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Mandelic acid, a lipophilic alpha hydroxy acid, reduces lipid production, enhances exfoliation and provides clinical and patient perceivable benefits to oily and photodamaged skin

Brenda L. Edison, BA, NeoStrata Company, a Johnson & Johnson Company, Princeton, New Jersey; Heather A. Smith, BS, Wen-Hwa Li, Ramine Parsa, PhD, Johnson & Johnson Consumer; Barbara A. Green, RPh, Peter Konish, MS, NeoStrata Company; Marisa Dufort, MS, Neena K. Tierney, PhD

Mandelic acid is a lipophilic alpha hydroxyacid (AHA) with known antibacterial properties. As such, mandelic acid was evaluated for its benefits on oily and photoaged skin. Mandelic acid and glycolic acid were incubated with cultured sebocytes in vitro to measure changes in lipid production via Nile Red staining. In vivo exfoliation of a mandelic acid cleanser or cream (2%; twice daily) was assessed using the fluorescent dye dansyl chloride and UV image analysis. An 8-week anti-aging clinical study on women (30-50 years) with mild to moderate oily skin assessed a facial gel cream (twice daily) containing mandelic acid in combination with other benefit ingredients. Clinical grading, sebumeter, digital photography, self-assessment and tolerability were captured. In vitro results showed mandelic acid significantly reduced lipid production in cultured sebocytes ($P < .05$), whereas glycolic acid did not. In vivo skin exfoliation was significantly greater for the 2% mandelic acid cleanser and cream compared with untreated ($P < .05$; $n = 34$). In the 8-week study ($n = 38$), clinical grading showed improvements in oiliness (73%) and shine (67%) at week 8 ($P < .001$; also weeks 1, 2, 4); all aging parameters showed statistically significant improvements ($P < .05$). Sebumeter and image analysis of shine were significantly improved at week 8 ($P < .01$). Self-assessment and digital photography provide further support of efficacy. The gel cream was well tolerated. These studies demonstrate that mandelic acid is ideally suited for oily skin due to its lipophilic AHA structure, lipid production inhibition and ability to enhance exfoliation. Skin benefits were confirmed with reduced oiliness, shine and anti-aging effects.

Commercial disclosure: None identified.

18307

Antibiotic prescribing practice for acne within a UK hospital dermatology department

Victoria Campbell, BSc, MSc, MBBch, BAO, MRCP, Department of Dermatology, Royal Victoria Hospital; Nicole Machnikowski, Suzanne Clements, MRCP, PhD, Belfast City Hospital

Acne is a common inflammatory skin condition, characterised by blockage and inflammation of the pilosebaceous unit. Treatment is aimed at reducing severity of lesions and to limit scarring, with topical and oral antibiotics remaining popular initial treatment options. There is growing concern regarding antimicrobial resistance and recent initiatives advise antibiotic stewardship when treating acne. These include avoiding antibiotic monotherapy, limiting the use of antibiotics for short periods, and combining oral antibiotics with topical retinoids and benzoyl peroxide. We retrospectively reviewed the case notes of acne patients who had been prescribed topical treatments and oral antibiotics by a group of general practitioners, dermatology specialist nurses, and consultant dermatologists in the Belfast Trust Hospitals, Northern Ireland, from 2018 to 19. All patients received at least one course of oral antibiotics (average of 1.8 courses per patient). The most commonly prescribed antibiotics were tetracyclines (78.5%), with lymecycline being the most popular choice (51%) followed by doxycycline (13.8%). Erythromycin was used in 21.5% of cases. The duration of each oral antibiotic course was clearly documented in only 54% of cases (average time of 3.6 months per course). Documentation of concomitant topical retinoid or benzoyl peroxide therapy occurred in only 10.8% of cases. The importance of clear documentation of duration of oral antibiotics and the concomitant use of topical benzoyl peroxide/retinoid treatments cannot be underestimated. The worldwide increase in antibiotic resistance, and the emerging evidence on the role of the skin and gut microbiome also highlight the importance of antibiotic vigilance when treating patients with moderate-severe acne.

