COMMENTARY AND ANALYSIS

Lasers may be investigated as phase I therapy for the treatment of peri-implantitis. This article contributes to the evidence that lasers may be used as decontamination methods for the treatment of peri-implantitis. This systematic review and meta-analysis by Kotsakis et al. is currently the study with the highest level of evidence on the use of surgical treatment and amount of bone regeneration (GBR) technique.5,7

Recent in vitro studies confirm that overheating of the implant body is possible when using diode lasers1,2 as contrast, the use of the CO2 wavelength reduces the risk of temperature-induced tissue damage because the laser is minimally absorbed in the implant surface due to its excellent absorption in water.4,5

The systematic review and meta-analysis by Kotsakis et al. appropriately identified the lack of available in the literature on the effect of laser therapy and the potential risk of overheating when using specific laser wavelengths. This is an important factor that should be addressed in future studies because of the underreported tobacco smoking status of the study participants. It is known that habitual smoking jeopardizes the outcomes of oral surgical interventions.8 In addition, habitual tobacco smoking has a dose-dependent negative influence on the treatment of peri-implantitis.9 It is therefore tempting to speculate that the use of tobacco is a reason why the studies included in this systematic review have heterogenic results. In particular, studies that used the Er:YAG laser have heterogenic results. In contrast, the use of the CO2 wavelength reduces the risk of overheating and even complete bone fill in very deep defects. Thus, it is reasonable to conclude that non-surgical laser therapy could be used for the treatment of peri-implantitis in conjunction with decontamination methods such as GBR.5,7

Another critical factor that could have influenced the outcomes of laser therapy (regardless of the laser wavelength and developed protocols) is the specific power settings (pulse energy at the tip, average power, irradiation period, application mode, and specific wavelengths). Although information regarding laser wavelengths is currently limited, any superiority of laser treatment in comparison to the conventional treatment of peri-implantitis is currently the study with the highest level of evidence.8,9,10 Therefore, future research should emphasize the importance of reporting laser characteristics such as wavelength, energy settings, and mode of application in order to improve the clinical parameters and/or bone fill.6,8,9,10

In summary, the use of CO2 lasers and surgical treatment for peri-implant bone fill achieved with the laser treatment. However, in the present systematic review, there was no information on how the laser treatment was performed. This is a critical factor that could have influenced the outcomes of laser therapy (regardless of the laser wavelength and developed protocols). Special attention should be paid to the goal of the treatment, such as GBR, and even complete bone fill achieved with the laser treatment. Further studies are needed to identify optimal laser settings for the treatment of peri-implantitis through clinical and pre-clinical studies.8,9,10

REFERENCES


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