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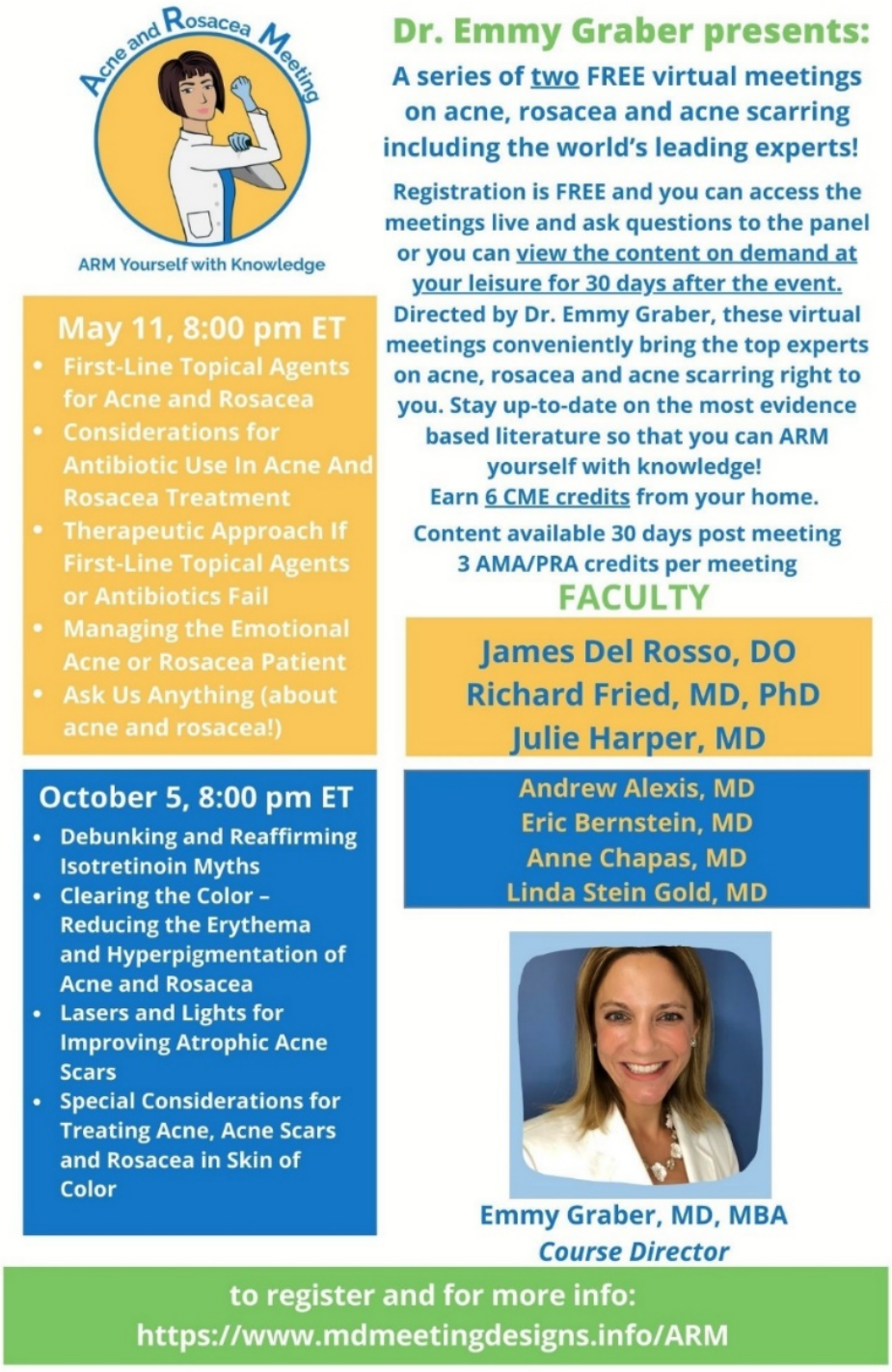
AARS News

AARS BoD Member Emmy Graber invites you to earn free CME! AARS Members are invited to attend two free CME virtual meetings on acne, rosacea and acne scarring. These will be held on Tuesday, October 5, 2021. For further details and to register online and view more information, proceed to this website today: https://www.armmeeting.com/.



Industry News

Galderma and Cetaphil announce new Clear Skies initiative. September 27, 2021. DermWire, Practical Dermatology. https://practicaldermatology.com/news/galderma-and-cetaphil-announce-new-clear-skies-initiative?c4src=news:feed

