Traumatic muscle injury
PRP or not PRP in 2013?
Current state of knowledge

The author had no conflict of interest concerning the data of the communication

Marc Bouvard
Sofian Jaadouni
Alain Lippa
Several million muscular injuries every year (OMS 2003)

Until 34% of recurrence (Orchard Am.J.Sports Med 2001)
Natural evolution of the lesion
Järvinen 2007

Phase 1 Break then necrosis
Natural evolution of the lesion

The muscle regenerates
the connective tissue heals

phase 2 regeneration and healing

phase 3 reshaping and contraction
Effects of the PRP in Vitro and animal studies

In vitro

↑ The proliferation and the differentiation of the satellite cells(units) and muscular stem cells. Activate the angiogenesis and regulate the staff turnover of the collagen


Animal studies

Improvement and acceleration of the repair of muscular injuries to the rat, the mouse and the sheep in particular

What about clinical trials?
# Clinical Trials

<table>
<thead>
<tr>
<th>author</th>
<th>date</th>
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Clinical Trials

Bubnov R, Yevseenko V, Semeniv I.

30 men (mean age 24 years old) professional athletes acute muscle injury with US (18 thigh injury) randomly 2 groups: group A PRP (US guidance)+ conservative treatment group B conventional conservative treatment only pain visual analogue scale (0 to 10), resisted flexion or strength, and range of motion.
evaluated in the days 1, 7, 14, 21, and 28 after treatment starting+ US

RESULTS: pain relief > in group A (93%) vs B (80%) day 28 (p<0.05)
significant changes in strength (p<0.05) and range of motion (p<0.05) for PRP treatment group was observed.
After 28 days no significant differences between groups for pain on resisted flexion and strength (p>0.05)
the range of movement improved > group A vs group B (p< 0.05).
Bubnov R, Yevseenko V, Semeniv I.

Subjective global function scores improved significantly in group A compared with group B on the 28th day (p<0.05). Ability to practice sport was 10+/-1.2 days in group A vs 22+/-1.5 days in group B.

CONCLUSIONS: Injections of PRP under ultrasound guidance had a significantly higher level of pain relief, physical recovery, and faster regeneration compared with conventional conservative treatment in acute muscle trauma in professional athletes.
« PRP » - About what do we speak?
Centre de Biologie et Médecine du Sport de PAU

PRP, What is not!
Conclusions

Lack of clinical studies of high level of evidence

PRP without erythrocytes or leukocytes

strict aseptic # operating room

Extemporaneous, autologous, ultrasound-guided injections

Objective: Get a cure ≠ reduce to infinity time return to competition

Reasonable indications:

recurrent lesions

≥ grade 2 lesions including hamstrings and triceps surae
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