

Nd:YAG laser as an adjunctive treatment to nonsurgical periodontal therapy

A meta-analysis

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Received: 2 November 2012 / Accepted: 25 February 2013

Springer-Verlag London 2013

Abstract A meta-analysis was conducted to investigate whether the use of Nd:YAG laser adjunctive to scaling root planing (SRP) could provide additional benefits compared to SRP alone in patients with chronic periodontitis. The meta-analysis was performed according to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-analysis) statement and the recommendations of the Cochrane Collaboration. A literature search was performed on seven databases, followed by a manual search. Weighted mean differences and 95 % confidence intervals were calculated for the clinical attachment level (CAL), probing depth (PD), and changes in plaque index (PI) and gingival crevicular fluid (GCF). Inter-study heterogeneity was assessed by the I^2 test, and publication bias was analyzed by the visual inspection of the funnel plot for asymmetry, Egger's regression test, and trim-and-fill method. All outcomes were evaluated from baseline to the end of follow-up. Significant differences in PD and GCF reduction were observed in favor of SRP+Nd:YAG; no significant differences were observed in CAL gain or PI change. The findings of this meta-analysis suggest that use of the Nd:YAG laser as an adjunctive therapy to conventional nonsurgical periodontal therapy could potentially provide additional benefits. However, all included studies were not at low risk of bias, and only three studies were included in the meta-analysis. As a result, the evidence is insufficient to support the effectiveness of adjunctive Nd:YAG to SRP. Future long-term well-designed parallel randomized clinical trials are required to assess the effectiveness of the adjunctive use of Nd:YAG laser. These trials should also include microbiological and adverse events analyses.

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