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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 meetings on acne, rosacea and acne scarring. For more information and to register for the in person event in Aspen, Colorado on Friday, June 24, 2022 visit www.cosmeticbootcamp.com, registration for the symposium is part of the Cosmetic Bootcamp registration process. The Annual Virtual ARM Meeting will take place on Tuesday, October 18, 2022, please visit https://armmeeting.com/ for further information including registration.

New Medical Research

Severe acne and its variants: Exploring its natural history and heritability. Greywal T, Kusari A, Han AM, et al. Pediatr Dermatol. 2022 May 18. doi: 10.1111/pde.14990. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/35584791/

Background: Acne vulgaris varies in clinical severity, from minimal comedonal disease to severe hemorrhagic and ulcerative lesions with scarring. While a family history confers a higher risk for developing acne, the correlation between heritability and clinical severity remains unclear. Objective: To examine the natural history and heritability of severe acne with scarring in patients undergoing isotretinoin therapy. Methods: A total of 101 subjects with severe acne with scarring and its variants, including acne conglobata and acne fulminans, were enrolled. All subjects and adult family members underwent an interview regarding their acne, and a corresponding "historical" Investigator's Global Assessment (hIGA) score (0 = clear, 1 = almost clear, 2 = mild, 3 = moderate, 4 = severe, 5 = very severe) was assigned. Study assessors performed an "examination" Investigator's Global Assessment (eIGA) based on the

clinical examination of each subject (0 = clear, 1 = almost clear, 2 = mild, 3 = moderate, 4 = severe, 5 = very severe). A detailed family history and pedigree were documented. Results: Most subjects were Caucasian (44.5%) and male (79.2%) who had previously used doxycycline and/or minocycline (86.1%). The mean eIGA and hIGA scores were 2.7 and 4.4, respectively. 37.2% of subjects had one first-degree relative with a history of moderate or severe acne with scarring; of note, of the patients with hemorrhagic disease, 30% had at least one parent with moderate or severe acne. Conclusions: Severe forms of acne often "cluster" in families, underscoring the heritable nature of acne and the prognostic value of a family history of moderate or severe disease.

Efficacy of a retinoid complex plus anti-inflammatory component cream alone or in combination with prebiotic food supplement in adult acne: A randomized, assessor-blinded, parallel-group, multicenter trial on 184 women. Kazandjieva J, Dimitrova J, Sankeva M, et al. J Cosmet Dermatol. 2022 May 12. doi: 10.1111/jocd.15074. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/35545875/

Background: Adult Female acne (AFA) nowadays is a very common skin condition affecting mainly women aged between 25 - 40. The treatment of AFA could be challenging. Study aim: We evaluate and compare the efficacy and tolerability of a cream formulation containing two retinoid molecules (hydroxypinacolone/retinyl palmitate) combined with Iris Florentina root extract and a complex of three oligopeptides (C) applied twice a day (morning and evening) alone or in combination (C+O) with a food supplement containing a mixture of prebiotic molecules (FOS&GOS) zinc, lactoferrin and niacinamide. Subjects and methods: In a multicenter, randomized, assessor-blinded, 12-week trial we assessed the efficacy of these two regimens in the evolution of AFA lesions (non-inflammatory: NI-L; inflammatory: IL; and total number of lesions: TL). Additional efficacy endpoints were the evolution of the 6-point (from 0 to 5) GEA and Adult Female Acne Scoring Tool (AFAST) scores. Results: One hundred and eighty-four women (mean age 32±6 years) with AFA agreed to participate after obtaining informed consent. They were randomized (2:1) to the topical product (n=123) (Group C) or to the combination (n=61) (Group C+O) treatment. All enrolled patients concluded the trial with no drop-out. At baseline NI-L, IL and TL acne lesions count were 15±9, 9±5, and 24±14 in the Group C and 19±8, 9±4, and 29±10 in Group C+O. In comparison with the number of the acne lesions at the baseline, both treatment regimens induced a significant reduction (p=0.0001, ANOVA test) at week 12 in NI-L, IL, and TL by -54%, -63% and -59% in Group C and by -55%, -73% and -61% in the Group C+O, respectively. At week 12 the absolute IL count reduction vs. baseline was significantly (p=0.0158) greater in Group C+O (-7.0) in comparison with Group C (-5.5). The GEA absolute score reduction in Group C+O group was significantly greater in comparison with Group C (-1.5 vs. -1.1; p=0.0097). In the Group C+O a greater percentage of success treatment (defined as a GEA score of 0/1 at week 12) was observed in comparison with Group C (39% vs. 27%; p=0.06). AFAST score at baseline was 2.4±0.5 in group C and 2.8±0.6 in group C+O. AFAST score was reduced by 21% and by 51% after 6 and 12 weeks of treatment in group C and by 22% and 55% in group C+O, respectively. Both treatment regimens were well tolerated. Not relevant adverse events were recorded. Conclusion: A cream containing retinoids molecules and Iris Florentina root extract is effective and well tolerated in the management of AFA. The treatment combination with a prebiotic and anti-inflammatory food supplement offers an additional clinical benefit mainly in reducing inflammatory lesions and improving the severity acne score.

