



CFAO GRADUATE STUDENT POSTERBOARD ABSTRACTS

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Evaluation of teeth root length as an indication of root resorption after the use of photobiomodulation during orthodontic treatment with clear aligners: A pilot study

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INTRODUCTION:

Proposed adjunctive therapies to accelerate orthodontic treatment, such as photobiomodulation, may affect the degree of orthodontically induced inflammatory root resorption (OIIRR). We aimed to evaluate the extent of OIIRR using cone-beam computed tomography (CBCT) in a group of orthodontic patients treated with clear aligners who had received adjunctive photobiomodulation therapy with the OrthoPulse® device.

METHODS:

The lengths of 106 maxillary and mandibular anterior teeth were measured in 9 consecutive patients who received comprehensive orthodontic treatment with clear aligners (4 OrthoPulse® patients and 5 control patients). Teeth lengths were measured from the tip of the incisal edge to the most apical aspect of the root. The difference in teeth length was calculated from pre-treatment and post-treatment CBCT imaging.

RESULTS:

The mean difference in tooth length was -0.21 mm (95% CI, -0.48 to 0.05) in patients treated with the OrthoPulse® device and -0.42 mm (95% CI, -0.67 to -0.16) in the control group. No statistically significant difference was identified between the two groups.

CONCLUSIONS:

Adjunctive photobiomodulation therapy using the OrthoPulse® device to accelerate orthodontic treatment may not have an effect on OIIRR in patients treated with clear aligners. Due to sample size limitations, there is a large uncertainty in the results. Replication in a future study with a larger sample size is required.