



Efficacy and Safety of Topical Betamethasone Valerate 0.1% Cream Combined with 1064 nm Long-Pulsed Nd:YAG Compared to Topical Steroid Alone in the Treatment of Paronychia Associated with EGFR Inhibitors: A Randomized Controlled Study

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Abstract

Paronychia is a common adverse effect associated with epidermal growth factor receptor inhibitor (EGFRI) therapy. It significantly diminishes patients' quality of life and compliance with oncological treatment regimens. Currently, there are no comprehensive guidelines pertaining to its management. This prospective randomized controlled trial assessed the efficacy and safety of a topical steroid in conjunction with a long-pulsed 1064nm neodymium-doped Yttrium Aluminium Garnet (Nd:YAG) laser, in comparison with topical steroids alone for the treatment of paronychia following EGFRI. All ten participants, each exhibiting two lesions (culminating in a total of 20 lesions), underwent randomization to receive laser therapy combined with topical steroids on one lesion ($n = 10$), whereas the opposite lesion was treated solely with topical steroids ($n = 10$). Paronychia Severity Grading (PSG) Scale, Atis's grade, and pain scores were evaluated at baseline (Day 0) and subsequently on Days 7, 14, and 21. Photographic documentation was meticulously undertaken at each designated time point. The group receiving laser treatment exhibited statistically significant improvement. The reduction in the PSG scale from Day 0 to Day 21 was markedly more substantial in lesions subjected to laser treatment (-1.40 ± 0.84) when contrasted with lesions receiving steroids alone (-0.50 ± 0.97 , $p = 0.045$). Similarly, the reduction in Atis's grade was found to be greater within the laser group (-2.70 ± 0.82) than in the control group (-0.30 ± 1.70 , $p = 0.003$). Furthermore, the degree of pain reduction was also more pronounced in the laser treatment group. The application of Nd:YAG 1064 nm laser therapy in combination with topical steroids exhibits superior efficacy in ameliorating inflammation and pain associated with EGFRI-induced paronychia. This observation implies that an integrative treatment strategy may represent a promising therapeutic avenue. Additional investigations with larger sample populations are essential to validate these findings.

Keywords: *epidermal growth factor receptor inhibitors, long-pulsed 1064 nm Nd:YAG laser, paronychia, topical steroid*