UPDATE ON PLATELET-RICH PLASMA (PRP) THERAPEUTIC EFFICACY IN SOFT TISSUE INJURY IN HORSES

CANDELA CORONA ÁLVAREZ

OBJECTIVES

- To update current clinical use information available about PRP
- Point out that different tissues and chronicity of the injury have different demands as far as PRP desirable composition

ADVANTAGES?

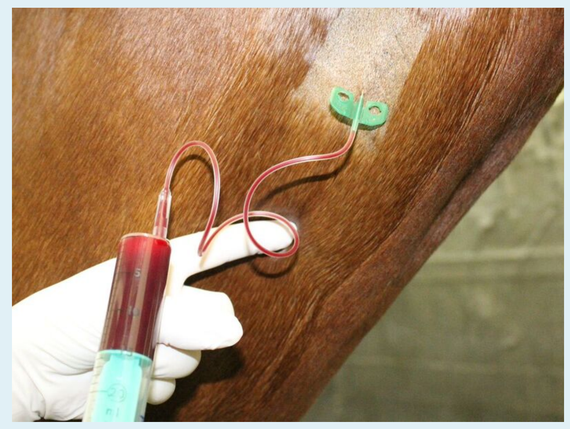
- ✓ Small volume of plasma needed
- ✓ Relatively inexpensive equipment
- ✓ Short preparation time
- ✓ Minimal risk of bacterial contamination
- ✓ Non-invasive and safe therapy

PLATELET-RICH PLASMA (PRP)

Platelet-rich plasma is a blood product obtained by concentrating platelets in a small volume of plasma. It is considered an economic source of autologous growth factors which are beneficial for augmenting tissue healing. Its proved therapeutic effects and safety make it a candidate to be considered as a first line of therapy in soft tissue injuries.

There are several protocols currently used with some common components and principles; however different results are due to variations in factors like platelet activation, leukocyte inclusion or not and level of platelet and growth factor enrichment, depending on the characteristics of the target tissue.

Currently, the most commonly treated structures use are: muscles, joints, ligaments and tendons. There is a increasing scientific interest in horse model for studies of therapeutic effects of PRP for both human and equine medicine. Currently, the use of PRP to augment bone healing is not recommended.



PREPARATION OF PRP

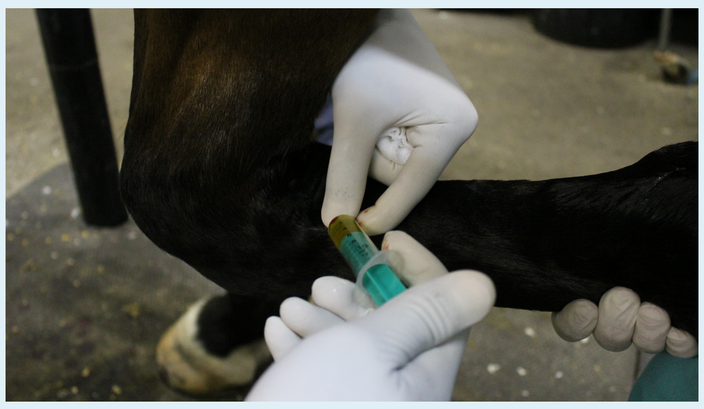
Procedure	Yes or no?
Single centrifugation	✓
Double centrifugation	+/-
Automated protocol	+/-
Manual Protocol	✓
Platelet activation	Acute tendon lesion
Prophylactic antibiotics	
NSAIDs	✗
Aseptic preparation of skin	✓
Sterile gloves and aseptic technique	✓

PC COMPOSITION ACCORDING TO TARGETED TISSUES

Factors PC content	Joints	Tendons	Ligaments	Sub-acute wounds
Leukocyte-rich plasma	✗	✗	✓	✗
Leukocyte-poor plasma	✓	✓		✓
↑↑ Platelets	✗	✗	✓	✗
↑Platelets	✓	✓		✓
Erythrocytes	✗			✗
↑↑ TGF-β_1	✗	✗	✓	✗
Platelet activation	✗			✗

CONCLUSIONS

- It is a commonly used therapy in equine clinical practice
- It is possible its use both in field conditions and in specialized centers
- PRP production can be crafted to meet individual patient demands
- Joints and sub-acute tendon injuries need a ↓ WBC and platelet composition
- Chronic tendon injuries and ligamentous injuries need ↑ WBC and platelet levels
- Sub-acute, large tendon injuries may benefit from activation prior to injection
- ↑ Interest in horse model for research of therapeutics effects of PRP



June 2017

UAB Universitat Autònoma de Barcelona