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Protocol for PRP Therapy with Physiotherapy for Shoulder Adhesive Capsulitis

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We use this protocol and it's working

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Keywords: physiotherapy for shoulder adhesive capsulitis background, shoulder adhesive capsulitis, shoulder adhesive capsulitis background, managing adhesive capsulitis, adhesive capsulitis, patients with shoulder, approaches to frozen shoulder management, protocol for prp therapy, frozen shoulder management, prp therapy, sham prp with physiotherapy, shoulder pain, capsulitis, effectiveness of platelet, physiotherapy, combination with physiotherapy, shoulder, joint inflammation, prp, future integrative rehabilitation protocol, platelet, mobility due to joint inflammation, synovial fluid, evaluating muscle

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Abstract

Background and Purpose: Adhesive capsulitis, or frozen shoulder, leads to pain and reduced mobility due to joint inflammation and fibrosis. While physiotherapy is the standard treatment, recovery is often a slow process. Platelet-rich plasma (PRP), rich in growth factors, may enhance healing. This study aims to evaluate the effectiveness of Platelet-Rich Plasma in combination with physiotherapy on biomarkers, soft tissue morphology, and function in patients with shoulder adhesive capsulitis.

Methods: From June to December 2025, a double-blinded randomized control trial will be conducted at Jashore University of Science and Technology, Bangladesh, enrolling 60 patients with shoulder adhesive capsulitis. Participants will be randomly assigned to either PRP with physiotherapy (experimental) or sham PRP with physiotherapy (control), receiving 24 therapy sessions over 6 weeks. Primary outcomes include pain sensitivity, blood cell counts from synovial fluid, and soft tissue morphology. The secondary outcome is functional ability measured by Shoulder Pain and Disability Index (SPADI) at multiple time points. Ethical approval and trial registration will be obtained, and ICH-GCP guidelines will be followed. All adverse effects will be monitored and reported.

Discussion: The findings from this trial will highlight the synergistic effects of platelet-rich plasma (PRP) and physiotherapy in managing adhesive capsulitis. By addressing both the biological and mechanical contributors to the condition, the combined intervention could offer greater improvements in pain modulation, soft-tissue restoration, and functional outcomes compared to physiotherapy alone. Notably, changes in blood biomarkers and soft-tissue morphology may provide deeper insight into the therapeutic mechanisms of PRP. These results could inform future integrative rehabilitation protocols and support more personalized approaches to frozen shoulder management. However, long-term effects, cost-effectiveness, and broader applicability should be explored in future studies.

Conclusion: This study will provide essential evidence on the effectiveness of PRP therapy in evaluating muscle morphology and improving functional recovery in patients with adhesive capsulitis. The findings will contribute to advancing diagnostic accuracy, optimizing treatment strategies, and enhancing future research in musculoskeletal rehabilitation.

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Guidelines

CONSORT

Materials

Microscopic examination of Synovial fluid, MSK Ultrasound, Shoulder Pain and Disability Index (SPADI)



Eligibility Criteria

1 Inclusion Criteria:

- 1.1 Aged between 20 to 65 years.
- 1.2 Pain onset <3 months ago.
- 1.3 Shoulder pain aggravation when moving the shoulder joint.
- 1.4 Significant limitations of passive shoulder motion in more than one plane of the shoulder.

2 Exclusion Criteria:

- 2.1 Bilateral AC of the shoulder.
- 2.2 Previous GH joint injection within 6 months.
- 2.3 A history of using drugs due to adhesive capsulitis and surgery on the shoulder or manipulation under anaesthesia.
- 2.4 Neurologic deficits affecting shoulder functioning during ADL or diagnosed as brachial plexopathy by nerve conduction study (NCS).
- 2.5 Pain or disorders of the cervical spine, elbow, wrist or hand.
- 2.6 Contraindications to the injection procedure such as local cellulitis, septic arthritis, and acute fracture.



Study Sites with Contact Person

- 3 Musculoskeletal Lab Room - 301, Department of Physiotherapy and Rehabilitation, Jashore University of Science and Technology, Bangladesh.
- 3.1 Contact Person: Arafatuzzaman Babu. Email: arafatuzzamanbabu@gmail.com Phone: 01915900191.
- 4 Nurul Islam Orthopedic Rehabilitation and Physiotherapy Care, Jashore, Bangladesh.
- 4.1 Contact Person: Jahid Hasan. Email: jahidhasantony@gmail.com Phone: 01744129353.

Anticipated Date of Recruitment

- 5 20.07.2025

Study Method

- 6 Randomized Controlled Trial

Intervention Details

- 7 Experimental Group
- 7.1 PRP therapy: 4 mL of PRP mixed with 1 mL of 2% lidocaine in a 22-gauge spinal needle under aseptic conditions will be inserted in the affected joint.
- 7.2 Proprioceptive Neuromuscular Facilitation technique (PNF) Protocol: Shoulder Joint: D2 Flexion pattern (flexion+abduction+external rotation) Scapula: Anterior elevation and posterior depression then posterior elevation and anterior depression.
- 7.3 Capsular Stretching protocol: Caudal glide, posterior anterior glide, anterior posterior glide, Scapulothoracic articulation.



- 7.4 Rotator cuff strengthening exercise Protocol: Pendulum Swings, Isometric ER & IR (arm at side), Theraband exercise.
- 8 Control Group
 - 8.1 Sham PRP therapy: 1 mL of 2% lidocaine in a 22-gauge spinal needle under aseptic conditions will be inserted in the affected joint.
 - 8.2 Proprioceptive Neuromuscular Facilitation technique (PNF) Protocol: Shoulder Joint: D2 Flexion pattern (flexion+abduction+external rotation) Scapula: Anterior elevation and posterior depression then posterior elevation and anterior depression.
 - 8.3 Capsular Stretching protocol: Caudal glide, posterior anterior glide, anterior posterior glide, Scapulothoracic articulation.
 - 8.4 Rotator cuff strengthening exercise Protocol: Pendulum Swings, Isometric ER & IR (arm at side), Theraband exercise.

Treatment Duration

- 9 Both experimental and control group will receive physiotherapy intervention before performing the PRP injection for 30 mins; 4 times in a week up to 6 weeks. After completion of physiotherapy intervention, experimental group will receive a single dosage of PRP therapy while control group will receive a sham PRP therapy following same procedure.

Intervention Provider Qualification

- 10 Physiotherapist with Completed Bachelor and Master on Specific Discipline. PRP injections – by Orthopedic Surgeon.

Exercise Protocol Description

- 11 Proprioceptive Neuromuscular Facilitation technique (PNF)
 - 11.1 Shoulder Joint: D2 Flexion pattern (flexion+abduction+external rotation) Scapula: Anterior elevation and posterior depression then posterior elevation and anterior depression.



12 Capsular Stretching

12.1 Caudal glide, posterior anterior glide, anterior posterior glide, Scapulothoracic articulation.

13 Rotator cuff strengthening exercise

13.1 Pendulum Swings, Isometric ER & IR (arm at side), Theraband exercise.

14 PRP Therapy

14.1 4 mL of PRP mixed with 1 mL of 2% lidocaine in a 22-gauge spinal needle under aseptic conditions will be inserted in the affected joint.