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The effect of low level laser therapy on both HIV infected and uninfected TZM-bl cells

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Human immunodeficiency virus (HIV) infection still remains a major health problem despite the use of highly active antiretroviral therapy (HAART), which has greatly reduced mortality rates. Due to the unavailability of an effective vaccine or a treatment that would completely eradicate the virus from the system of the infected individuals, the quest for new therapies continues. Low level laser therapy (LLLT) involves the exposure of cells or tissues to low levels of red and near infrared light. LLLT has been widely used in different medical conditions including skin diseases, diabetes and wound healing, but not in HIV infection. This study aimed to determine the effects of LLLT on HIV uninfected and infected TZM-bl cells. Both HIV infected and uninfected TZM-bl cells were laser irradiated at a wavelength of 660 nm with different fluencies of 0, 2, 4, 6, 8 and 10 J/cm². Changes in cellular responses were assessed using cell morphology, viability, proliferation, cytotoxicity and luciferase activity. The non-irradiated cells (0 J/cm²) and HIV uninfected cells were used as controls. TZM-bl cells irradiated in the absence of HIV showed no changes in cell morphology, viability, proliferation and cytotoxicity. However, cells irradiated in the presence of HIV infection showed changes in cell morphology, viability, proliferation and cytotoxicity. Laser irradiation reduced luciferase activity in HIV uninfected and infected cells. Laser irradiation in the absence of HIV has no inhibitory effect on cells, while in the presence of HIV infection it induces cell damage in a dose dependent manner.

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PhD

Main supervisor (name and email) and his / her institution

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