Efficacy and safety of N-Acetyl-GED-0507-34-LEVO gel in patients with moderate-to severe facial acne vulgaris: A phase 2B randomized double-blind, vehicle-controlled trial. Picardo M, Cardinali C, La Placa M, et al. Br J Dermatol. 2022 May 12. doi: 10.1111/bjd.21663. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/35553043/

Background: Preliminary in vitro and in vivo studies have supported the efficacy of the peroxisome proliferator-activated receptor-γ (PPARγ) modulator N-Acetyl-GED-0507-34-LEVO (NAC-GED) for the treatment of acne inducing

sebocyte differentiation, improving sebum composition and controlling the inflammatory process. Objective: Evaluation of the efficacy and safety of NAC-GED (5% and 2%) in subjects with moderate-to- severe facial acne vulgaris. Methods: This double-blind, phase 2 randomized controlled clinical trial was conducted at 36 sites in Germany, Italy, and Poland. Facial acne patients aged 12-30 years, with an Investigator's Global Assessment (IGA) score of 3-4 and an inflammatory and non-inflammatory lesion count of 20-100 were randomized to topically apply the study drug (2% or 5%) or placebo (vehicle), once daily for 12 weeks. The efficacy co-primary endpoints were percentage change from baseline in total lesion count (TLC) and IGA success at week 12; the safety endpoints were adverse and serious tolerability adverse events (AE and SAE). This study was registered with EudraCT, 2018-003307-19. Results: Between Q1, 2019 and Q1, 2020 450 patients [418 (93%) with IGA=3; 32 (7%) with IGA=4] were randomly assigned to NAC-GED 5%, NAC-GED 2% or vehicle (n=150 each). The percent change TLC reduction was significantly higher in both the NAC-GED 5% (-57.1%, 95% CI: -60.8,- 53.4, p<0.001) and 2% (-44.7%, 95% CI:-49.1,-40.1, p<0.001) groups compared to vehicle (-%, 95% CI: -37.6,-30.2). A higher proportion of patients treated with NAC-GED 5% experienced IGA success (45%, 95% CI:38,53) compared to the vehicle group (24%, 95% CI:18,31), p<0.001. IGA success rate was 33% in NAC-GED 2% group (p=n.s vs vehicle). The percentage of patients who had ≥ 1AEs was 19%, 16%, and 19% (NAC-GED 5%, NAC-GED 2% and vehicle, respectively). Conclusions: The topical application of NAC-GED 5% reduced TLC, increased the IGA success rate and was safe for patients with acne vulgaris. Thus, NAC-GED, a new PPARγ modulator, showed an effective clinical response.

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A deep learning-based facial acne classification system. Quattrini A, Boër C, Leidi T, Paydar R. Clin Cosmet Investig Dermatol. 2022 May 11;15:851-857. doi: 10.2147/CCID.S360450. eCollection 2022. https://pubmed.ncbi.nlm.nih.gov/35585864/

