

EFFECT OF PLATELET RICH PLASMA ON OSSEOINTEGRATION OF END OSSEOUS IMPLANTS IN INDUCED DIABETIC EXPERIMENTAL MODELS

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ABSTRACT

The oral rehabilitation by dental implants in patients with diabetes remains a controversial issue. The aim of this study was to investigate the role of platelet rich plasma (PRP) in osseointegration of endosseous implants in induced diabetic experimental models. A total of 16 New Zealand Albino male rabbits were used in this study. The animals were randomly divided into 2 groups with 8 animals each; Control group (CG) Group I, and insulin treated induced diabetic group (ITIDG) Group II. Where diabetes was induced by a single dose of Streptozotocin. 32 implants were used in this study. In each group, each animal received two endosseous implants inserted bilaterally in the tibiae shafts, one implant was inserted in the right tibia, while the other implant was inserted in the left tibia after application of PRP into the prepared surgical site. At the 4th and 12 th weeks the animals were subjected to Scintigraphy. Animals were sacrificed at the 12 th week following implants insertion and PRP application, specimens were examined under scanning electron microscope (SEM) where it was possible to observe the bone implant interface.

In our results a statistically significant difference was observed in all groups regarding bone density around the implants which is represented as PV overtime. The osteoblastic activity was measured according to the degree of photon emission, the count of photons (ROI). The mean percentage change of ROI count overtime was statistically significant in all groups.

Under SEM it was possible to observe the bone implant interface after 12 weeks, SEM results revealed intimate contact between bone and implants surface in case of group Ib, although bone formation differs at several regions of the implant yet more bone formation and less gap distance was observed around implants in both groups Ia and IIb, larger gaps were detected in group Ira. Finally, SPECT and SEM both offer an elegant model for evaluation of implant osseointegration. Radionuclide imaging is much more sensitive to early or small changes in bone than other imaging systems. Growth factors are a realistic method to improve and expedite both soft and hard tissue healing

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