Original Research Article

Functional outcome in grade I & II osteoarthritis knee joint patients treated with platelet rich plasma injection

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Abstract

Background: Osteoarthritis is a slowly progressive degenerative disorder of synovial joints in which there is gradual softening and disintegration of articular cartilage accompanied by osteophyte formation, affecting the individuals from 4th decade. The most commonly involved is the knee joint. Role of platelets in coagulation, inflammatory processes, and immunity modulation is well known. **Objective:** To evaluate the functional outcome in Grade I and II osteoarthritis knee joint after platelet rich plasma injection. **Methods:** This is a prospective observational study done at GEMS Medical College & School among 30 patients who came to Orthopaedics Department, diagnosed with Osteoarthritis Grade I and II followed for 6 months. Patients of both sex between 40-60 years were included. **Results:** 30 patients suffering from Grade I and II osteoarthritis knee joint who attended the outpatient department of orthopaedics, Great Eastern Medical School and Hospital were included in the study. X-ray knee antero-posterior and lateral views were taken in standing position. Vas score was taken for assessment of functional outcome. Pre-Injection and post injection scores at 1, 3, 6weeks, 6months intervals were taken. Use of two doses of PRP intra-articular injections in the management of osteoarthritis knee provides excellent pain relief, improvement in quality of life which is more effective in the early stages of osteoarthritis. **Conclusion:** PRP is a safe, easy, minimally invasive and cheap alternative in the management of knee osteoarthritis in grade I & II.
Keywords: Osteoarthritis, platelet rich plasma injection, platelet derived growth factor.

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INTRODUCTION

Osteoarthritis is a slowly progressive degenerative disorder of synovial joints in which there is gradual softening and disintegration of articular cartilage accompanied by osteophyte formation, affecting the individuals from 4th decade. The most commonly involved is the knee joint. Role of platelets in coagulation, inflammatory processes, and immunity modulation is well known. During degranulation, platelets release various growth factors like vascular endothelial growth factor, platelet-derived growth factor, transforming growth factor-B, insulin growth factor-I, and hepatocyte growth factor which promote angiogenesis, tissue remodelling, and wound healing and also proteases which are thought to be responsible for their analgesic properties. Therefore, platelet rich plasma which is a cost-effective method is used as a treatment option for osteoarthritis.

AIMS AND OBJECTIVES

To evaluate the functional outcome in Grade I and II osteoarthritis knee joint after platelet rich plasma injection.

MATERIALS AND METHODS

SOURCE OF STUDY: 30 Grade I and II osteoarthritis knee joint patients from the Department of Orthopaedics, Great Eastern Medical School and Hospital, Srikakulam were taken. Informed consent was taken from all patients.

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STUDY DESIGN: Prospective observational study. **STUDY PERIOD:** January-2021 to July-2021. **DURATION OF STUDY:** 6 months.

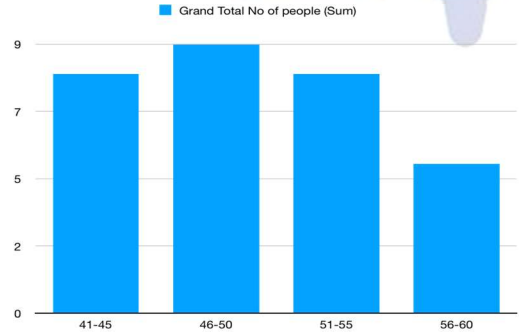
INCLUSION CRITERIA: Patients of both sex between 40-60 years. Patients with Grade I and II osteoarthritis knee joint.

EXCLUSION CRITERIA: Any patient above 60 years. Patients with diabetes mellitus. Patients with coexisting local infection. Immunocompromised patients. Patients with grade 3 and 4 osteoarthritis.

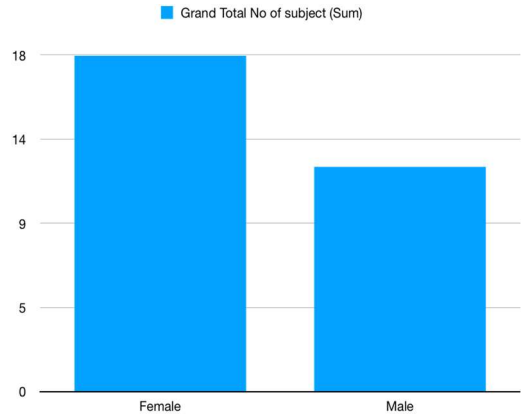
COLLECTION OF DATA: 30 patients suffering from Grade I and II osteoarthritis knee joint who attended the outpatient department of orthopaedics, Great Eastern Medical School and Hospital were included in the study. Informed and written consent was taken from the patients. General, physical examination, the systemic examination done. Neurovascular status of both lower limbs assessed. X-ray knee antero-posterior and lateral views were taken in standing position. Routine pre-injection VAS score was assessed. Under aseptic conditions, two platelet-rich plasma(PRP) injections were injected into the knee joint at four weeks interval. Functional status of the knee was evaluated at 1, 3, 6weeks, 6months intervals.

STATISTICAL ANALYSIS

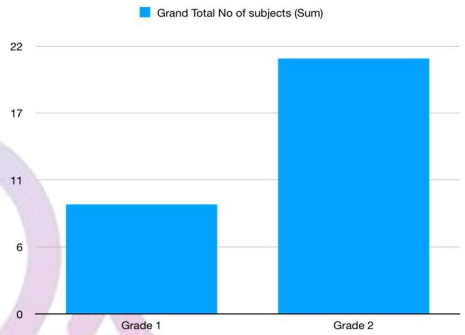
Age distribution	no of subjects	percentage
40-45	8	26.67
46-50	9	30
51-55	8	26.67
56-60	5	16.67



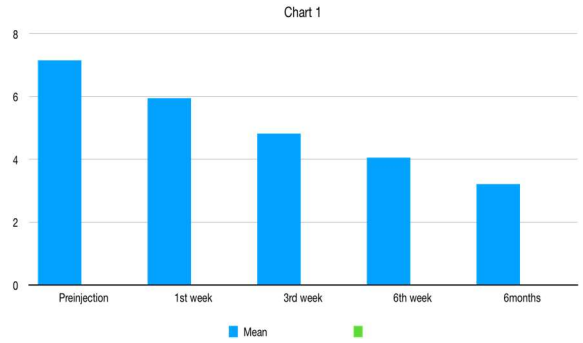
Gender distribution	no of subjects	percentage
Males	12	40
Females	18	60



KELLGREN-LAWRENCE GRADING	No of patients	percentage
Grade 1	9	30
Grade 2	21	70



VAS Score	Per injection	1st week	3rd week	6th week	6th month
n	30	30	30	30	30
mean	7.16	5.95	4.81	4.06	3.21
SD	0.99	1.15	1.25	1.44	1.62



SUMMARY

30 patients suffering from Grade I and II osteoarthritis knee joint who attended the outpatient department of orthopaedics, Great Eastern Medical School and Hospital were included in the study. X-ray knee antero-posterior and lateral views were taken in standing position. Vas score was taken for assessment of functional outcome. Pre

Injection and post injection scores at 1, 3, 6weeks, 6months intervals were taken. The present study concluded that two doses of PRP injection decreases the joint pain, alleviates the symptoms and enhances the activity of daily living and quality of life in short term duration.

CONCLUSION

Use of two doses of PRP intra-articular injections in the management of osteoarthritis knee provides excellent pain relief, improvement in quality of life which is more effective in the early stages of osteoarthritis. PRP is a safe, easy, minimally invasive and cheap alternative in the management of knee osteoarthritis.

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