Introduction: Acne is one of the most common pathologies and affects people of all ages, genders, and ethnicities. The assessment of the type and severity status of a patient with acne should be done by a dermatologist, but the ever-increasing waiting time for an examination makes the therapy not accessible as quickly and consequently less effective. This work, born from the collaboration with CHOLLEY, a Swiss company with decades of experience in the research and production of skin care products, with the aim of developing a deep learning system that, using images produced with a mobile device, could make assessments and be as effective as a dermatologist. Methods: There are two main challenges within this task. The first is to have enough data to train a neural model. Unlike other works in the literature, it was decided not to collect a proprietary dataset, but rather to exploit the enormity of public data available in the world of face analysis. Part of Flickr-Faces-HQ (FFHQ) was re-annotated by a CHOLLEY dermatologist, producing a dataset that is sufficiently large, but still very extendable. The second challenge was to simultaneously use high-resolution images to provide the neural network with the best data quality, but at the same time to ensure that the network learned the task correctly. To prevent the network from searching for recognition patterns in some uninteresting regions of the image, a semantic segmentation model was trained to distinguish, what is a skin region possibly affected by acne and what is background and can be discarded. Results: Filtering the re-annotated dataset through the semantic segmentation model, the trained classification model achieved a final average f1 score of 60.84% in distinguishing between acne affected and unaffected faces, result that, if compared to other techniques proposed in the literature, can be considered as state-of-the-art.

High-frequency ultrasonography evaluation of acne by thickness and power doppler vascular analysis. Wu X, Jiang T. J Ultrasound Med. 2022 May 10. doi: 10.1002/jum.15941. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/35535957/

Objectives: To assess acne vulgaris quantitatively using high-frequency ultrasonography (HF-USG) and power

Doppler (PD) and investigate the feasibility and application value of HF-USG and PD in acne vulgaris. Methods: A total of 105 patients with the diagnosis of acne vulgaris in the face referred by a dermatologist were studied prospectively. All the acne patients enrolled were clinically classified by two attending dermatologists independently using three degrees with four levels of classification evaluating only the severest lesion. Gray-scale ultrasound was used to assess the thickness of the lesion, and the thickness ratio was calculated. PD equipped with Qpack semi-quantitative analysis software was used to assess blood signals of the lesion, and Qpack ratio, Qpack peak were calculated. Ten level-4 acne patients were re-evaluated after 2 weeks' treatment, and the results were compared with those before treatment. Results: A total of 105 patients were categorized into four groups by dermatologists, 23 cases were comedones, 33 were papules, 26 were pustules, and 23 were nodules/cysts. There were significant differences in thickness ratio ($P < .001$), Qpack ratio ($P < .001$), and Qpack peak ($P < .001$) among the four groups. For the 10 level-4 acne patients treated 2 weeks by the dermatologist, the difference in thickness ratio between pre-treatment and post-treatment showed no significance ($P = .06$). However, Qpack ratio and Qpack peak were significantly decreased between pre-treatment and post-treatment (both $P = .01$). Conclusions: HF-USG and PD equipped with semi-quantitative analysis software can assess acne vulgaris quantitatively, which provides a good basis for the classification and treatment of acne. Their features include thickness ratio, Qpack ratio, and Qpack peak, with Qpack ratio and Qpack peak being the sensitive features for the early efficacy evaluation.

A randomized, controlled trial of intense pulsed light in combination with minocycline hydrochloride for the treatment of inflammatory acne vulgaris. Qu H, Wang Y, Yang F, et al. J Cosmet Dermatol. 2022 May 5. doi: 10.1111/jocd.15046. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/35510753/
Background: It has been a long-term debate over the concomitant treatment of inflammatory acne vulgaris using intense pulsed light (IPL) and minocycline due to the photosensitivity of minocycline. Objective: We aimed to evaluate the safety and efficiency of IPL combined with minocycline in treating acne vulgaris in a randomized trial. Methods: A total of 40 patients were enrolled and randomly assigned into two groups which were either given minocycline (100 mg per day) for 8 weeks with IPL treatments three times at weeks 0, 4, and 8, or the same dosage of minocycline only. The evaluations for inflammatory lesion count, Investigator Global Assessment of Acne (IGA), erythema, and purpura indexes were taken before treatment and at weeks 4, 8, and 16. Results: There were significant improvements in inflammatory lesion count, IGA scores, and purpura index in both groups as compared with the baseline at week 16 ($p < 0.02$). The concomitant therapy, but not minocycline only, significantly improved the erythema index ($p = 0.40$) at the 16th week as compared with the baseline. The group with combined treatment showed significantly continuous improvements in inflammatory lesion counts ($p < 0.04$) and IGA scores ($p \leq 0.02$) at weeks 4, 8, and 16 as compared with the group given minocycline only. No severe adverse effects were observed during the trial. Conclusion: IPL in combination with minocycline shows a better clinical efficacy for the treatment of inflammatory acne vulgaris than minocycline alone, and it is safe.