Clear Skies is set against four key areas in which the organization can make an impact: reducing environmental impact, formulating with cleaner ingredients, using smarter packaging and serving its communities. Galderma and Cetaphil are proud to announce the Clear Skies initiative, a long-term commitment to supporting a healthier environment. Galderma has made great strides to reduce its environmental footprint over the past decade, and Clear Skies outlines the company's journey to embed responsible practices across the business. Clear Skies is set against four key areas in which the organization can make an impact: reducing environmental impact, formulating with cleaner ingredients, using smarter packaging and serving its communities. Through this strategic initiative, Galderma and Cetaphil aim to achieve 100% renewable electricity in its current factories by 2022 and become carbon neutral in its production facilities. Clear Skies will support the company's efforts towards being more sustainable by using fewer resources and creating less waste. The science-based approach is based on comprehensive research from the Greenhouse Gas Protocol and aligned with the United Nations' 2030 Agenda for Sustainable Development. Reducing environmental impact: Since 2010, Galderma and Cetaphil have reduced water consumption by 33 percent per ton of product, through programs to recycle and reuse it in factories and research facilities. The company also reduced annual CO2 emissions from factories by over 60 percent, by using more efficient technology and renewable sources of electricity. Currently, 95 percent of the electricity that powers its factories come from renewable resources and none of the waste from factories ends up in a landfill. Formulating with cleaner ingredients: Cetaphil is also reformulating products to provide consumers with the cleaner formulas they are looking for. Gentle Skin Cleanser, Daily Facial Cleanser, Moisturizing Lotion and Advanced Relief Lotion (Daily Advanced Lotion) are now made with readily biodegradable formulas, with additional products to be reformulated in the future. These reformulated products are free of parabens, sulfates, and animal origin ingredients, and are not tested on animals at any stage of our product innovation, development or manufacturing processes. They are developed with a blend of hydrating and skin-conditioning ingredients—including a dermatologist-backed blend of niacinamide, panthenol and glycerin to improve the overall resilience of sensitive skin—all while maintaining the same efficacy and sensorial experience that Cetaphil consumers know and love. The reformulated products will launch in the US this month and will roll out globally by the end of 2022. Using smarter packaging: Product packaging is also being improved to ensure that it can be recycled to serve a new purpose. Cetaphil uses mostly mono-material containers and closures that are in part recyclable, so containers and packaging can be recycled at most facilities. Additionally, most products use containers and closure systems that come apart, making it easier to sort. The paper-based packaging is made with renewable and biodegradable materials. Cetaphil will continue to identify ways to make their packaging more environmentally friendly. Serving communities: In the U.S., Cetaphil's decade-long partnership with Camp Wonder has allowed the organization to help those most severely impacted by skin diseases. Founded by the Children's Skin Disease Foundation, the camp empowers children with chronic and life-threatening skin diseases from around the country to enjoy themselves in an environment of acceptance. Cetaphil employees and partnering healthcare professionals are encouraged to volunteer at Camp Wonder. Additionally, Cetaphil has committed to a long-term funding partnership in support of Camp Wonder, donating $1.5M and over 50,000 products since 2012. As the reach of the Clear Skies initiative continues to expand, Cetaphil will look to extend its efforts beyond Camp Wonder to identify organizations around the world the company can support to further its mission of caring for sensitive skin.

Accure Acne, Inc. appoints Jeffrey O'Donnell, Sr. to the board. September 21, 2021. DermWire, Practical Dermatology. https://practicaldermatology.com/news/accure-acne-inc-announces-the-appointment-of-jeffrey-odonnell-sr-to-the-board?c4src=news-landing:feed

Mr. O'Donnell will help provide strategic guidance for Accure's investment, organization, commercialization and clinical development of the Accure laser. Jeffrey O'Donnell, Sr. has joined Accure Acne's Board of Directors. Along with Chairman and Founder Christopher Carlton and Founder Ed Barbera, Mr. O'Donnell provides strategic guidance for Accure's investment, organization, commercialization and clinical development of the Accure laser. "The addition of Jeff to our board strengthens Accure considerably," says Mr. Carlton in a news release. "Jeff's experience in this industry, and relationships with key opinion leaders and venture partners, comes at a critical time as Accure conducts its current Series A financing round; the proceeds of which will fund commercialization in the EU with our first-to-market CE-Mark clearance and continuing to execute our FDA pivotal trial here in the US." Mr. O'Donnell brings more than 25 years of Board and Chief Executive experience running emerging medical device firms. "I am thrilled to join the Accure team," says Mr. O'Donnell. "The most common reason people see a dermatologist is for acne-related treatment. Developing a durable treatment for acne, particularly in collaboration with Professor R. Rox Anderson, could be a game-changer for dermatology. I believe the Accure laser is an innovative, potentially disruptive technology for a vast, global market." Currently, Mr. O'Donnell is a Managing Director at O'Donnell Partners, a healthcare consulting firm. He is also a Venture Partner at Laidlaw Venture Partners and is Managing Member of Runway Healthcare, an early stage MedTech Accelerator. Mr. O'Donnell retired as CEO and founder of Trice Medical. In 2008, he started and ran Embrella Cardiovascular, a medical device startup company, which was sold in 2011 to Edwards Lifesciences. Prior to Embrella Cardiovascular, Mr. O'Donnell served as President and CEO of PhotoMedex from 1999 to 2009. Prior to PhotoMedex, Mr. O'Donnell was the President and CEO of Cardiovascular Dynamics, which went public on NASDAQ in June of 1996 and subsequently purchased Radiance Medical Systems and Endologix, which is the surviving entity. From 1994 to 1995 Mr. O'Donnell held the position of President and CEO of Kensey Nash Corporation. Additionally, Jeff O'Donnell has held several senior sales and marketing management positions at Boston Scientific Corporation, Guidant Corporation and with Johnson & Johnson's Orthopedic Division. In 2005, Jeff O'Donnell was named LifeSciences CEO of the Year by PricewaterhouseCoopers. In 2011, he was named the Greater Philadelphia Emerging Entrepreneur of The Year by Ernst & Young. He is also currently the Chairman of the Board of Directors for AerWave Medical and Waypoint Medical. Mr. O'Donnell joined the AdvaMed Accel Board of Directors in 2016 and serves as an observer on the Membership, Ethics and Technology and Regulatory committees of the AdvaMed Board. Previously, he served as Chairman of the Board for Strata Skin Sciences (2 years), as well as a Director on the Board at Cardiac Science (7 yrs.) and Endologix (12 yrs.). Jeff O'Donnell is a graduate of LaSalle University and recently inducted into the Beta Gamma Sigma, an international honors society.