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18317

The expression of opsins in the skin and its implications for photobiomodulation: A systematic review

Susie Suh, BA, University of California, Irvine; Elliot H. Choi, Case Western Reserve University; Natasha Atanaskova Mesinkovska

Background: Skin is the organ most extensively exposed to light of broad range of wavelengths. Several studies have reported that skin expresses opsins, a family of G-protein coupled receptors that can convert a photon of light into an electrochemical signal mediating versatile signaling pathways. However, the identity and functional role of opsins in the skin remains elusive. We aimed to summarize current scientific evidence and provide a comprehensive overview on the opsins expressed in the skin of animal and human.

Methods: A primary literature search was conducted using PubMed to identify articles on dermal photosensitivity and opsin expression in the skin published from August 1951 to May 2019.

Results: 20 articles met the inclusion criteria. In animals, opsins have been commonly identified in the skin of aquatic species, and their role has been implicated in mediating skin color-change and locomotion, conferring evolutionary advantages for survival. In humans, opsins have been identified in keratinocytes, melanocytes, dermal fibroblasts and hair follicle stem cells. The functional role of the opsin in these cell types has been shown to mediate wound healing, melanogenesis, hair growth, cell proliferation and differentiation.

Conclusions: The expression of opsins in skin tissue has been validated in multiple studies, yet the significance of their role in human skin physiology requires further investigations as current hypotheses have been made from observations in vitro. Future research in skin-associated opsins will be crucial to expand the therapeutic benefits of photobiomodulation for various skin disorders.

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Combining social media mining and patient interactive diaries for population-based care of chronic diseases

Anuj Kunadia, University of Central Florida College of Medicine; Jennifer Seyffert, DO, KCUMB-Advanced Dermatology and Cosmetic Surgery; Ian Brooks, PhD, Center for Health Informatics, School of Information Science, University of Illinois at Urbana-Champaign; James A. Solomon, MD, PhD, Ameriderm Research, University of Central Florida College of Medicine, and KCU-Orlando Dermatology Residency, Florida State University College of Medicine; Vernon Burton, Robert P. Dellavalle, MD, PhD, MSPH, University of Colorado School of Medicine; Tanner Harding, University of Central Florida College of Medicine

Introduction: Chronic diseases are affected by many factors, some inherent and others modifiable. A lack of patient sampling often complicates the influence and interplay of these factors. We propose to increase sampling by leveraging global usage of social media and the availability of powerful supercomputers. The approach combines a passive mode of social media mining (SMM) millions of public posts with an active mode using patient interactive diaries (PID).

Objective: Determine the viability of SMM and PID to develop a system of Population-Based Care for chronic diseases.

Methods: Prior SMM studies were evaluated through psoriasis and basal cell carcinoma nevus syndrome (BCCNS). PID was beta-tested through BCCNS, systemic lupus erythematosus (SLE), and melanoma post-sunbed use.

Results: Preliminary SMM studies demonstrated capabilities of gathering/analyzing 4.8 million public posts regarding psoriasis/treatments, and 150,000 posts regarding BCCNS. Both studies elucidated global trends in sentiment analysis, volume-trends, and user-reported gender/age/location. Questionnaire beta-testing within PID showed over 1100 patients from multiple geographic locations, ages, ethnicities, and status/education completed PID detailing extensive information, including: diet, lifestyle, environment/exposures (DLE), heritage, and Fitzpatrick skin type.

Discussion: Given promising individual values, connecting both modes creates cycles of hypothesis generation and testing, using insights from SMM to refine PID and vice versa. Relationships between outcomes and DLE will be related back to PID participants through an ongoing continuous quality improvement (CQI) format.

Conclusions: Such models of population-based care can better identify patient concerns and incorporate social determinants of health to help provide proactive, coordinated care, improving outcomes at lower costs.

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