

## NO EFFECT OF PLATELET RICH PLASMA AS COADJUVANT TO AUTOLOGOUS PARTICULATED CARTILAGE FOR THE TREATMENT OF CHONDRAL DEFECTS

# 104.

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**Background:** Repair of chondral injuries by use of cartilage chips has recently demonstrated clinical feasibility. Autologous platelet-rich plasma (PRP), may offer promise in improving clinical outcomes as an adjunct to cartilage chips treatment.

**Purpose / Aim of Study:** To assess the histological quality of repair cartilage tissue after autologous cartilage chips treatment (CC) with and without repeated local injections of PRP for the treatment of full-thickness focal chondral defects of the knee.

**Materials and Methods:** Two full-thickness chondral defects ( $\emptyset = 6$  mm) were surgically performed in the medial and lateral trochlea of each knee in six skeletally mature Göttingen minipigs. The two treatment groups were 1) CC with one weekly PRP injection for three weeks ( $n=12$ ), and 2) CC alone ( $n=12$ ). The animals were euthanized after six months. Samples of both whole blood and PRP were analysed with an automated hematology analyzer to determine the concentrations of platelets and nucleated cells. The composition of cartilage repair tissue was assessed using gross appearance assessment, histomorphometry and semi-quantitative scoring (ICRS II).

**Findings / Results:** The average fold increase in platelets was  $6.8 \pm 1.7$ . Leukocyte concentration decreased in PRP samples by an average fold change of  $1.9 \pm 0.8$ . Histological evaluation demonstrated no significant difference in hyaline cartilage (CC+PRP: 18.7% vs. CC: 19.6%), fibrocartilage (CC+PRP: 48.1% vs. CC: 51.8%) or fibrous tissue (CC+PRP: 22.7% vs. CC: 21.8%) between the treatment groups.

**Conclusions:** Four repeated local injections of leukocyte-reduced PRP after CC in the treatment of full-thickness cartilage injuries demonstrated no beneficial effects in terms of macroscopic and histological repair tissue quality.

No conflicts of interest reported