

# Accepted Manuscript

Evaluation of the effects of platelet-rich fibrin on bone regeneration in diabetic rabbits

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PII: S1010-5182(15)00392-3

DOI: [10.1016/j.jcms.2015.11.009](https://doi.org/10.1016/j.jcms.2015.11.009)

Reference: YJCMS 2243

To appear in: *Journal of Cranio-Maxillo-Facial Surgery*

Received Date: 20 July 2015

Revised Date: 14 October 2015

Accepted Date: 20 November 2015

Please cite this article as: Cenk Durmuşlar M, Ballı U, Öngöz Dede F, Bozkurt Doğan Ş, Mısır AF, Barış E, Yılmaz Z, Çelik HH, Vatanserver A, Evaluation of the effects of platelet-rich fibrin on bone regeneration in diabetic rabbits, *Journal of Cranio-Maxillofacial Surgery* (2016), doi: 10.1016/j.jcms.2015.11.009.

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Manuscript Number: JCMS-D-15-00625R2

Title: Evaluation of the effects of platelet-rich fibrin on bone regeneration in diabetic rabbits

Article Type: Original Paper

Keywords: platelet-rich fibrin, bone regeneration, critical size defects, diabetic rabbits.

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Abstract: Objectives: This study aimed to investigate the effect of platelet-rich fibrin on bone regeneration in critical size defects in the calvaria of diabetic rabbits.

Materials and methods: Forty male New Zealand rabbits, were divided into two groups a non-diabetic control group (Group A) and a diabetic experimental group (Group B). Each group was further divided into four groups: subgroup E, the defect was left empty; subgroup PRF, the defects were filled only with PRF; subgroup AB, the defects were filled with autogenous bone; subgroup AB+PRF, the defects were filled with autogenous bone combined with PRF. The animals sacrificed at 4 and 8 weeks. Bone formation was assessed by micro-computed tomography scanning, histological and histomorphometric analysis.

Result: The total percent of new bone was the lowest in group A-E ( $6.77 \pm 0.21$  at 4 weeks,  $11.01 \pm 0.37$  at 8 weeks) and highest in group A AB+PRF ( $21.66 \pm 0.91$  at 4 weeks,  $37.46 \pm 1.25$  at 8 weeks;  $p < 0.05$ ). The mean percent of new bone was greatest in group B AB+PRF at 4 and 8 weeks ( $16.87 \pm 0.92$ ,  $29.59 \pm 1.09$ , respectively) and lowest in group B-E ( $5.83 \pm 0.09$  at 4 weeks,  $7.36 \pm 1.02$  at 8 weeks).

Conclusion: This study, despite its limitations, showed that PRF can be used safely and that PRF induced bone healing in diabetic rabbits.

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