New Medical Research

Improving hidradenitis suppurativa patient education using written action plan: A randomized controlled trial. Thompson AM, Fernandez JM, Shih T, et al. J Dermatolog Treat. 2021 Sep 27;1-3. doi: 10.1080/09546634.2021.1970707. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/34579620/

The waxing-and-waning nature of hidradenitis suppurativa (HS), complex treatment plans, along with variable responsiveness to therapy, can create management challenges for patients. In this pilot cross-over randomized controlled trial, we aim to evaluate the effectiveness a HS-written action plan (HSWAP) on patient disease understanding and confidence in recognizing flares and adjusting management. Participants were randomized into a pre-crossover control group that received a verbal consultation (VC)-only, and an intervention group which received

the VC + HSWAP. The pre-crossover control group then crossed over (post-crossover control) to also receive the VC + HSWAP (ClinicalTrials.gov Identifier: NCT04600375). Patient comprehension of their disease and management steps was high after both a thorough VC and HSWAPs. However, the majority of patients prefer receiving both a VC and a HSWAP. After the addition of the HSWAP, pre-crossover control group patients' understanding and confidence of their disease and management plan increased across all surveyed questions.

Subject satisfaction following treatment with nanofractional radiofrequency for the treatment and reduction of acne scarring and rhytids: A prospective study. Arruda S, Swearingen A, Medrano K, Sadick N. J Cosmet Dermatol. 2021 Sep 24. doi: 10.1111/jocd.14455. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/34559923/
Background: Skin-related changes, such as fine lines, wrinkles, and acne scarring, are a source of distress to both men and women. Nanofractional radiofrequency delivers thermal energy to skin layers leading to dermal remodeling that can address skin conditions related to aging. The objective of this study was to evaluate the subject satisfaction of nanofractional radiofrequency for the treatment of facial wrinkles and acne scarring in both lighter and darker skin tones. Materials and methods: 30 subjects (skin types II-VI) were enrolled in this prospective, evaluator-blind study. The average age of subjects was 51.9 ± 13.5 years. Subjects received three treatments at 3- to 5-week intervals on both sides of the face using the 80- or the 160-pin tip disposables. Follow-up visits were conducted at 6- and 12 weeks after the last treatment. Subject satisfaction was evaluated using a self-assessment of a reduction of wrinkles or acne scars, and subject satisfaction questionnaire. Pain, tolerability, and safety were monitored throughout. Results: Subjects treated for acne or wrinkles were satisfied with their treatment at both the 6-week and 12-week follow-up visit (mean score 3.0; range 0 = very unsatisfied to 4 = very satisfied). The treatments were well tolerated at all treatment sessions, averaging a score of 3.5 on the tolerability scale (0 = very intolerable to 4 = very tolerable) with treatment-associated pain reported to be mild (3.2 out of 10). There were no adverse events or unanticipated side effects. Conclusions: This clinical study demonstrates subjects are satisfied with nanofractional radiofrequency treatments for improvement of their wrinkles and acne scars.
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Therapeutic efficacy of sesquiterpene farnesol in treatment of cutibacterium acnes-induced dermal disorders. Wu GX, Wang YW, Wu CS, et al. Molecules. 2021 Sep 21;26(18):5723. doi: 10.3390/molecules26185723. https://pubmed.ncbi.nlm.nih.gov/34577195/
Acne vulgaris is a highly prevalent skin disorder requiring treatment and management by dermatologists. Antibiotics such as clindamycin are commonly used to treat acne vulgaris. However, from both medical and public health perspectives, the development of alternative remedies has become essential due to the increase in antibiotic resistance. Topical therapy is useful as a single or combined treatment for mild and moderate acne and is often employed as maintenance therapy. Thus, the current study investigated the anti-inflammatory, antibacterial, and restorative effects of sesquiterpene farnesol on acne vulgaris induced by Cutibacterium acnes (C. acnes) in vitro and in a rat model. The minimum inhibitory concentration (MIC) of farnesol against C. acnes was 0.14 mM, and the IC50 of 24 h exposure to farnesol in HaCaT keratinocytes was approximately 1.4 mM. Moreover, 0.8 mM farnesol exhibited the strongest effects in terms of the alleviation of inflammatory responses and abscesses and necrotic tissue repair in C.acnes-induced acne lesions; 0.4 mM farnesol and clindamycin gel also exerted similar actions after a two-time treatment. By contrast, nearly doubling the tissue repair scores, 0.4 mM farnesol displayed great anti-inflammatory and the strongest reparative actions after a four-time treatment, followed by 0.8 mM farnesol and a commercial gel. Approximately 2-10-fold decreases in interleukin (IL)-1β, IL-6, and tumor necrosis factor (TNF)-α, found by Western blot analysis, were predominantly consistent with the histopathological findings and tissue repair scores. The basal hydroxypropyl methylcellulose (HPMC) gel did not exert anti-inflammatory or reparative effects on rat acne lesions.

