ABSTRACT

EFFECT OF PLATELET RICH FIBRIN LYSATES ON CULTURED LIMBAL STEM CELL PROLIFERATION EXPOSED BY SODIUM HYDROXIDE

(Experimental Study In Vitro)

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Purpose: The purpose of this study was to investigate the effect of platelet rich fibrin lysates on limbal stem cell proliferation which was exposed by alkali

Methods: Confluent rabbit limbal stem cells wounded using 20µL of 0.00625 M sodium hydroxide were treated with platelet rich fibrin lysates (PRF) (0.5, and 10%). PRF lysates was prepared from rabbit peripheral blood according to Choukroun’s method without using anticoagulant and foreign factors for platelet activation. The proliferation of limbal stem cells were measured by an 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyl tetrazolium bromide (MTT) colorimetric assay at 24, 48, 72 hours after exposed by sodium hydroxide.

Results: Proliferation significantly increase on limbal stem cell with PRF lysates 5% (p=0.0000) and 10% (p=0.0000) group compared with control. There is no significant difference between PRF lysates 5% and 10% (p=0.98). The highest proliferation of limbal stem cell is PRF lysates 5% group after 48 hours (100.24%)

Conclusion: PRF stimulates limbal stem cell proliferation in chemical trauma caused by natrium hydroxide model. PRF repairs limbal stem cell niche and influences limbal stemness. The present findings warrant further research on PRF as a novel alternative treatment for limbal stem cells deficiency.

Keyword: platelet rich fibrin lysates, limbal stem cells, limbal stem cells deficiency, proliferation, natrium hydroxide