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Editorial

Platelet rich plasma in oral mucosal lesions: A promising therapeutic frontier

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Oral mucosal lesions, ranging from infection, trauma, immune-mediated, or oral potentially malignant disorders (OPMDs), often pose a significant diagnostic challenge in clinical dentistry. Traditional treatment approaches frequently focus on providing symptomatic relief, creating a gap in treatment modalities that actively facilitate tissue regeneration.[1]

Platelet-rich Plasma (PRP) has emerged as a promising therapeutic approach in several medical fields, such as sports medicine, orthopedics, dermatology, cosmetic medicine, dentistry, and maxillofacial surgery. Its potential regenerative properties are now gaining attention in the context of oral mucosal lesions.[2] PRP functions as an inherent repository of signaling molecules, and upon platelet activation within PRP, the P-granules undergo degranulation, leading to the release of Growth Factors (GFs) and cytokines. The principal growth factors released by platelets in PRP include vascular endothelial growth factor (VEGF), transforming growth factor-β (TGF-β), platelet-derived growth factor (PDGF), fibroblast growth factor (FGF), epidermal growth factor (EGF), hepatocyte growth factor (HGF), insulin-like growth factors 1 and 2 (IGF-1 and IGF-2), matrix metalloproteinases 2 and 9, and interleukin-8. These bioactive factors can influence inflammation, cell migration, differentiation, proliferation, extracellular matrix formation, and angiogenesis, thereby augmenting the reparative and regenerative potential.[2,3]

There is a dearth of published literature on the use of PRP as a therapeutic regime in oral mucosal lesions. Few research studies have investigated the potential application of PRP in various oral mucosal lesions, encompassing Behcet's disease and oral ulcers,[4] Oral Pemphigus vulgaris,[5] Oral lichen planus,[6] and leukoplakia.[7] PRP applications, either as a topical gel, injection, or in combination with other biomaterials have exhibited encouraging results in wound healing, pain alleviation, and potentially preventing malignant transformations.[8]

As PRP is derived from the patient's own blood, the risk of cross-contamination, disease spread, or immune reactions is eliminated.[2] While the early evidence is encouraging, there are still challenges to address, such as standardizing PRP preparation protocols and determining optimal concentrations and dosing regimens. Moreover, it is imperative to conduct large-scale clinical trials to ascertain the effectiveness of PRP in various oral mucosal lesions and delineate its role in everyday clinical practice.[9]

Platelet-rich plasma shows significant potential as a therapeutic choice for oral mucosal lesions, presenting a distinctive method for tissue regeneration. The ongoing research in this field encourages a paradigm shift in the way we approach oral lesion management. As we navigate the intricacies of PRP application, collaboration among clinicians, researchers, and industry partners becomes crucial to fully realize the potential of this innovative therapeutic frontier.

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