

Evaluation of the Effect of Platelet-Rich Plasma on Proliferation and Differentiation of Human Dental Pulp Stem Cells with or without Ga-Al-As Laser

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Background

Recently, the clinical use of low power lasers has increased, and it is said that wound healing is accelerated by their irradiation. The aim of this study was evaluation of the effect of platelet-rich plasma on proliferation and differentiation of human dental pulp stem cells with or without Ga-Al-As laser.

Methods:

In this experimental study, human lower third molar dental pulp cells prepared from torabinejad research center located in isfahan. When cells reached to adequate extent, divided in 4 groups including PRP, PRP+Laser, Laser, and control for implementation of MTT test and alkaline phosphatase activity test. In Laser and PRP+Laser groups, each well irradiated 45 seconds for MTT test and 135 seconds for alkaline phosphatase activity test.

Results:

Results demonstrated that PRP and PRP+Laser increased cell proliferation and viability up to 3 days but decreased cell proliferation and viability up to 5 days. Alkaline phosphatase activity was more in PRP+Laser, PRP and Laser, respectively, which all of them were less than control group. Alkaline phosphatase activity up-regulated in control group whereas in other groups down regulated.

Conclusion:

Laser irradiation can induce cell proliferation and in this field better acted than PRP. However, for assessment of stimulatory effect of Laser and PRP more studies are warranted.

Keywords: Dental pulp stem cells, Ga-Al-As laser, Platelet-rich plasma.

Poster Presentation

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