Our results suggest that the topical application of a gel containing farnesol is a promising alternative remedy for acne vulgaris.
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Surface-modified multifunctional thymol-loaded biodegradable nanoparticles for topical acne treatment. Folle C, Díaz-Garrido N, Sánchez-López E, et al. Pharmaceutics. 2021 Sep 18;13(9):1501. doi: 10.3390/pharmaceutics13091501. https://pubmed.ncbi.nlm.nih.gov/34575577/
The present work is focused on the development of novel surface-functionalized poly(lactic-co-glycolic acid) nanoparticles loaded with thymol (TH-NPs) for topical administration enhancing thymol anti-inflammatory, antioxidant and wound healing activities against acne. TH-NPs were prepared by solvent evaporation method using different surface functionalization strategies and obtaining suitable physicochemical parameters and a good short-term stability at 4 °C. Moreover, TH-NPs skin penetration and antioxidant activity were assessed in ex vivo pig skin models. Skin penetration of TH-NPs followed the follicular route, independently of the surface charge and they were able to enhance antioxidant capacity. Furthermore, antimicrobial activity against Cutibacterium acnes was evaluated in vitro by the suspension test showing improved antibacterial performance. Using human keratinocyte cells (HaCat), cytotoxicity, cellular uptake, antioxidant, anti-inflammatory and wound healing activities were studied. TH-NPs were non-toxic and efficiently internalized inside the cells. In addition, TH-NPs displayed significant anti-inflammatory, antioxidant and wound healing activities, which were highly influenced by TH-NPs surface modifications. Moreover, a synergic activity between TH-NPs and their surface functionalization was demonstrated. To conclude, surface-modified TH-NPs had proven to be suitable to be used as anti-inflammatory, antioxidant and wound healing agents, constituting a promising therapy for treating acne infection and associated inflammation.
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5-Aminolaevulinic acid photodynamic therapy suppresses lipid secretion of primary sebocytes through AMPK/SREBP-1 pathway. Yang J, Shi L, Xu D, et al. Photodiagnosis Photodyn Ther. 2021 Sep 15;102537. doi: 10.1016/j.pdpdt.2021.102537. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/34536608/
Background: Acne vulgaris is a chronic inflammatory skin disease around pilosebaceous unit. 5-Aminolaevulinic acid photodynamic therapy (ALA-PDT) is an effective therapy for severe acne vulgaris. However, its specific treatment mechanism remains unclear. In the present study, we investigated the potential mechanism of how ALA-PDT induced lipid secretion inhibition in acne vulgaris. Methods: Primary human sebocytes and sebaceous gland of golden hamster were treated with/without ALA-PDT. Cell viability was evaluated by Live/Dead Cell assay. Fluorescence microscope was used to observe lipids secretion in sebocytes after Nile red staining. The expression of SREBP-1 after ALA-PDT was evaluated by qRT-PCR. Regulation of ALA-PDT on AMPK/SREBP-1 was evaluated by western blot. Results: The results showed that ALA-PDT suppressed lipid secretion of primary human sebocytes. In addition, ALA-PDT could inhibit the expression of SREBP-1 in vitro. We also found that ALA-PDT activated AMPK pathway, down-regulating the expression of SREBP-1 in sebocytes after ALA-PDT. Conclusions: These findings elucidate that ALA-PDT suppresses lipid secretion through AMPK/SREBP-1 pathway in treatment of acne vulgaris.

LAight® therapy significantly enhances treatment efficacy of 16 weeks of topical clindamycin solution in Hurley I and II hidradenitis suppurativa: Results from period A of RELIEVE, a multicenter randomized, controlled trial. Schultheis M, Staubach P, Nikolakis G, et al. Dermatology. 2021 Sep 14;1-11. doi: 10.1159/000518540. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/34535610/
Background: Hidradenitis suppurativa (HS) is a chronic, inflammatory, burdensome skin disease where medical first-line treatment is still limited to long-term, topical and/or systemic antibiotics. The RELIEVE study aimed at evaluating

the efficacy of LAight® therapy - a combination of intense pulsed light and radiofrequency - as an adjunct treatment to first-line therapies in Hurley stage I and II HS. Methods: The RELIEVE study was performed as a two-period multicenter randomized controlled trial with blinded assessment. For period A from week 0 to week 16, the 88 participating subjects were randomized into either an intervention group (IG) or a control group (CG). The IG received topical clindamycin 1% solution combined with 8 additional bi-weekly treatments with LAight® therapy. The CG was treated with topical clindamycin 1% solution only. After 16 weeks, patients entered open-label period B and both groups were treated exclusively with LAight® therapy for an additional 16 weeks (8 sessions). The primary efficacy endpoint was the change in International Hidradenitis Suppurativa Score System (∆IHS4) at week 16 to baseline. Secondary endpoints were DLQI, HiSCR, Pain-NRS, and HADS. Results: In total, from the 88 patients enrolled in RELIEVE, 81 patients were included in the endpoint analysis after period A. After 16 weeks of treatment, the ∆IHS4 of the group treated with the combination of LAight® therapy and topical clindamycin 1% solution was -7.2 ± 6.7 (-60.0%), which was significantly higher in magnitude than the ∆IHS4 in the group treated with clindamycin 1% solution alone (-1.8 ± 5.6, -17.8%, $p < 0.001$). Secondary endpoints, including other clinical scores as well as patient-reported outcomes, confirmed that the efficacy of the combined treatment was superior to monotherapy. Conclusion: The results of the primary endpoint analysis of period A of the RELIEVE study show that the combined therapy with LAight® and topical clindamycin 1% solution, resulted in a significantly higher decrease in disease severity and an improvement of quality of life in comparison to topical clindamycin 1% solution monotherapy. Treatment was well tolerated, and side effects were all mild and transitory. These data speak for the implementation of the combined treatment as a first-line therapy in Hurley stage I and II HS. LAight® therapy as long-term monotherapy (results from period B), will be analyzed in a consecutive paper.

