

PLATELET RICH PLASMA TO FASTER NAVEL HEALING IN LAMBS

PLASMA RICO EM PLAQUETAS PARA ACELERAR A CICATRIZAÇÃO UMBILICAL EM CORDEIROS

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Onfaloflebitis is common in lambs born in poor hygienic conditions and occurs where inadequate treatment of umbilical healing is placed. Males are more affected lambs probably because of contact with urine that slows healing umbilical and removes some medications or topical antibiotics applied facilitating the bacteria entrance, mainly *Fusobacterium necrophorum* affecting joints, lungs, kidneys, liver, leading to animal death. Platelets are blood cells that interact with several receptors and modulate platelet function. It promotes hemostasis through four mechanisms: adhesion, release of platelet secretion, aggregation and pro-coagulation action. Complex network of growth factors are involved in tissue homeostasis such as transforming growth factor (TGF)- β , platelet-derived growth factor (PDGF), insulin-like growth factor (IGF), fibroblast growth factor (FGF)- β and hepatocyte growth factor (HGF). These factors and other bioactive molecules are contained in platelet alpha granules, and the use of intra-articular injections of platelet concentrate has been proposed as a minimally invasive solution to promote cartilage, osteo and muscular healing. Its use in regenerative medicine represents a simple, low-cost, and minimally invasive approach that might fasten healing processes. Regenerative treatment with autologous products, including the PRP (Platelet Rich Plasma) have been widely used in the regenerative treatment of various diseases in horses like tendonitis and degenerative joint disease (DJD), osteoarthritis, in humans, dogs and horses, platelet activation in cats with hypertrophic cardiomyopathy, among others. This work aimed to use PRP to accelerating tissue healing in the navel lamb, reducing the exposure time and input to various types of bacteria and diseases. The preparations of anticoagulants were performed according to Modern Blood Banking and Transfusion Practices: (A) ACD - Acid Citrate Dextrose, (B) CPD - Citrate Phosphate Dextrose and (C) CP2D - Citrate Phosphate Double Dextrose. The PRP application protocol was done collecting about 9 mL jugular vein maternal blood in a tube containing anticoagulant (A, B or C), followed by centrifugation at 3200 rpm for 15 minutes. The removal of only the plasma mist particles (platelets, leukocytes) was performed, despising red blood cells. Around 0.5 mL of plasma obtained with platelets and leukocytes was used as PRP. Group of 40 animals, divided into four groups: 10 treated with ACD anticoagulant (A), 10 treated with an anticoagulant CPD (B), 10 treated with anticoagulant CP2D (C), 10 controls. The PRP was applied during first 24 hours of life of the lamb in 2 locations around the navel (east and west). Measures were analyzed daily from each group using comparison charts. Despite the work need to be finished and statistically analyzed, data can lead to a faster navel healing using PRP solution, as seen on Figure 1.

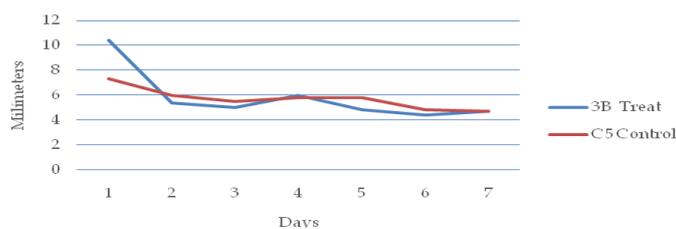


Figure 1. Speed of healing, in days, using PRP in comparison to control lamb.

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