

Journal in Oral and Maxillofacial Surgery 2004 Nov;62(11):1403-7

A modified method for preparing platelet-rich plasma: An experimental study

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PURPOSE: In this study, our aim was to prepare low-cost autogenous platelet-rich plasma (PRP) for use in minor bone grafting procedures. This was the preliminary study of an experimental study concerning augmentation of bony defects with a mixture of PRP and beta-tricalcium phosphate.

MATERIALS AND METHODS: Venous blood was collected from marginal ear veins of New Zealand White rabbits in EDTA (K3) vacutainer tubes. Blood samples were divided into 2 groups, and PRP was prepared through 2 methods, 1 of which is a variant of the other. The 2 PRP preparation methods described in this study were modified from Landesberg et al (J Oral Maxillofac Surg 58:297, 2000) after several trials, because the platelet enrichment percentages we obtained using their method were very low. Complete blood counts of venous blood samples, PRP, and platelet poor plasma (PPP) were made. Statistical analyses were performed using SPSS for Windows (SPSS, Chicago, IL).

RESULTS: It took approximately 30 minutes to prepare PRP with both methods. Platelet counts in PRP were increased with respect to venous blood platelet counts. The differences between the experimental groups and genders were evaluated statistically with Mann-Whitney U tests ($P < .05$). Correlations between the groups and genders were also evaluated ($P < .05$).

CONCLUSION: It was experimentally shown that PRP with high platelet counts can be prepared using this modified method without the need for costly autotransfusion systems.

PMID: 15510363 [PubMed]