Rates of skincare product and cosmetic procedure use in patients with acne vulgaris and the effective factors: A multicenter study with 1,755 patients. Aslan Kayıran M, Karadağ AS, Alyamaç G, et al. J Cosmet Dermatol. 2021 Sep 14. doi: 10.1111/jocd.14439. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/34520610/ Background: Skincare products and cosmetic procedures are used as an adjunct or complementary to conventional drug therapy for acne vulgaris (AV). Objective: To evaluate the use of skincare products and the frequency of cosmetic procedures in AV treatment. Methods: A total of 1,755 patients with AV completed the survey prepared by the researchers and the Cardiff Acne Disability Index (CADI) questionnaire. The clinical findings and the Food and Drug Administration (FDA) severity scores were recorded by the dermatologists. Results: For AV, 66.7% of the patients stated that they used skincare products and 26.7% had undergone cosmetic procedures. The use of skincare products was statistically significantly higher in women (female: 74.5%, male: 57.7%, $p < 0.0001$); older people (users: 22 ± 7.6years, non-users: 21.2 ± 5.7 years, $p < 0.0001$); patients with a higher CADI score (users: 7 ± 3.7, non-users: 6.9 ± 4.3, $p = 0.010$); FDA severity score 2 and 3 (FDA-1: 58.1%; FDA-2: 72.4%, FDA-3: 73%, FDA-4: 67%, $p < 0.0001$); long-term disease (users: 57 ± 43 months; non-users: 47.7 ± 42.3 months, $p < 0.0001$); facial involvement (present: 70.2%, absent: 51.4%, $p = 0.017$); high income levels (users: 73.5%; non-users: 26.5%, $p = 0.001$); and graduate or post-graduate degrees (undergraduate≤%62.8, graduate≥%76.8, $p < 0.0001$). The rate of cosmetic procedures was higher in those with higher CADI scores (users: 7.8 ± 3.8; non-users: 7.1 ± 3.96, $p < 0.0001$); older patients (users: 22.7 ± 10.7 years; non-users: 21.3 ± 5 years, $p < 0.0001$); high school (25.6%); and graduate (28.9%) education ($p = 0.043$), those with lower disease severity (FDA-1: 31.1%; FDA-2: 28.5%, FDA-3: 27.1%, FDA-4: 20.4%, $p = 0.022$); smokers (smokers: 32.5%; non-smokers: 25.5%, $p = 0.020$), and those with AV in the family (present: 29.8%; absent: 24.2%, $p = 0.009$). The patients most frequently used cleansers (85.2%) as cosmetic products, and most commonly underwent skincare treatment (71%) as an interventional procedure. They mostly learned about such products and methods from the Internet, and 33.3% of the participants had undergone procedures performed by non-physicians. Conclusion: The patients generally choose skincare products as a result of their Internet search and sometimes have

these procedures performed by non-physicians. Dermatologists should be aware of this situation and inform their patients about appropriate products and procedures.

Integrated proteomics and metabolomics link acne to the action mechanisms of cryptotanshinone intervention. Zhu Z, Chen T, Wang Z, et al. Front Pharmacol. 2021 Sep 1;12:700696. doi: 10.3389/fphar.2021.700696. eCollection 2021. https://pubmed.ncbi.nlm.nih.gov/34539397/

The label-free methods of proteomic combined with metabolomics were applied to explore the mechanisms of Cryptotanshinone (CPT) intervention in rats with acne. The model group consisted of rats given oleic acid (MC), then treated with CPT, while control groups did not receive treatment. The skin samples were significantly different between control, model and CPT-treated groups in hierarchical clustering dendrogram. Obvious separations of the skin metabolic profiles from the three groups were found through PCA scoring. In total, 231 and 189 differentially expressed proteins (DEPs) were identified in MC and CPT groups, respectively. By the KEGG analysis, five protein and metabolite pathways were found to be significantly altered. These played important roles in response to oleic acid-induced acne and drug treatment. CPT could negatively regulate glycolysis/gluconeogenesis and histidine metabolisms to decrease keratinocyte differentiation and improve excessive keratinization and cellular barrier function. CPT could down-regulate the IL-17 signaling pathway and regulate the acne-driven immune response of sebum cells. The biosynthesis of unsaturated fatty acids metabolism, glycerophospholipid metabolism and linoleic acid pathways could significantly alter sebum production and control sebaceous gland secretion after CPT treatment. The gap junction was up-regulated after CPT treatment and the skin barrier turned back to normal. Krt 14, Krt 16 and Krt 17 were significantly down-regulated, decreasing keratinization, while inflammatory cell infiltration was improved by down-regulation of Msn, up-regulation of linoleic acid and estrogen pathways after CPT treatment. These results propose action mechanisms for the use of CPT in acne, as a safe and potential new drug.

Pilot study of fractional microneedling radiofrequency for hidradenitis suppurativa assessed by clinical response and histology. Yang JH, Cho SI, Kim DH, et al. Clin Exp Dermatol. 2021 Aug 25. doi: 10.1111/ced.14905. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/34431555/

Background: Hidradenitis suppurativa (HS) is a devastating chronic inflammatory skin disease with frequent recurrence. Various systemic treatments and procedures have been applied to HS, yet the efficacy of fractional microneedling radiofrequency (FMR) has not been reported. Objectives: To evaluate the clinical and histological efficacy of FMR in the treatment of HS lesions. Methods: An 8-week, prospective, split-body, non-blind study was conducted. Ten adult patients with mild to moderate HS received 3 sessions of FMR treatment biweekly. The severity of HS was assessed using the number and types of lesions, HS Physician Global Assessment (HS-PGA), and the modified Sartorius score (mSS). Skin biopsies were performed on participants to assess change in inflammation before and after FMR. Results: Severity of HS was significantly reduced in the FMR-treated sides, but not in the control sides. Inflammatory HS lesions were significantly reduced after 4 weeks, while HS-PGA and mSS were significantly decreased after 6 weeks. Immunohistochemistry staining showed decreased expression of inflammatory markers including neutrophil elastases, IL-8, IL-17, TNF-α, TGF-β1, and MMPs. Conclusions: FMR may be a viable treatment option for mild to moderate HS.

