Original Article

Effect of myristyl nicotinate on retinoic acid therapy for facial photodamage

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MN, myristyl nicotinate; TEWL, transepidermal water loss.

Abstract

Abstract: Based on the hypothesis that skin barrier impairment is a contributor to side-effects associated with retinoic acid therapy, a double-blind, placebo-controlled pilot study examined the combined use of retinoic acid with myristyl nicotinate (MN), a lipophilic derivative of niacin that enhances skin barrier function, in female subjects with mild to moderate facial photodamage. The study involved a 1-month run-in period with placebo or MN prior to initiation of retinoic acid therapy for 3 months. Analysis of skin biopsies revealed that retinoic acid therapy resulted in stratum corneum thinning of approximately 25% (P = 0.006 versus baseline) that was ameliorated by MN use (P < 0.005). Therapy resulted in an increased rate of transepidermal water loss (TEWL) of approximately 45% (P = 0.001 versus baseline) and use of MN protected against the increase in TEWL with the strongest protection provided by prior use of MN (P = 0.056 versus placebo). MN use reduced the incidence of side-effects of the therapy and again prior use provided the greatest reduction of side-effects. Subjects showed statistically significant clinical improvement (P < 0.05 versus baseline) during the study. MN use did not interfere with any clinical improvement parameters and improved effects on temple laxity (P = 0.01

versus placebo). Analysis of changes in epidermal thickness, Ki67-positive cells and intensity of loricrin staining demonstrated that MN either improved or did not interfere with retinoic acid efficacy. These results show that prior and concurrent use of MN can mitigate barrier impairment and improve the tolerability of retinoic acid therapy for facial photodamage without interfering with efficacy.