Comparison Between Platelet-Rich Plasma and Hyaluronic Acid Treatments for Talar Osteochondral lesions: A Network Meta-Analysis of Randomized Controlled Trials

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Background/Objective Both platelet-rich plasma (PRP) and hyaluronic acid (HA) with or without surgical intervention can enhance healing and improve function in talar OCLs. However, recent studies on OCLs have not thoroughly investigated the effects among PRP, HA, and conventional treatment.

Purpose/Interventions: To synthesize evidence by comparing the effects among PRP, HA, and conventional treatment strategies for talar OCLs with or without surgical intervention.

Study Design Systematic review with network meta-analysis

Setting: Taipei Medical University Hospital, Taipei, Taiwan

Participants: Wei Li, Meng-Hao Lin, Yi-No Kang

Methods All relevant research articles were included using related terms in the PubMed, EMBASE, Web of Science, ScienceDirect, and Cochrane library databases from their inception to June 2017. The screening criteria for this systematic review were as follows: randomized controlled trials (RCTs) that compared PRP with HA, PRP with control, or HA with control in patients with talar OCLs. The risk of bias in the included studies was assessed using the Cochrane Risk of Bias Tool. Data were extracted and recorded as weighted mean difference (WMD) and their standard deviations (SDs) with 95% confidence intervals (CI), consistency H, and I2 for continuous data in the network meta-analysis.

Main Outcome Measures Pain score and foot and ankle condition scores.

Level of Evidence: level 1

Results/ A total of 1199 references were identified, of which five RCTs were included in the final synthesis. These studies randomized 197 patients into the PRP, HA, and control groups. PRP caused higher reductions in the visual analog scale score than HA and conventional treatment, and the WMDs were −1.109 (95%CI: −1.716, −0.502) and −2.301 (95%CI: −2.825, −1.777). Moreover, PRP improved the American Orthopedic Foot and Ankle Society score more than the other treatment methods, and the WMDs were 12.448 (95%CI: 7.224, 17.672) and 18.617 (95%CI: 13.536, 13.698).

Conclusion PRP reduced pain and improved ankle conditions to a greater extent than HA and conventional treatment. Therefore, PRP might be recommended for the treatment of talar OCLs. Further investigation is required to guarantee the safety and efficacy of different surgical treatments.

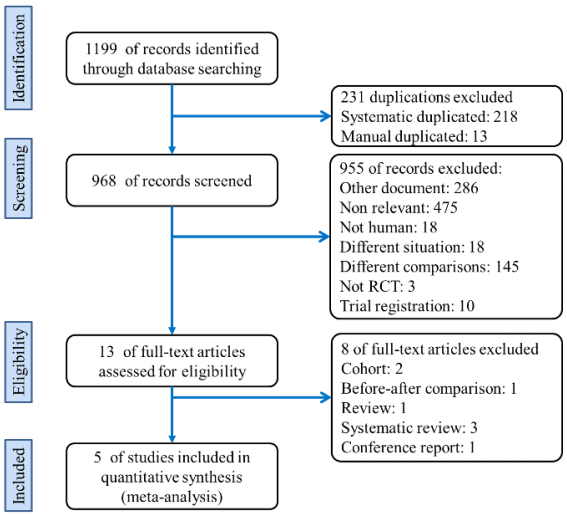

Figure 1. Flowchart of the systematic review and meta-analysis according to PRISMA guidelines. RCT, randomized controlled trials.

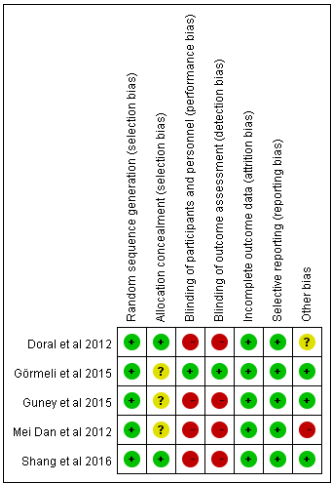

Figure 2. Risk of bias of the included RCTs.

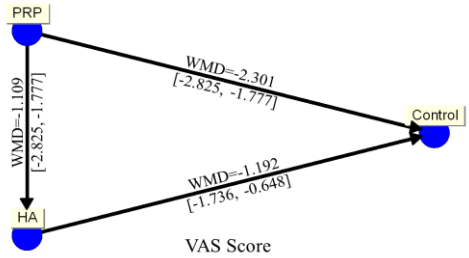

Figure 3. Network of eligible treatment comparisons for outcomes of pain score change.

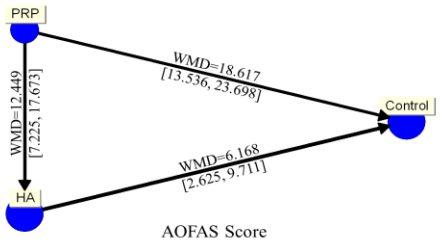

Figure 4. Network of eligible treatment comparisons for outcomes of AOFAS score change.