

THE USE OF PRP IN MUSCLE INJURIES

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Introduction

Platelet-Rich Plasma (PRP) injection, derived from autologous blood, is an innovative treatment method that is used worldwide in acute muscle injuries, which are the most prevalent time loss injuries with a high recurrence rate and an enormous financial burden in professional sports. The hamstrings are the most commonly injured muscles. The increasing interest in PRP is emphasized by the rapidly growing global PRP market, which is estimated to triple from 2009 to 2016. After the World Anti-Doping Agency allowed intramuscular applications of PRP in 2011, its use in muscle injuries has been increasing ever since. Basic science in animal models showed that PRP has regenerative effects on muscle tissue, but evidence from high quality clinical studies is lacking. We examined whether PRP injections would be efficacious in acute hamstring muscle injuries in a double-blind, randomised, placebo-controlled trial.

Methods

In three Sports Medicine clinics we included 80 athletes with acute hamstring muscle injuries, confirmed on Magnetic Resonance Imaging. We randomised the patients to PRP (PRP-group) or isotonic saline injections (placebo-group). Patients received two injections: at inclusion within five days after injury and the second injection five to seven days after the first. The researchers and the patients were blinded to the content of the syringe. To ensure blinding we prepared a PRP and a placebo syringe for each patient. Both groups undertook a standardized criteria-based rehabilitation program, supervised by a physiotherapist.

The primary outcome measure was the time needed to return to play during six months follow-up, analysed with a Cox proportional-hazards model. Secondary outcome measures were: re-injuries within two months after return to play, perceived recovery, patient satisfaction, hamstring force, hamstring flexibility and hamstring function measured with the Hamstring Outcome Score.

Results

Mean age of the patients was 29 ± 7 years and the majority played soccer (71%) or field hockey (15%) on a competitive level (74%). There were no patients lost to follow-up for the primary outcome analysis. The median time to return to play was 42 days (interquartile range, 30 to 58) in the PRP-group, as compared to 42 days (interquartile range, 37 to 56) in the placebo-group (hazard ratio: 0.96; 95% CI: 0.61 to 1.51; $P=0.66$).

The re-injury rate was 16% in the PRP-group and 14% in the placebo-group (Odds ratio: 1.17; 95% CI: 0.33 to 4.18; $P=0.814$).

There were also no significant differences on the other secondary outcome measures.

Conclusions

We found no benefit of intramuscular PRP injections compared to isotonic saline injections in patients with acute hamstring injuries.