CLINICAL ORAL IMPLANTS RESEARCH

Densitometric analysis of prf vs. xenograft for sinus augmentation procedures – 4 years follow-up

M. Sušić,[1] I. Smojver,[2] **G. Radica**,[3] D. Mihaljević,[4] S. Kadić,[5] V. Vučićević Boras,[6] D. Gabrić[6]

[1]School of Dental Medicine, University of Zagreb, Zagreb, Croatia, [2]Private Dental Clinic, Zagreb, Croatia, [3]Private Dental Clinic, Split, Croatia, [4]Private Dental Office, Zagreb, Croatia, [5]Dental Clinic, Zagreb, Croatia, [6]Department of Oral Medicine, School of Dental Medicine, University of Zagreb, Zagreb, Croatia

Background: The autologous platelet concentrates Platelet-Rich Plasma (PRP) and Platelet-Rich Fibrin (PRF) are used in various medical fields, particularly in oral and maxillofacial surgery. Platelet-rich fibrin (PRF) is derived from an autogenous preparation of concentrated platelets that containes high levels of polypeptide growth factors and therefore has the potential to be used as regenerative treatment for bone defects.

Aim/Hypothesis: The purpose of this study was to examine the suitability of autologous PRF in combination with xenograft as regenerative treatment for maxillary sinus augmentation in humans and compare it to xenograft alone using densitometric measurements.

Material and methods: The study consisted of 10 patients partially edentoulous in lateral region of the upper jaw. Lateral approach for maxillary sinus augmentation with immediate placement of two dental implants were used for all patients. In the first group of 5 patients sinus augmentation was performed using xenograft only and finally covered with resorbable collagen membrane. In the second group of 5 patients sinus augmentation was performed using combination of autologous PRF and xenograft, and covered using combination of resorbable collagen membrane and PRF membrane. Following the healing period of 6 months, the osseointegration of inserted implants was assessed using resonance frequency analysis and considered adequate. All inserted implants were loaded with metal-ceramic restorations. All patients were followed for 4 years after loading through clinical follow-ups and digital radiographic imaging after 6, 12, 18, 24 and 48 months. Densitometric analysis was done based on radiographic images.

Results: After comparing the average densities of all inserted implants, the results showed statistically significant increase of density in group of patients where combination of xenograft and autologous PRF for sinus augmentation was used.

Conclusions and clinical implications: The results of this study indicate that PRF can improve densitometric parameters associated with maxillary sinus floor elevation procedures and immediate implant placement, improving clinical implant stability and promoting bone healing following augmentation. PRF can be used as an effective modality for promoting bone healing and osseointegration.