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Determination of Er: YAG laser power settings for application in humans study for gingiva de-pigmentation

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Aims & Objectives: The aim of this animal ex-vivo and human study is to determine the proper Er: YAG laser power settings to suggest applying them in humans study for gingiva de-pigmentation. The objectives are; speed of removing pigmentation from the pigmented tissues that was measured by a stop watch, controllability of stopping applying the laser when desired, that was measured by numbers, amount of carbonized area, the best power setting for de-pigmentation depending on the results of the previous four objectives, pain, bleeding and healing.

Materials & Methods: Four pulse durations VLP, LP, SP, and MSP "that already exist in the AT Fidalis Fotona laser machine" were the basic for applying six power settings measured by J/cm2 for each pulse-duration in the animal study. Choosing of the power settings depended on trying the lowest setting available in the laser machine and increasing the power gradually up to 6J/cm2 "below the ablation threshold of dentin, cementum and enamel. The animal is a sheep sacrificed less than 6 hours before the experiment. As a result, four power settings were suggested to be applied on human. Then, they were studied.

Results: The objective was answered by tables include numbers and cumulative results were concluded.

Conclusion: It seems that power settings range from 2 J/cm2 to 4 J/cm2 for VLP, LP and SP are suitable to use in humans, considering some differences between them.

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