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PHOTODYNAMIC THERAPY OF ACTINIC KERATOSES WITH TOPICAL 5-AMINO-LEVULINIC ACID (ALA) AND VISIBLE RED-LIGHT (630-NM)

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PHOTODYNAMIC THERAPY OF ACTINIC KERATOSES WITH TOPICAL 5-AMINO-LEVULINIC ACID (ALA) AND VISIBLE RED LIGHT (630 nm). Edward W. Jeffes, Gerald D. Weinstein, Jerry L. McCullough, J. Stuart Nelson, Nora L. Fong, Allison J. McCormick, Wendy L. Hoffman, Department of Dermatology and Beckman Laser Institute, University of California, Irvine, Irvine, California.

The present dose-ranging study investigates the safety, patient tolerance and clinical efficacy of photodynamic therapy (PDT) using topical ALA and visible red light to treat actinic keratoses (AKs).

Twenty seven patients with 6 clinically typical AKs were studied. All lesions were treated with topical ALA (10%, 20% or 30%) emollient cream under occlusion for 3 hours. Immediately prior to PDT, the treatment sites were examined by a UV light for ALA-induced protoporphyrin IX fluorescence. The sites were then irradiated with 630 nm red light from an argon pumped dye laser at total light dosages ranging from 10-150 J/cm<sup>2</sup>. Assessments for safety, patient tolerance and clinical response were performed immediately following PDT, at 24 and 72 hours, and at weeks 1, 4, 8 and 16.

Three hours after ALA application, AKs showed moderate red fluorescence. After treatment with red light, AKs demonstrated cutaneous photosensitivity (localized erythema and edema), which peaked at 72 hours and was more intense and prolonged with the higher concentrations of ALA. There was a lesser degree of photosensitization of the adjacent normal skin. Some patients experienced discomfort during treatment, which was a function of the concentration of ALA and the intensity of fluorescence. At 8 weeks following a single treatment using 30% ALA, there was total clearing of ~50% and partial clearing of ~40% of AKs.

The present studies have shown that topical ALA PDT is an effective treatment for actinic keratoses. The treatment is well tolerated in most patients. Complete clearing of clinically typical AKs can be achieved with topical ALA and visible red light.