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EFFECTIVENESS OF PRF MEMBRANES IN THE REGENERATION OF BONE DEFECTS IN PERIODONTITIS

Turdieva Nafisa Atamurod kizi

Samarkand State Medical University

Scientific Supervisor: **Nazarova Nodira Sharipovna**

Samarkand State Medical University

Abstract: This thesis examines the effectiveness of PRF membranes (Platelet-Rich Fibrin) in the regeneration of bone defects in periodontitis. PRF is prepared from the patient's own blood and possesses high biological activity, promoting osteogenesis, accelerating soft tissue healing, and reducing inflammatory processes. Clinical data indicate that the use of PRF leads to increased bone density, reduction of periodontal pocket depth, and accelerated periodontal recovery. Due to its autologous nature, PRF is a safe method that does not cause immune reactions. The obtained data confirm the перспективность (promising potential) of PRF application in modern periodontology for the restoration of bone structures and improvement of patients' quality of life.

Keywords: PRF (Platelet-Rich Fibrin), Periodontitis, Bone defect, Regeneration, Osteogenesis, Biological membrane.

Introduction

Periodontitis is a chronic inflammatory disease of the periodontal tissues that leads to the destruction of the bone supporting the teeth. Traditional treatment methods do not always provide sufficient results. In modern periodontology, significant attention is given to regenerative methods, especially PRF (Platelet-Rich Fibrin) membranes, which are prepared from the patient's own blood and contribute to bone tissue restoration, reduction of inflammation, and acceleration of tissue healing.

Main Part

Periodontitis is a chronic inflammatory disease of the periodontal tissues that results in the destruction of the bone supporting the teeth. Traditional treatment methods, such as scaling, curettage, or bone grafting, do not always allow for complete restoration of lost structures or ensure long-term periodontal stability. Therefore, modern dentistry активно внедряет (actively implements) regenerative approaches, one of which is the use of PRF membranes (Platelet-Rich Fibrin).

PRF is an autologous membrane obtained from the patient's blood through centrifugation. The membrane contains platelets, growth factors, and fibrin proteins that stimulate regenerative processes. The biological activity of PRF promotes accelerated regeneration of both bone and soft tissues, reduces inflammatory reactions, improves microcirculation, and creates an optimal environment for cell growth. Due to its autologous origin, the membrane rarely causes immune reactions and is considered a safe method for patients.

In clinical practice, PRF is used both as a standalone method for bone tissue restoration and in combination with bone graft materials. The membranes are placed in the area of the bone defect during surgical intervention, where they ensure gradual release of growth factors and stimulate the natural process of osteogenesis. The use of PRF promotes faster gingival healing,

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improves bone density, and reduces the depth of periodontal pockets. As a result, patients experience reduced inflammation, decreased pain, and faster restoration of periodontal function.

Clinical studies confirm the high effectiveness of PRF in the regeneration of bone defects in periodontitis. The membranes contribute to the restoration of both soft and hard tissues, providing long-term positive outcomes. Their use corresponds to modern standards of periodontal practice and opens prospects for further development of regenerative dentistry. Thus, PRF membranes represent a safe and effective biological tool that enhances bone structure restoration, accelerates healing, and improves the quality of life of patients with periodontitis.

Conclusion

PRF membranes are a safe and effective biological method for restoring bone defects in periodontitis. Their use accelerates tissue regeneration, reduces inflammation, and contributes to improved long-term treatment outcomes, making PRF an important tool in modern periodontology.

References

1. Akhter, F. (2025). Assessment of platelet-rich fibrin (PRF) in enhancing periodontal regeneration. *Journal of Pharmacy & Bioallied Sciences*, 17(Suppl. 2), S1285–S1287.
2. Chen, L., Ding, Y., Cheng, G., & Meng, S. (2021). Use of platelet-rich fibrin in the treatment of periodontal intrabony defects: A systematic review and meta-analysis. *BioMed Research International*.
3. Miron, R. J., Moraschini, V., Fujioka-Kobayashi, M., et al. (2021). Use of platelet-rich fibrin for the treatment of periodontal intrabony defects: A systematic review and meta-analysis. *Clinical Oral Investigations*, 25, 2461–2478.
4. Azimova, A. A., Malikov, D. I., & Shaykulov, H. Sh. (2021). Monitoring of the etiological structure of sepsis. *Pedagogical Sciences and Teaching Methods*, 48, 18–22.
5. Yanova, E. U., Istatova, F. Sh., & Azimova, A. A. (2023). Morphometry of the cortical substance in cerebral microangiopathy. *Central Asian Journal of Medical and Natural Science*, 4(3), 51–64.