16:00 – 16:30

20 TISSUE TEMPERATURE VARIATION IN THE USE OF SURGICAL DIODE LASERS

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Surgical diode lasers (DL) emitters in the infrared region near (700nm<λ<1μm) have high penetration of photons and his great spread may lead to thermal effects (coagulation, cutting and analgesia). For this reason temperature control is important to avoid unwanted effects. The aim of this study was to verify the temperature variation (ΔT) in tongues of mouses caused by DL irradiation in high power (surgical) and low power (therapeutic), comparing both. To this were used 10 tongues previously ulcerated and cut perpendicularly to ventral surface, divided into two groups: G1- high power DL (Zap Lasers®, Pleasant Hill, CA, USA) λ=810nm, 400μm fiber, defocused 4mm, with 0.5W power, 10 Hz, 40 seconds; G2- low power DL (Flash Lase DMC, São Carlos, SP, Brazil), λ=830nm, distant 1mm from the surface, continuous, 0.1W power, 160 seconds. Energy density was the same in two groups (32J/cm2). ΔT has been registered using thermografic cam (ThermaCam FLIR SC3000 systems, USA). Were selected points for evaluation perpendicular to the radiated region, starting on the surface of tongue, other points were approximately 0.5 mm deeper than previous.

In G1 the greater increase in temperature occurs on the surface(~6,7^{o}C), in the other points the temperature decreases; G2 showed increase in temperature variation less pronounced than in G1, with greater variation of temperature at 0.5mm deep from surface and lower temperature on the surface(~3,63^{o}C). ΔT in two groups was virtually the same at 0.5mm deep (~5^{o}C). It is concluded that both lasers in the parameters used cause thermal effect.