Development of in-situ spray for local delivery of antibacterial drug for hidradenitis suppurativa: Investigation of alternative formulation. Wong YL, Pandey M, Choudhury H, et al. Polymers (Basel). 2021 Aug 18;13(16):2770. doi: 10.3390/polym13162770. https://pubmed.ncbi.nlm.nih.gov/34451309/

Hidradenitis suppurativa (HS) has been considered an orphan disease with limited treatments available. The available topical treatment for this condition is clindamycin lotion; however, short retention and frequent application are the

main setbacks. Thus, the present study aimed to attain an optimized antibacterial in situ spray formulation for the hidradenitis suppurativa skin condition, which gels once in contact with the skin surface at around 37 °C and possesses bioadhesion as well as sustained-release properties of the incorporated drug. Different concentrations of thermo-reversible gelling polymer, Pluronic F-127, were investigated along with the selected bioadhesive polymers, HPMC and SA. The optimized formulation F3 consisting of 18% Pluronic F-127 with 0.2% HPMC and 0.2% SA was characterized based on various physicochemical properties. The gelation temperature of F3 was found to be 29.0 ± 0.50 °C with a gelation time of 1.35 ± 0.40 min and a pH of 5.8. F3 had the viscosity of 178.50 ± 5.50 cP at 25 °C and 7800 ± 200 cP at 37 °C as the gel set. The optimized formulation was found to be bioadhesive and cytocompatible. Cumulative drug release was 65.05% within the time-frame of 8 h; the release pattern of the drug followed zero-order kinetics with the Higuchi release mechanism. The average zone of inhibition was found to be 43.44 ± 1.34 mm. The properties of F3 formulation reflect to improve residence time at the site of application and can enhance sustained drug release. Therefore, it could be concluded that optimized formulation has better retention and enhanced antimicrobial activity for superior efficacy against HS.

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Pain as defining feature of health status and prominent therapeutic target in patients with hidradenitis suppurativa. Sampogna F, Campana I, Fania L, et al. J Clin Med. 2021 Aug 18;10(16):3648. doi: 10.3390/jcm10163648. https://pubmed.ncbi.nlm.nih.gov/34441944/

Background: Pain is one of the main aspects of hidradenitis suppurativa that strongly affects the quality of life of patients. We explored the relationship between pain and clinical severity as well as its role in defining the health status in patients with HS. Methods: Pain was defined by three measures: (a) question 1 ("my skin hurts") of the Skindex-17; (b) Bodily Pain (BP) scale of the SF-36; and (c) Visual Analog Scale (VAS). Clinical severity of HS was assessed by the Hurley staging, the Sartorius HS Score, and the International HS Severity Score System. Results: The study population included 341 HS patients with complete data for the VAS pain, 316 for question 1 of the Skindex-17, and 294 for BP. Clinical severity was positively associated with pain. This result was observed for all three severity scores and all three pain evaluation methods. In addition, the number of fistulae, abscesses, and nodules were significantly associated with the three severity measures of pain, while the association with scars was not observed for question 1 of the Skindex-17 and BP. Conclusions: Pain may be a good proxy of clinical severity and efficacy of a treatment in HS and therefore a crucial hallmark of patients' health status.

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Unexpected effects of oral isotretinoin in adolescents with acne vulgaris. Akpolat D. Cureus. 2021 Aug 11;13(8):e17115. doi: 10.7759/cureus.17115. eCollection 2021 Aug. https://pubmed.ncbi.nlm.nih.gov/34548957/

Background: This study aimed to assess the effects of isotretinoin treatment on hirsutism, menstrual cycle and hormonal response in adolescents with acne vulgaris (AV). Methods: In the study, 76 participants with nodulocystic acne were included. Free testosterone (fT), total testosterone (tT), dehydroepiandrosterone sulfate (DHEAS), luteinizing hormone (LH), follicle-stimulating hormone (FSH), 17-OH progesterone (17-OH PG), and sex hormone-binding globulin (SHBG) levels of the participants were measured before and at the third and sixth months of treatment. Furthermore, the patients were evaluated for hirsutism and menstrual irregularity. Results: The rates of menstrual irregularity and hirsutism at the beginning and at the third and sixth months of treatment were found to be different ($p < 0.05$). fT, tT and DHEAS levels at the third and sixth months of treatment were higher than those at the beginning of treatment, and the SHBG level at the sixth month was found to be lower than that at the beginning and third month of treatment ($p < 0.05$). The tT levels were found to be lower and DHEAS levels were higher than those at the beginning of treatment in patients who presented with menstrual irregularity at the third month of treatment (p

< 0.05). The LH and 17-OH PG levels were noted to be lower and DHEAS levels were higher than those at the beginning of treatment in patients who developed hirsutism at the third month of treatment ($p < 0.05$). The SHBG levels were observed to be lower and DHEAS levels were higher than those before treatment in patients who developed menstrual irregularity at the sixth month of treatment ($p < 0.05$). SHBG levels were discerned to be lower and DHEAS levels were higher compared to those at the beginning of treatment in patients who developed hirsutism at the sixth month of the treatment ($p < 0.05$). Conclusions: Isotretinoin can cause alterations in the adrenal hormone levels. Hirsutism and menstrual irregularity can be observed during treatment follow-ups.
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Clinical Reviews

ALA-PDT and pulsed dye laser combined with oral antiandrogen drug in the treatment of cystic acne in a patient with hyperandrogenism. Wu HE, Liu YB, Xu GJ, et al. Photodermatol Photoimmunol Photomed. 2021 Sep 28. doi: 10.1111/phpp.12735. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/34582597/
Glycolic acid peel (GAP) is useful and safe for mild acne. Severe complications of 20% GAP are expected to be very rare. We reported a case of cystic acne occurring after 20% GAP in a patient with hyperandrogenism, treated successfully by topical 5-aminolevulinic acid photodynamic therapy (ALA-PDT), pulsed dye laser (PDL) and oral antiandrogen drugs. No such a severe complication of 20% GAP has been reported in EMBASE and MEDLINE.

