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Intraindividual, right-left comparison of topical 5-aminolevulinic acid photodynamic therapy vs. 5% imiquimod cream for actinic keratoses on the upper extremities

E Sotiriou¹, Z Apalla, F Maliamani, N Zapparas, D Panagiotidou, D Ioannides

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PMID: 19470041 DOI: 10.1111/j.1468-3083.2009.03259.x

Abstract

Background: Actinic keratoses (AKs) are considered as in situ squamous cell carcinoma. Early and effective treatment is important. Objective To compare the efficacy, cosmetic outcome and patient preference of 5-aminolevulinic acid photodynamic therapy (ALA-PDT) with that of 5% imiquimod (IMIQ) cream in patients with AKs on the dorsa of hands and forearms.

Methods: Subjects received two ALA-PDT treatment sessions and one or two courses of imiquimod (three times per week for 4 weeks each). Treatments were randomly allocated to alternate upper extremities. Assessments included lesion response one and six months after treatment, cosmetic outcome evaluated by the investigators and patients' preference 6 months after treatment. Efficacy end point included the individual AK lesion clearance rate.

Results: Thirty patients with 256 lesions were included in the study. At the first follow-up, treatment with ALA-PDT resulted in significantly larger rate of cured lesions relative to 5% IMIQ cream (70.16% vs. 18.26%). At the second follow-up both treatments showed a high rate of cured lesions (65.32% for PDT vs. 55.65% for IMIQ cream). Response rates obtained in grade I lesions were higher for both treatments (71.64% for PDT vs. 72.13% for IMIQ), while treatment with PDT resulted in a significant larger rate of cured grade II lesions (57.89% for PDT vs. 37.03 for IMIQ). Difference in cosmetic outcome was not statistically significant. Results for subject preference favoured ALA-PDT.

Conclusions: Our study shows that ALA-PDT and 5% IMIQ cream are both attractive treatment options for upper extremities AKs with comparable efficacy and cosmetic outcomes.

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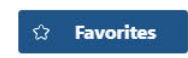
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PMID: 23377520 Clinical Trial.

Results of an investigator-initiated single-blind split-face comparison of photodynamic therapy and 5% imiquimod cream for the treatment of actinic keratoses.

Hadley J, Tristani-Firouzi P, Hull C, Florell S, Cotter M, Hadley M.

Dermatol Surg. 2012 May;38(5):722-7. doi: 10.1111/j.1524-4725.2012.02340.x. Epub 2012 Feb 16.

PMID: 22340282 Clinical Trial.

Current methods for photodynamic therapy in the US: comparison of MAL/PDT and ALA/PDT.

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J Drugs Dermatol. 2013 Aug;12(8):925-30.

PMID: 23986167 Review.

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An Bras Dermatol. 2018 Jul-Aug;93(4):529-534. doi: 10.1590/abd1806-4841.20186982.

PMID: 30066759 [Free PMC article.](#) Clinical Trial.

Photodynamic Therapy and Non-Melanoma Skin Cancer.

Griffin LL, Lear JT.

Cancers (Basel). 2016 Oct 22;8(10):98. doi: 10.3390/cancers8100098.

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Comparative Study of Photodynamic Therapy with Topical Methyl Aminolevulinic Acid versus 5-Aminolevulinic Acid for Facial Actinic Keratosis with Long-Term Follow-Up.

Ko DY, Kim KH, Song KH.

Ann Dermatol. 2014 Jun;26(3):321-31. doi: 10.5021/ad.2014.26.3.321. Epub 2014 Jun 12.

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Nonsurgical innovations in the treatment of nonmelanoma skin cancer.

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J Clin Aesthet Dermatol. 2010 Jun;3(6):20-34.

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- > Administration, Topical
- > Aged
- > Aminolevulinic Acid / administration & dosage
- > Aminolevulinic Acid / adverse effects
- > Aminolevulinic Acid / therapeutic use*
- > Aminoquinolines / administration & dosage
- > Aminoquinolines / adverse effects
- > Aminoquinolines / therapeutic use*
- > Dose-Response Relationship, Drug
- > Female
- > Humans
- > Imiquimod
- > Interferon Inducers / administration & dosage
- > Interferon Inducers / adverse effects

- > Male
- > Middle Aged
- > Ointments
- > Patient Satisfaction
- > Photochemotherapy / methods*
- > Photosensitizing Agents / administration & dosage
- > Photosensitizing Agents / adverse effects
- > Photosensitizing Agents / therapeutic use*
- > Treatment Outcome
- > Upper Extremity

Substances

- > Aminoquinolines
- > Interferon Inducers
- > Ointments
- > Photosensitizing Agents
- > Aminolevulinic Acid
- > Imiquimod

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