plasma (PRP) is an autologous biologic treatment Including patients own plasma, containing growth factors Released from platelets and endogenous fibrin scaffold. The Rationale for the use of PRP is to stimulate the natural healing Cascade and tissue regeneration by a “supra-physiologic” Release of platelet-derived factors directly at the site of Treatment[1]. The purpose of this study was to investigate the effectiveness Of intra-articular PRP injections in active patients with Symptomatic knee OA in terms of diminishing pain, Improving quality of life, and returning to previous activities. All patients showed significant improvement in WOMAC Score at 1, 3, 6 and 12 months (P value < 0.05) except grade 4 OA at 12 month follow up. All patients showed significant Improvement in VAS score at 1, 3, 6 and 12 months (P Value < 0.05 except grade 4 OA at 12 month follow up. It Concluded that PRP injections can represent a valuable Treatment in patients with early OA knee (K.L. grade 1, 2, 3) In long term follow up. Our study results are comparable with other conducted studies By Sampson S at al. “(2010), Filardo G et al⁷(2011), Dhillon M et al.⁸(2011) and other studies. The main limitation of our study was that we did not include a Control group and did not included radiology.

CONCLUSION

The findings of the current study suggest that PRP is Minimally invasive, safe and cost- effective treatmant for early Grades of osteoarthritis in terms of diminishing pain,improving quality of life, and returning to previous activities. However, more large studies needed to evaluate long term outcome of PRP therapy.

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