Actas Dermosifiliogr. 2017;108(2):140–144

ACTAS Dermo-Sifiliográficas

Full English text available at www.actasdermo.org

ORIGINAL ARTICLE

Treatment of nail psoriasis with Pulse Dye Laser plus calcipotriol betametasona gel vs. Nd:YAG plus calcipotriol betamethasone gel: An intrapatient left-to-right controlled study

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Received 6 April 2016; accepted 16 September 2016
Available online 21 January 2017

KEYWORDS
Nail psoriasis;
Laser treatment;
Nd:YAG;
Pulse Dye Laser

Abstract
Background: Treatment of nail psoriasis remains a challenging and often disappointing situation.
Objective: To compare the efficacy, adverse reactions and tolerability of treatment of nail psoriasis with PDL vs. Nd:YAG, in association with betametasona calcipotriol gel.
Methods: An open, prospective intrapatient left-to-right study was designed. The right hand of each patient received treatment with PDL and the left hand with Nd:YAG. Betamethasone calcipotriol gel was applied once a day during the first week after each laser session. A total of four sessions were administered.
Results: The clinical efficacy was evaluated according to the NAPSI score.

All patients showed improvement in nail bed and nail matrix psoriasis. The global NAPSI mean declined in 15.46 ($p < 0.000$). There was neither statistical difference between the reduction in nail bed and matrix NAPSI nor in the treatment with PDL vs. Nd:YAG. The administration of Nd:YAG was more painful. No serious adverse effects were documented.
Limitations: No random assignment and the small number of patients.
Conclusions: PDL and Nd:YAG have proven to be an effective treatment for nail psoriasis with no serious adverse effect. No statistically significant difference was found between the two treatments.
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http://dx.doi.org/10.1016/j.ad.2016.09.009
0001-7310/© 2016 Published by Elsevier España, S.L.U. on behalf of AEDV.

PALABRAS CLAVE
Psoriasis ungueal;
Láser, Nd:YAG;
Láser de colorante pulsado

Tratamiento de psoriasis ungueal con Pulse dye laser frente a Nd: YAG, en asociación con gel de betametasona: un estudio con control intrapaciente izquierda-derecha

Resumen
Antecedentes: El tratamiento de la psoriasis ungueal es una situación de difícil manejo y a menudo decepcionante para el dermatólogo.
Objetivo: Comparar la eficacia, las reacciones adversas y la tolerabilidad del tratamiento de la psoriasis ungueal con PDL vs. Nd: YAG en asociación con gel de betametasona calcipotriol.
Métodos: Estudio prospectivo abierto con control intrapaciente izquierda-derecha. La mano derecha de cada paciente recibió tratamiento con PDL y la mano izquierda con Nd: YAG. Se aplicó gel de betametasona calcipotriol una vez al día durante la primera semana después de cada sesión de láser en las 2 manos. Se administraron un total de 4 sesiones.
Resultados: La eficacia clínica se evaluó de acuerdo con la escala NAPSI. Todos los pacientes mostraron una mejoría en las lesiones del lecho y de la matriz ungueal. La media global del NAPSI disminuyó en 15,46 ($p < 0,000$). No hubo diferencia significativa entre la mejoría de las lesiones del lecho y la matriz ni en el tratamiento con el PDL vs. Nd: YAG. La administración de Nd: YAG fue más dolorosa. No se documentaron efectos adversos graves.
Limitaciones: Falta de asignación aleatoria y muestra pequeña.
Conclusiones: PDL y Nd: YAG han demostrado ser tratamientos eficaces para la psoriasis ungueal sin documentarse efectos adversos graves. No se encontró diferencia estadística significativa entre los 2 tratamientos.
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Introduction

Even though cutaneous signs and symptoms are the most common clinical manifestations of psoriasis, the nails can be involved in up to 78% of patients, reaching 95% if psoriatic arthritis is present.[1] The longer the psoriatic lesions exist, the higher the frequency of nail changes will be. Furthermore, in a study involving 1728 patients with nail psoriasis 93.3% indicated that nail changes were cosmetically disturbing, 58.9%, reported restriction in their daily activities, and 51.8% referred pain.[1]

The clinical presentation has a wide spectrum of changes depending on the location of the pathology. Pitting, leukonychia, red spots in the lunula, nail plate crumbling, Beau lines, and trachyonychia are signs of nail matrix involvement. On the other hand, onycholysis, oil drop discoloration (salmon patch), subungual hyperkeratosis, and splinter hemorrhage indicate nail bed involvement.[2,3] This differentiation is convenient because nail matrix psoriasis is expected to be more resistant to different therapeutic approaches.

Traditional therapies have focused on the inhibition of epidermal proliferation, inflammation, or both. However, it has recently been pointed out that the earliest changes noted in a new psoriatic lesion arise in the superficial dermal microvasculature[4] and that these are necessary for maintaining clinical lesions. Because the psoriatic blood vessels play such an important role, acting on the abnormal psoriatic vasculature may be beneficial in psoriasis.

Material and methods

We conducted a prospective intra-patient left-to-right controlled study. Patients with bilateral fingernail psoriasis were enrolled. The patients could have undergone prior topical or systemic treatment or be naive. Exclusion criteria were onychomycosis, concomitant treatment with drugs affecting the nail, use of permanent manicures, subungual hematoma, subungual nevus and history of trauma.

Signed consent forms were obtained from each patient before entering the study.

The initial evaluation included a complete medical history, physical examination, Nail Psoriasis Severity Index (NAPSI) score, and digital photographs. During every visit the NAPSI score and the digital photographs were updated and the patients were asked to identify their nail improvement and evaluate pain in both hands on a visual analog scale from 0 to 10 (patient global assessment: 0: no change; no pain, 10: total clearance, extremely painful). At the end of the sessions, the patient's satisfaction was evaluated with a visual analog scale, (0: not satisfy at all, not effective 10: very satisfy, very effective).

The right hand of each patient received treatment with Pulse Dye Laser (PDL) with a pulse duration of 0.4 ms, an energy of 6 J/cm^2 and a beam diameter of 7 mm, Whereas the left hand was treated with Nd:YAG with a beam diameter of 5 mm, pulse duration of 35 ms and an energy of 40 J/cm^2. All the nail plates, including the lunula, were treated with contiguous layers of spots with a 30% overlapping. The patient was instructed to apply betamethasone calcipotriol gel every 24 h for a week in both sides.

A premedication involving paracetamol was given one hour before the session if requested by the patient. Treatment sessions were repeated every month for a total of four sessions.

Results

Thirteen patients (seven women, six men) were enrolled in the study. Two patients left the study at session 2 and 3

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