

Effects of microplasma irradiation on human gingival fibroblast

Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=20427974&lokasi=lokal>

Abstrak

The purpose of this research was to clarify the effects of microplasma irradiation on human gingival fibroblasts (HGF). Microplasma irradiation exposure for all HGF samples was limited to 30 s at an irradiation distance of 10 mm with a gas flow of 10 L/min. Three experimental groups were used: a 0 V control group (Control); a 650 V (low) microplasma irradiation group (LV); and a 975 V (high) irradiation group (HV). The following cellular characteristics were evaluated in order to analyze the effects of microplasma treatment; morphology, cell count, DNA content, metabolic activity, cell migration, fibroblast growth factor β (FGF-2) production, type I collagen secretion, and cytotoxic analysis. Cell count, DNA content and FGF-2 production have all been linked to wound healing and, interestingly, both the LV and HV groups showed significant ($P < 0.05$) increases in these categories at 72 h after irradiation when compared to the control group. Cytotoxic effects were measured by determining the levels of lactate dehydrogenase, cell death, and DNA damage in HGF cells. In these analyses, the HV and LV groups were not statistically different when compared with the control group at 72 h post-irradiation. These findings suggest that microplasma irradiation activated HGF with no clear cell-damaging effects.