Mechanistic support of traditional Persian medicine for the treatment of acne vulgaris: A scoping review. Pasalar M, Tabatabaei F, Bradley R, et al. J Cosmet Dermatol. 2021 Sep 26. doi: 10.1111/jocd.14464. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/34564932/
Background: Acne vulgaris is one of the most prevalent skin diseases, which also contributes to many psychological problems. Despite the recent progress in the treatment of acne vulgaris, the necessity for discovering more effective solutions has motivated many lines of research on natural and medicinal plants. The Traditional Persian Medicine (TPM) introduced some plants and remedies for acne treatment. Given the universal welcome for herbal medicine, this review was performed to formally assess the evidence for herbal medicines for acne vulgaris in TPM. Methods: The medicinal plants used in this study for treating acne vulgaris were selected based on common references to the plants in five famous textbooks of TPM from different time periods. Then, the anti-inflammatory and anti-microbial effects of these medicinal plants were investigated according to the recent literature available in five electronic databases including Scopus, Web of Sciences, PubMed, Google Scholar, and Science Direct. Results: Twenty-one herbs were commonly references in traditional TPM texts as helpful for topical treatment of acne vulgaris. The data collected from the electronic databases demonstrated most of these plants (eg, Astragalus sarcocolla, Ficus carica, and Hordeum vulgare) have both anti-inflammatory and anti-microbial mechanisms, which may assist to treat acne vulgaris. Conclusion: This scoping review demonstrated many medicinal plants recommended by TPM books have therapeutic potential for acne vulgaris via multiple mechanisms.

Surgical management of giant acne keloidalis nuchae lesions. Galarza LI, Azar CA, Al Hmada Y, Medina A. Case Reports Plast Surg Hand Surg. 2021 Sep 23;8(1):145-152. doi: 10.1080/23320885.2021.1982392. eCollection 2021. https://pubmed.ncbi.nlm.nih.gov/34568514/
Acne keloidalis nuchae (AKN) is a progressive inflammatory condition that affects posterior neck and occiput. Treatment options include antibiotics, steroids, lasers, radiotherapy and surgery. We present three patients with

advanced 'tumor-stage' AKN that underwent radical local excision followed by either immediate or delayed skin resurfacing, and briefly review existing literature.
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Antibiotic resistance in dermatology: The scope of the problem and strategies to address it. Shah RA, Hsu JI, Patel RR, et al. J Am Acad Dermatol. 2021 Sep 20;S0190-9622(21)02502-0. doi: 10.1016/j.jaad.2021.09.024. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/34555484/
Antibiotic resistance is a growing health concern that has attracted increasing attention from clinicians and scientists in recent years. While resistance is an inevitable consequence of bacterial evolution and natural selection, misuse and overuse of antibiotics plays a significant role in its acceleration. Antibiotics are the mainstay of therapy for common dermatoses, including acne and rosacea, as well as skin and soft tissue infections. Therefore, it is critical for dermatologists and physicians across all disciplines to identify, appropriately manage, and prevent cases of antibiotic resistance. This review explores dermatologic conditions in which development of antibiotic resistance is a risk and discusses mechanisms underlying the development of resistance. We discuss disease-specific strategies for overcoming resistant strains and improving antimicrobial stewardship along with recent advances in the development of novel approaches to counter antibiotic resistance.
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Topical ALA-photodynamic therapy combined with acne debridement and meticulous nursing for the treatment of moderate-severe acne in adolescent patients. Ren R, Bao S, Qian W, Zhao H. Clin Cosmet Investig Dermatol. 2021 Sep 18;14:1303-1310. doi: 10.2147/CCID.S322768. eCollection 2021. https://pubmed.ncbi.nlm.nih.gov/34566420/
Objective: The present study aims to explore the effect of acne debridement + meticulous nursing on 5-aminolevulinic acid photodynamic therapy (ALA-PDT) in adolescent patients with moderate-severe acne. Methods: A total of 60 adolescent patients with moderate-severe acne who were admitted to our plastic surgery outpatient clinic between January 2018 and January 2020 were selected as the subjects of the present retrospective study. The patients were divided into two groups: the observation group and the control group (n = 30, each). Patients in the control group were treated with standardized ALA-PDT and conventional nursing, while patients in the observation group were treated with ALA-PDT and acne debridement + meticulous nursing intervention. The treatment's therapeutic effect, adverse reaction incidence, and patient satisfaction 6 months after treatment were compared between the two groups. Results: The acne debridement + meticulous nursing effectiveness was 86.7% in the observation group and 60% in the control group, and the adverse reaction incidence was 20% in the observation group and 46.7% in the control group. There existed statistically significant differences in the above-stated indicators between the two groups ($p < 0.05$). The difference in the visual analogue scores (VASs) for pain, which were measured immediately after the operations, between the two groups was not statistically significant ($p > 0.05$); however, the respective VAS differences between the two groups at 30 min and 60 min after the operation were statistically significant ($p < 0.05$). There was a statistically significant difference in patient satisfaction between the two groups ($p < 0.05$). Conclusion: In adolescent patients with ALA-PDT-treated moderate-severe acne, the application of acne debridement + meticulous nursing could improve the clinical treatment efficacy and patient comfort as well as reduce the adverse reaction incidence. For these reasons, the treatment method could be worth promoting in clinical practice.
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Association between exposure to ambient air pollution and occurrence of inflammatory acne in the adult population. El Haddad C, Gerbaka NE, Hallit S, Tabet C. BMC Public Health. 2021 Sep 14;21(1):1664. doi: 10.1186/s12889-021-11738-0. https://pubmed.ncbi.nlm.nih.gov/34521361/

