Platelet-rich plasma versus other intra-articular injections for treatment of knee osteoarthritis: a systemic review of randomized controlled trials

Xuetao Xie, Longxiang Shen, Ting Yuan, Shengbao Chen

Citation

Review question(s)
To assess the efficacy and safety of platelet-rich plasma versus other intra-articular injections for treatment of knee osteoarthritis

Searches
Database: PubMed, EMBASE, Cochrane Library and Scopus
potential search strategy: (platelet[text word] OR plasma[text word]) AND (knee[text word] OR tibiofemoral[text word] OR patellofemoral[text word]) AND (*arthritis[text word] OR *arthritic[text word] OR cartilage[text word] OR *arthrosis[text word] OR gonarthrosis[text word]) AND random*[text word]

Restrictions: limit to human; no language restrictions

Types of study to be included
Inclusions: randomized controlled studies

Exclusions: ongoing randomized controlled studies or those without complete data for analysis

Condition or domain being studied
knee osteoarthritis

Participants/ population
Inclusion criteria: patients aged 18 and over; with symptomatic knee degeneration

Exclusion criteria: history of surgical treatment of knee degeneration

Intervention(s), exposure(s)
Inclusion criteria: autologous platelet-rich plasma was injected into the osteoarthritic knee joints

Exclusion criteria: platelet-rich plasma was used in combination with surgery or other treatments considered as effective to relieve the symptoms of knee osteoarthritis

Comparator(s)/ control
Inclusion criteria: other intra-articular injections, such as placebo, hyaluronic acids, ozone, corticosteroids and so on.

Exclusion criteria: intra-articular injections in combination with other treatments considered as effective to relieve the symptoms of knee osteoarthritis

Outcome(s)
Primary outcomes
The knee scores at the last follow-up, measured by the Western Ontario and McMaster Universities Arthritis Index

**Secondary outcomes**

Adverse events;

Patient satisfaction

**Risk of bias (quality) assessment**

As suggested by the Cochrane Handbook for systemic reviews of interventions, two review authors will independently assess the risk of bias in included studies by considering the following characteristics:

- random sequence generation (selection bias), allocation concealment (selection bias), blinding of participants (performance bias), blinding of personnel (performance bias), blinding of outcome assessment (detection bias), incomplete outcome data (attrition bias), selective reporting (reporting bias), and other bias.

Disagreements between the review authors over the risk of bias in particular studies will be resolved by discussion, with involvement of a third review author where necessary.

**Strategy for data synthesis**

We will present tables to provide a narrative synthesis of the findings from the included studies, structured around the type of intervention, target population characteristics, type of outcome and intervention content.

We anticipate that there will be limited scope for meta-analysis because of the range of different outcomes measured across the small number of existing trials. However, where studies have used the same type of intervention and comparator, with the same outcome measure, we will pool the results using a random-effects meta-analysis, with standardised mean differences for continuous outcomes and risk ratios for binary outcomes, and calculate 95% confidence intervals and two sided P values for each outcome. Heterogeneity between the studies in effect measures will be assessed using the I-squared statistic. We will consider an I-squared value greater than 50% indicative of substantial heterogeneity. We will conduct sensitivity analyses based on study quality. We will use stratified meta-analyses to explore heterogeneity in effect estimates according to: study quality; study populations; the logistics of intervention provision; and intervention content. We will also assess evidence of publication bias.

**Analysis of subgroups or subsets**

If the necessary data are available, subgroup analyses will be done for participants treated by different preparations of platelet-rich plasma, at different follow-ups, and with different controls. This is a systemic review including qualitative and quantitative synthesis and while subgroup analyses may be undertaken it is not possible to specify the groups in advance.

**Contact details for further information**

Dr Xie

600 Yishan Road, Shanghai, 200233 China

xuetaoxie@163.com

**Organisational affiliation of the review**

Shanghai Sixth People's Hospital

http://www.6thhosp.com/index.html

**Review team**

Dr Xuetao Xie, Shanghai Sixth People's Hospital
Dr Longxiang Shen, Shanghai Sixth People's Hospital
Dr Ting Yuan, Shanghai Sixth People's Hospital
Dr Shengbao Chen, Shanghai Jiaotong University
Anticipated or actual start date
01 July 2016

Anticipated completion date
15 September 2016

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National Natural Science Foundation of China (Grant No. 81401799); Shanghai Youth Science and Technology Start-up Grants (14YF1412100)

Conflicts of interest
None known

Language
English

Country
China

Subject index terms status
Subject indexing assigned by CRD

Subject index terms
Cartilage, Articular; Humans; Injections, Intra-Articular; Osteoarthritis, Knee; Platelet-Rich Plasma; Randomized Controlled Trials as Topic

Reference and/or URL for protocol
http://www.crd.york.ac.uk/PROSPEROFILES/45410_PROTOCOL_20160714.pdf

Stage of review
Completed but not published

Date of registration in PROSPERO
08 August 2016

Date of publication of this revision
15 August 2016

Stage of review at time of this submission

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<td>Formal screening of search results against eligibility criteria</td>
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