

Topical Human Epidermal Growth Factor in the Treatment of Senile Purpura and the Prevention of Dermatoporosis

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Abstract

BACKGROUND: Senile purpura presents itself as a largely unexplored challenge as it has been long thought of as a benign condition without long-term health sequelae. It is becoming increasingly accepted that skin aging not only results in cosmetic disturbances, but as a functional ones. With modern increases in lifespan, skin atrophy associated with solar damage is presenting as a clinically significant inability to mechanically protect patients. This chronic cutaneous insufficiency/fragility syndrome was recently termed dermatoporosis and senile purpura appears to be a visible marker of early stage dysfunction.

OBJECTIVE: To examine the effects of topically human epidermal growth factor on the clinical presence of senile purpura and its effect on skin thickness as measured via cutaneous ultrasound.

METHODS: Six subjects applied human epidermal growth factor morning and night for six weeks.

Clinical outcomes were evaluated by comparing initial clinical photos to 6-week photos and performing a blinded investigator's global assessment (IGA). Skin thickness was evaluated via cutaneous ultrasound measurement.

RESULTS: Ultrasound measurements indicated a mean skin thickening of $195.2 \pm 35.7\mu\text{m}$ (SEM) over 6 weeks. The average number of purpuric lesions decreased from 15 ± 4.6 (SEM) to 2.3 ± 0.7 (SEM) over that same period.

CONCLUSION: Senile purpura presents itself as a cosmetic disturbance posing significant psychological distress and serves as a marker of the severity of skin thinning. In this study, we demonstrate that topical h-EGF diminishes the appearance of senile purpura by thickening skin and may help prevent the development of late stage dermatoporosis.

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BACKGROUND

Originally described by Bateman in 1817 as dark purple blotches of irregular form and various magnitude, senile purpura is the subcutaneous disruption of blood vessels that result from skin atrophy attributed to aging and solar damage.¹ Current estimates suggest that up to 11.9 percent of patients over the age of 50 are affected with the condition with the prevalence increasing to nearly 30 percent with patients admitted to long term care facilities.^{2,3}

Senile purpura presents itself as a largely unexplored challenge as it has been long thought of as a benign condition without long-term health sequelae. It is becoming increasingly accepted that skin aging not only results in cosmetic disturbances, but as functional ones.⁴ With modern

increases in lifespan, skin atrophy associated with solar damage is presenting as a clinically significant inability to mechanically protect patients.⁵ As such, skin thinning has been shown to produce a chronic cutaneous insufficiency/fragility syndrome which has recently been termed dermatoporosis. Senile purpura appears to be a visible marker of early stage dysfunction and may represent an opportunity to prevent skin thinning before it becomes clinically significant.⁴

In our current study, we examine the effects of topical human epidermal growth factor on the clinical presence of senile purpura and its effect on skin thickness as measured via cutaneous ultrasound.

MATERIALS AND METHODS

Study Design

In this study, we examined the effects of topical EGF on the clinical appearance of senile purpura and its measured affect on skin thickness. We evaluated clinical outcomes by comparing initial clinical photos to 6-week photos and performing a blinded investigator's global assessment (IGA). Skin thickness was evaluated via cutaneous ultrasound measurement. All study subjects signed an informed consent.

At the initial visit, clinical photography was performed on both arms of each patient. Cutaneous ultrasound was also performed 1cm medial to the ulnar styloid process of each arm using a DermaLab Skin Ultrasound Device. Patients were provided with one tube of 5ppm h-EGF cream and instructed to apply the serum to their forearms and the dorsum of their hands every morning and night, after bathing. A diary of the

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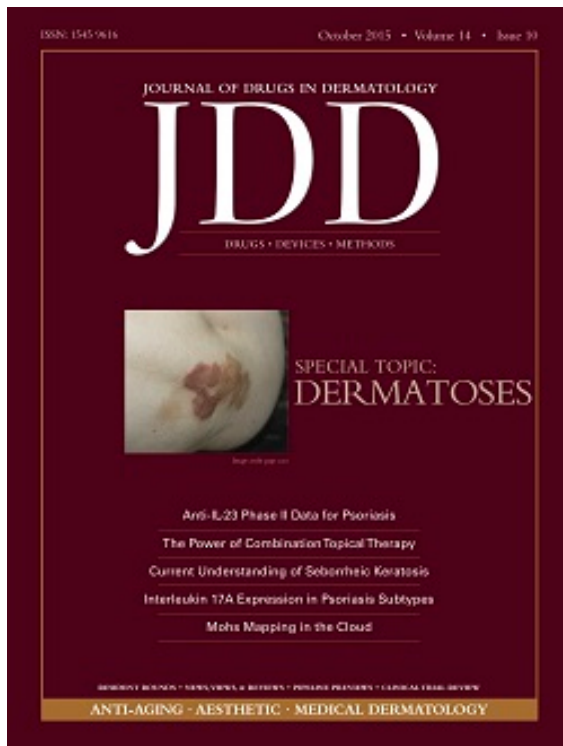
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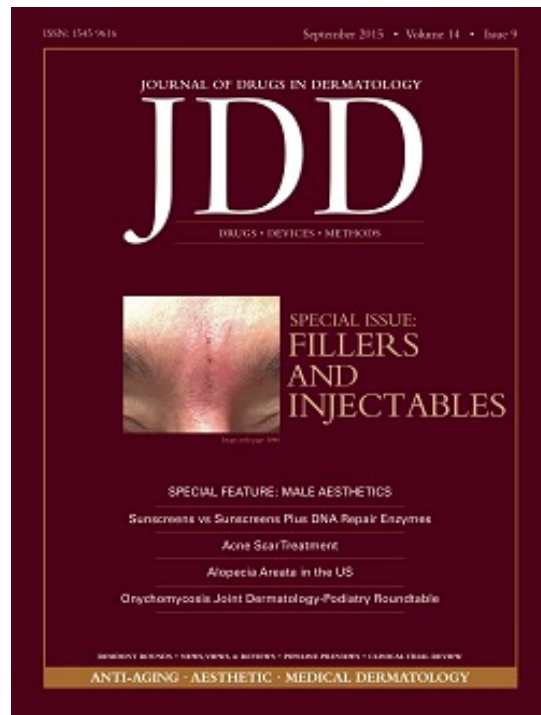
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