Aminolevulinic Acid 20% Topical Solution Activated by Blue Light in the Treatment of Facial Cutaneous Squamous Cell Carcinoma in situ

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ABSTRACT

Cutaneous squamous cell carcinoma in situ (isSCC) commonly affects sun-exposed facial skin, whereas non-surgical options may be desirable in certain anatomic locations. In this study, 30 patients with biopsy-confirmed facial isSCC received two aminolevulinic acid photodynamic therapy (ALA-PDT) treatments, spaced 28 days apart, followed by a histopathological exam,. Of the 30 patients, 100% achieved clinical and histological clearance. Local reactions were mild and transient, and adverse events were rare. ALA-PDT was safe, well tolerated, and yielded excellent cosmetic outcomes, supporting its role as a non-invasive treatment for facial isSCC.

BACKGROUND

Cutaneous squamous cell carcinoma in situ (isSCC) is a common skin cancer occurring from sun exposure and often appears on the face. Of note, incidence of SCC and actinic keratoses (AKs) is rising and therefore adequate treatment is becoming of increasing importance. Treatment is primarily surgical but less invasive treatments are desirable. This study evaluated the safety, tolerability, and efficacy of ALA-PDT for treatment of facial isSCC.

METHODS

Thirty patients with biopsy-confirmed facial isSCC (0.4–1.3 cm) received two ALA-PDT treatments 28 days apart, following standard actinic keratosis protocol. Lesions were excised eight weeks after treatment for histologic assessment. Primary and secondary endpoints were histologic and clinical clearance, with safety evaluated through adverse events, local skin reactions, and treatment-site pain.

RESULTS

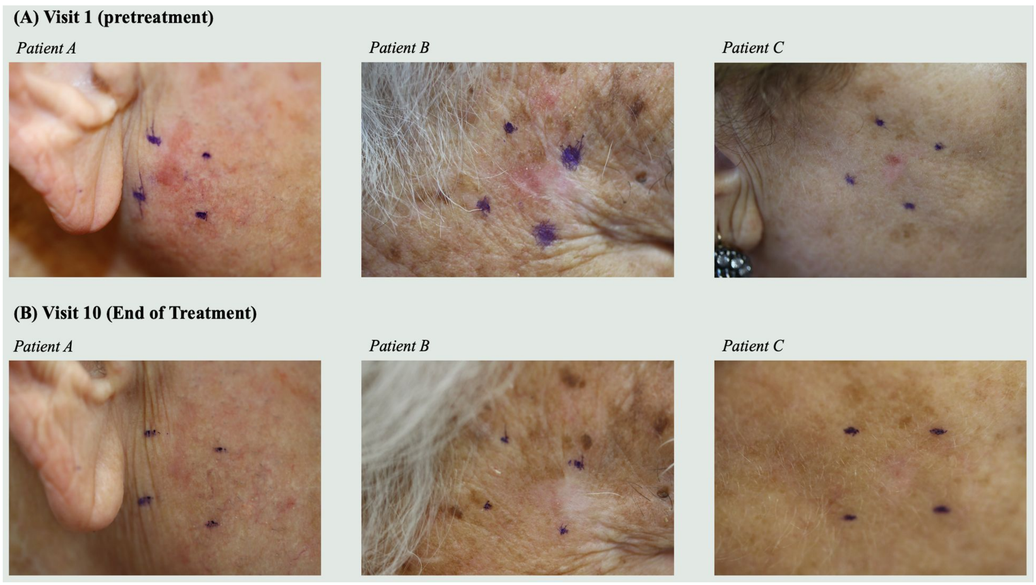

Figure 1. Squamous cell carcinoma in-situ before and after treatment with aminolevulinic acid and photodynamic therapy (ALA-PDT).

Thirty patients with a mean age of 75 (age range: 54-95) were enrolled. The mean diameter of the lesion was 0.73 cm (range: 0.4–1.2 cm).. The mean width was 0.59 cm (range: 0.4–1.1 cm). Overall, **all 30 patients (100%) achieved histological clearance of the treated isSCC lesion at surgical excision/End of Treatment** (EOT). **Clinical clearance was observed in 100% of patients** prior to excision. Figure 1 demonstrates the successful clearance of isSCC.

Local skin reactions, mainly erythema and flaking/scaling, peaked during or shortly after treatment and decreased over time. Mean pain was 2.71/10. Most patients (93%) experienced no adverse events, and lesion pigmentation remained unchanged in 97% of cases; one patient had mild, transient hyperpigmentation.

DISCUSSION

ALA-PDT has emerged as a promising non-invasive treatment for superficial skin cancer. It has demonstrated efficacy as an alternative to current treatment modalities for treating isSCC. Previous studies show that ALA-PDT has clearance rates of 90-100% following 1-3 treatments in patients with isSCC.

DISCUSSION (CONTINUED)

ALA-PDT has demonstrated superior cosmetic outcomes compared to surgery. Our data suggests that both clinical clearance and complete absence of isSCC histologically can be achieved using non-surgical methods. Mohs, excisional surgeries, ED&C, and cryotherapy may leave patients with an unappealing scar or pigmentation changes that would be mitigated entirely with this treatment protocol. This is particularly favorable with lesions located on the face, as in our study. ALA-PDT is FDA approved for the treatment of actinic keratoses (AKs). Treatment of isSCC with ALA-PDT can especially be helpful when there are surrounding precancerous lesions, such as AKs, especially considering the rising incidence of both AKs and SCCs. It can also be used to prevent occurrence of additional AKs in areas of actinic damage and the subsequent development of isSCC and SCC.

In conclusion, the ALA-PDT protocol outlined in this study appears to be a very effective, cosmetically appealing, safe and well-tolerated treatment option for isSCC on the face and potentially in the treatment of surrounding precancerous lesions.

REFERENCES & DISCLOSURES

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