Background: Acne vulgaris is one of the most prevalent skin diseases responsible for dermatological consultations. Several internal and external factors can affect acne occurrence and severity. Outdoor air pollution is an external factor discussed to trigger inflammation of the skin. The objective of this study was to find a link between the exposure to ambient air pollution and inflammatory acne occurrence in the Lebanese adult population. Methods: A cross-sectional study was conducted, using an online questionnaire to collect the required data from different Lebanese regions. The survey covered pollution exposure questions as well as queries on several factors known to have a role on acne occurrence. Results: A total of 372 participants were included in the study, aged 18 to 55 years old. The results of a logistic regression taking the presence/absence of acne as the dependent variable, showed that female gender (aOR = 4.39), younger age (aOR = 1.05), using hydrating cream (aOR = 4.30), working near a power plant vs not (aOR = 3.07), having a severe NO2 exposure compared to none (aOR = 8.24), a higher number of family members with acne or history of acne (aOR = 1.48) were significantly associated with higher odds of having acne, whereas having a dry skin compared to normal (aOR = 0.20) was significantly associated with lower odds of having acne. Conclusion: The occurrence of inflammatory acne in Lebanese adults was found to be associated with ambient exposure to high levels of NO2 and employment near a power plant known to emit CO2, CO, SO2, NO2 and PM. Therefore, our findings can serve as a first step towards implementing awareness on a skin care routine suitable for highly polluted areas.

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Successful treatment of hidradenitis suppurativa with secukinumab in a patient with ankylosing spondylitis and Familial Mediterranean Fever. Unal Enginar A, Gundogdu M. Mod Rheumatol Case Rep. 2021 Sep 10;rxab008. doi: 10.1093/mrcr/rxab008. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/34508267/

Hidradenitis suppurativa (HS) is a chronic inflammatory disease characterized by pain, inflamed nodules, abscess, sinus tract, and fistula. HS is more common in patients with axial spondyloarthritis and Familial Mediterranean Fever (FMF) compared to the normal population. Mediterranean fever gene mutations are thought to be responsible for the relationship between these three diseases. Case reports of secukinumab treatment in HS have been reported. In this article, a case of successful treatment of HS with secukinumab in a patient with ankylosing spondylitis and FMF is presented.

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Insights into the pathogenesis of HS and therapeutical approaches. Rosi E, Fastame MT, Scandagli I, et al. Biomedicines. 2021 Sep 6;9(9):1168. doi: 10.3390/biomedicines9091168. https://pubmed.ncbi.nlm.nih.gov/34572354/

Hidradenitis suppurativa (HS) is a debilitating, chronic, (auto)inflammatory disease primarily affecting apocrine gland-rich areas of the body. Although pathogenic mechanisms responsible for HS have not yet been fully elucidated, it is a multifactorial process whose main target is the terminal follicle. The role of the inflammatory process (and consequently of cytokine milieu) and of several other factors (genetics, lifestyle, hormonal status, microbiome, innate and adaptive immune systems) involved in HS pathogenesis has been investigated (and often defined) over the years with a view to transferring research results from bench to bedside and describing a unique and universally accepted pathogenetic model. This review will update readers on recent advances in our understanding of HS pathogenesis and novel (potential) medical therapies for patients with moderate-to-severe HS.

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Safety of laser hair removal in patients receiving systemic isotretinoin for acne vulgaris. Sarigul Guduk S, Tukenmez Demirci G. Dermatol Surg. 2021 Aug 31. doi: 10.1097/DSS.0000000000003185. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/34537789/

Background: A few reports on scar and keloid formation in patients receiving systemic isotretinoin have encouraged a conservative approach in which laser procedures are delayed during and 6 to 12 months after the completion of treatment. Objective: To assess the safety of laser hair removal with alexandrite, diode, and Nd:YAG lasers in patients receiving systemic isotretinoin treatment. Materials and methods: Fifty-two patients who underwent laser hair removal during isotretinoin treatment were retrospectively analyzed and compared with a control group for side effects. Results: There were 48 female and 4 male patients. The average isotretinoin dose was 33.7 mg/d. The average interval between the start of isotretinoin treatment and the first laser hair removal was 39.3 days. The mean number of sessions under treatment was 4.1. Three patients had temporary crusting, and 1 patient had a small area of temporary hypopigmentation. Five (9.6%) patients in the control group had crusting. The incidence of side effects was not significantly different between the 2 groups ($p > .05$). Neither patients in the isotretinoin group nor those in the control group experienced blistering, pigmentation, ulceration, and scar or keloid formation. Conclusion: Laser hair removal is a safe procedure with alexandrite, diode, and Nd:YAG lasers in patients receiving systemic isotretinoin.