INPLASY PROTOCOL

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None.

Platelet-Rich Plasma as a conservative treatment for partial-thickness rotator cuff tear and tendinopathy: A Systematic Review and Meta-analysis

Xiang, XN[1]; J.D[2]; Y.L[3]; H.C.H[4].

Review question / Objective: **P: patients diagnosed with partial-thickness rotator cuff tear or rotator cuff tendinopathy at least 2 months which conformed by MRI or ultrasound; I: PRP; C: other non-operation treatments; O: visual analogue scale (VAS), Constant shoulder score (CSS), Shoulder Pain and Disability Index (SPADI) and American Shoulder and Elbow Surgeons (ASES) score; S: Systematic review and meta-analysis.**
Condition being studied: **Partial-thickness rotator cuff tear and tendinopathy were ordinary diseases in the population with repetitive overhead activity. Many randomized controlled trials have investigated the use of platelet-rich plasma (PRP) to treat rotator cuff tear. Nevertheless, none have focused on former diseases.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 22 April 2020 and was last updated on 22 April 2020 (registration number INPLASY202040144).

INTRODUCTION

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METHODS

Participant or population: Patients diagnosed with partial-thickness rotator cuff tear or rotator cuff tendinopathy at least 2 months which conformed by MRI or ultrasound.

Intervention: Platelet-rich plasma.

Comparator: A nonoperative treatment.

Study designs to be included: Randomized controlled study.

Eligibility criteria: The inclusion criteria were as follows: (1) studies of patients diagnosed with partial-thickness rotator cuff tear or rotator cuff tendinopathy at least 2 months which conformed by MRI or ultrasound; (2) studies with patients aged 18 years or older; (3) studies in which PRP versus a control as a nonoperative treatment in rotator cuff injuries; (4) quantifiable outcomes were reported; (5) studies with randomized controlled study design. Exclusion criteria were as followed: (1) studies of patients diagnosed with full-thickness rotator cuff tear or rheumatoid arthritis or partial tendon injuries were not mentioned in subacromial impingement syndrome; (2) studies of patients with a history of rotator cuff repair or injection; (3) studies with inadequate follow-up; (4) case reports, letters, comments, trial protocols, editorials, reviews and practice guidelines; (5) studies were not written in English.

Information sources: The specialist register GreyNet (http://http://www.greynet.org/) for grey literature was also searched. The reference lists of potentially relevant articles were also hand-searched.

Main outcome(s): The primary outcome was pain assessed by a visual analogue scale (VAS); the secondary outcomes were Disabilities of the Arm, Shoulder Pain and Disability Index (SPADI), the Constant Shoulder Score (CSS), American Shoulder and Elbow Surgeons (ASES) at short-term (5-7 months), and long-term (1 year).

Additional outcome(s): Range of motion.

Quality assessment / Risk of bias analysis: To assess bias with the Cochrane Collaboration's risk of bias tool, 2 reviewers independently assessed each of following domains: allocation concealment and random sequence generation (selection bias), blinding of participants and personnel (performance bias), blinding of outcome assessment (detection bias), incomplete outcome data (attrition bias), selective reporting (reporting bias) and other source of bias. Each component was recorded as low, unclear, or high risk of bias. Selection and blinding were critical for the quality of study, especially for those with high subjective outcomes, such as pain assessment or self-questionnaire.

Strategy of data synthesis: VAS scores reported on a 0-to-100 scale , were converted to a 0-to-10 scale. The results of VAS, SPADI, ASES and CSS were extracted and categorized as follows: baseline, short-term (6±1 months' follow-up), and long-term (≥1-year follow-up). When there was no data available in the study or no original data was acquired from the authors by e-mail, the data of diagram was extracted by Engauge Digitizer (version 3.0) or obtained from other published articles. If SDs were missing for continuous data, other statistics (for example: 95% confidence interval, standard errors, T values, F values, and P values) were used for the calculation of standard deviation via the calculator tool from Review Manager, version 5.3 (Nordic Cochrane Centre, Cochrane Collaboration). Disagreements between the two reviewers were resolved by consensus, and if necessary, by consultation with a third reviewer. Data presenting in figure extracted as number via Engauge Digitizer.

Subgroup analysis: The subgroup analysis was reported based on several variables of interest (PRP spinning approach and number of injections).

Sensibility analysis: Heterogeneity was assessed using Cochrane Q statistic (significance level at P value < .05) and quantified with I2 (significance level at I2

>50%). , Random effects were used if the Q or I2 value was statistically significant or were assessed with the variation in study methods and low number of studies; otherwise, fixed effects were used. A P value <.05 was considered statistically significant. A sensitivity analysis was performed for primary and secondary analyses by excluding studies with low quality.

Country(ies) involved: China.

Keywords: Platelet-rich plasma; rotator cuff; tendinopathy; partial-thickness rotator cuff tear; systematic review and meta-analysis.