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Topic: Dermatopathology

Role of N-Acetylcysteine in Treating Solar Purpura

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Introduction

Chronic solar purpura presents as recurrent purplish ecchymoses and bruises on the extensor forearms and shins, most commonly in older adults. It is associated with dermal connective tissue atrophy, chronic sun exposure, aging, and medication use, especially some anticoagulants, leading to increased vascular fragility and thinning of the skin. Lesions often occur without recognized trauma, resolve slowly, and leave persistent hemosiderin dyspigmentation. Affected skin appears thin, fragile, and prone to tearing. Despite its prevalence, the pathogenesis remains incompletely understood, and no standardized effective therapy exists.

Materials and Methods

Based on preliminary observations, discussions with colleagues, and use in other dermatologic indications, we decided to use N-Acetylcysteine, an oral supplement available over the counter, previously prescribed as a mucolytic for lung diseases in a dose of 600 mg BID as an intervention. After very encouraging initial results of a pilot study, we performed a meta-analysis of our data and then performed a long-term observational study. Over the past decade, patients with recurrent purpura were evaluated for major co-morbidities, associated symptoms, signs, demographics, and dietary patterns. Patients who qualified and, upon review of possible drug interactions, were placed on N-Acetylcysteine 600 mg BID and monitored for improvement and possible adverse reactions. Parameters observed were reduction of bruising, time to heal, and skin appearance.

Results

Observational outcomes demonstrated consistent clinical improvement following supplementation with N-Acetylcysteine. Patients experienced a reduction in new purpuric episodes, decreased lesion size, and faster resolution of the acute ecchymoses and bruising. Skin in affected areas appeared less fragile, with reduced tearing and improved overall dermal integrity. Improvements were most notable in individuals with underlying gastrointestinal disorders, chronic antacid use, or prior gastric surgery, suggesting a role for impaired nutrient absorption in disease expression.

Conclusions

Our observations indicate a strong association between chronic solar purpura, gastrointestinal conditions, and suboptimal nutritional status. Supplementation with N-Acetylcysteine, together with dietary optimization, was associated with meaningful clinical improvement. These findings support a metabolic and nutritional contribution to dermal vessel fragility and skin integrity. Our data suggest that long-term N-Acetylcysteine supplementation may represent a safe, practical adjunct in managing chronic solar purpura. Further controlled studies are needed to clarify mechanisms of action at the molecular level and establish treatment guidelines.