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The Study of Platelet-Rich Plasma(PRP) on Wounds of OLEFT Rats Using Expression of MMP-2, MMP-9 mRNA

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Abstract : Introduction: A research in relation to wound healing also showed that platelet-rich plasma (PRP) was effective on normal tissue regeneration. Nonetheless, there is no evidence that when platelet-rich plasma was applied on diabetic wound, it normalize diabetic wound healing process. In this study, we have analyzed matrix metalloproteinase-2 (MMP-2), matrix metalloproteinase-9 (MMP-9) expression to know the effect of PRP on diabetic wounds using Reverse transcription-polymerase chain reaction (RT-PCR) of MMP-2, MMP-9 mRNA. Materials and Methods: Platelet-rich plasma (PRP) was prepared from blood of 6 rats. The whole 120-mL was added immediately to an anticoagulant. Citrate phosphonate dextrose(CPD) buffer (0.15 mg CPDmL) in a ratio of 1 mL of CPD buffer to 5 mL of blood. The blood was then centrifuged at 220g for 20minutes. The supernatant was saved to produce fibrin glue. The participate containing PRP was used for second centrifugation at 480g for 20 minutes. The pellet from the second centrifugation was saved and diluted with supernatant until the platelet concentration became 900,000/μL. Twenty male, 4week-old OLETF rats were underwent operation; each rat had two wounds created on left and right sides. The each wound of left side was treated with PRP gel, the wound of right side was treated with physiologic saline gauze. Results: RT-PCR analysis; The levels of MMP-2 mRNA in PRP applied tissues were positively related to postwounding days, whereas MMP-2 mRNA expression in saline-applied tissues remained in 5day after treatment. MMP-9 mRNA was undetectable in saline-applied tissues for either tissue, except 3day after treatment. Following PRP-applied tissues, MMP-9 mRNA expression was detected, with maximal expression being seen at third day. The levels of MMP-9 mRNA in PRP applied tissues were reported high intensity of optical density related to saline applied tissues.

Keywords : diabetes, MMP-2, MMP-9, OLETF, PRP, wound healing MMP-9
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