Abstract

Problem:
To investigate whether topical anti-aging compounds can be used as depot cream as seen by replica profilometry with comparable changes in histological parameters in murine skin.

Methods & Measures
Female hairless mice were exposed to topical application of a retinoic acid cream, a peptide lotion, and a soy cream on the dorsal skin areas for 4 weeks. Silicone negative replicas of treated and untreated skin surfaces were photographed using Optimus VIP image processing system (CuDem Corporation, Texas), and evaluated for traditional surface roughness parameters in murine skin. Surfaces were also processed for histomorphometry, and im- munohistochemistry of proliferating cell antigen (PCNA). Quantitative light microscopic data were acquired from tissue sections for estimating DNA replication in epidermal keratinocytes (PCNA index), epidermal depth, thickness of dermal collagen fibers. Results

All quantitative data were analyzed for comparison using means with one-way analysis of variance (ANOVA) using SPSS 14.0 statistical software, and significant changes in all the parameters were noted. Augmented keratinocyte proliferation and thickening of viable epidermis was observed with all three compounds. The pronounced effects seen with all the compounds indicated topical agents other than retinoic acid may have beneficial regenerative effects on photoaged skin without irritating effects reported for retinoic acid.

Materials & Methods

Introduction

Within recent years there has been a flurry of interest around non-invasive topical treatments to reverse or improve the effects of photaging on the human skin. Most recent commercial products are being marketed, and there is a need for scientific studies about these anti-aging products and their claims with clinical testing. Among the topical apply a broad range of products, retinoic acid is the most studied. Anti-aging products which contain retinoic acid and its derivatives have been most extensively investigated over the last few decades, and are leading to profound therapeutics, and clinical improvements have been noted for conditions ranging from skin aging. Retinoic acid is present in all skin other products, the ointment hyaloxy, vitamin C serum, and new bone products have been marketed for this condition. Recently, topical retinoic acid has become very popular as an anti wrinkle agents. These products have been tested on human patients and also in experimental animals. But their effects have been not been studied in detail. The present study was an attempt to make basic histopathological effects of these topical commercial products i.e. retinoic acid, soy cream, and a peptide product on the skin in the house mouse model. This data would serve as a baseline for future studies of similar products in the future.

Clinical Significance

Results

Although it is a well-known fact that retinoic acid cream, a peptide lotion, and a soy cream on the dorsal skin areas for 4 weeks. silicone negative replicas of treated and untreated skin surfaces were photographed using Optimus VIP image processing system (CuDem Corporation, Texas), and evaluated for traditional surface roughness parameters in murine skin. Surfaces were also processed for histomorphometry, and immunohistochemistry of proliferating cell antigen (PCNA). Quantitative light microscopic data were acquired from tissue sections for estimating DNA replication in epidermal keratinocytes (PCNA index), epidermal depth, thickness of dermal collagen fibers. Results

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Materials & Methods

Retinoic acid effects have been reported in literature but reports of comparison with soy and peptide preparation in this laboratory model are lacking. The pronounced effects seen with all the compounds indicates topical agents other than retinoic acid may have beneficial regenerative effects on photoaged skin without irritating effects reported for retinoic acid.

Conclusions

Retinoic acid effects have been reported in literature but reports of comparison with soy and peptide preparation in this laboratory model are lacking. The pronounced effects seen with all the compounds indicates topical agents other than retinoic acid may have beneficial regenerative effects on photoaged skin without irritating effects reported for retinoic acid.

Clinical Significance

These results may be helpful in defining clinical strategies for topical non-invasive improvement of aging facial skin.

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