Can extracts from the leaves and fruits of the cotoneaster species be considered promising anti-acne agents? Krzemińska B, Dybowski MP, Klimek K, et al. Molecules. 2022 May 2;27(9):2907. doi: 10.3390/molecules27092907. https://pubmed.ncbi.nlm.nih.gov/35566257/
This study aimed to evaluate the phenolic profile and biological activity of the extracts from the leaves and fruits of Cotoneaster nebrodensis and Cotoneaster roseus. Considering that miscellaneous species of Cotoneaster are thought to be healing in traditional Asian medicine, we assumed that this uninvestigated species may reveal significant therapeutic properties. Here, we report the simultaneous assessment of chemical composition as well as biological activities (antioxidant, anti-inflammatory, antibacterial, and cytotoxic properties) of tested species. Complementary LC-MS analysis revealed that polyphenols (especially flavonoids and proanthocyanidins) are the overriding

phytochemicals with the greatest significance in tested biological activities. In vitro chemical tests considering biological activities revealed that obtained results showed different values depending on concentration, extraction solvent as well as phenolic content. Biological assays demonstrated that the investigated extracts possessed antibacterial properties and were not cytotoxic toward normal skin fibroblasts. Given the obtained results, we concluded that knowledge of the chemical composition and biological activities of investigated species are important to achieve a better understanding of the utilization of these plants in traditional medicine and be useful for further research in their application to treat various diseases, such as skin disorders.

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Association between demodex infestation and severe acne vulgaris: A cross-sectional study of 168 patients.
Maldonado-Gómez W, Mera-Villasis K, Guevara-Sánchez E, et al. Actas Dermosifiliogr. 2022 Apr 30;S0001-7310(22)00331-3. doi: 10.1016/j.ad.2022.03.011. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/35504311/
Background and objectives: Infestation with Demodex mites has been associated with acne vulgaris. The aim of this study was to explore the association between Demodex infestation and severe acne vulgaris in outpatients seen at Hospital Regional Lambayeque in Chiclayo, Peru. Material and methods: We conducted a cross-sectional study of 46 patients with severe acne and 92 patients with nonsevere acne. Severe acne vulgaris was diagnosed if the score was 3 or more on the Spanish Acne Severity Scale (EGAE, in its Spanish acronym). Demodex infestation was diagnosed when a skin surface biopsy showed more than 5 mites/cm2. Results: The patients had a median age of 18 years (interquartile range, 15-20 years), 60.9% were male, 81.9% lived in an urban area, and 29.7% were infested with Demodex mites. In the bivariate analysis, severe acne vulgaris was significantly associated with Demodex infestation (P = .001), sex (P = .003), residence (P = .015), a paternal history of acne (P = .045), a maternal history of acne (P = .045), and type of skin (P < .001) In the multivariate analysis, after adjustment for male sex, urban residence, previous treatment, maternal and paternal history of acne vulgaris, and an oily skin type, patients with Demodex infestation were 4.2 times more likely to have severe acne vulgaris (95% CI, 1.6-10.9; P = .003). Conclusion: Demodex infestation was associated with severe acne vulgaris in outpatients at our hospital.

Treatment of Hidradenitis Suppurativa Evaluation Study (THESEUS): Protocol for a prospective cohort study.
Bates J, Stanton H, Cannings-John R, et al. BMJ Open. 2022 Apr 21;12(4):e060815. doi: 10.1136/bmjopen-2022-060815. https://pubmed.ncbi.nlm.nih.gov/35450918/
Background: Hidradenitis suppurativa (HS) is a chronic, painful, inflammatory skin disease with estimates of prevalence in the European population of 1%-2%. Despite being a relatively common condition, the evidence base for management of HS is limited. European and North American management guidelines rely on consensus for many aspects of treatment and within the UK variations in management of HS have been identified. The HS James Lind Alliance Priority Setting Partnership (PSP) published a top 10 list of future HS research priorities including both medical and surgical interventions. The aims of the THESEUS study are to inform the design of future HS randomized controlled trials (RCTs) and to understand how HS treatments are currently used. THESEUS incorporates several HS PSP research priorities, including investigation of oral and surgical treatments. Core outcome domains have been established by the HIdradenitis SuppuraTiva cORe outcomes set International Collaboration (HISTORIC) and THESEUS is designed to validate instruments to measure the domains. Methods and analysis: The THESEUS study is a prospective observational cohort study. Participants, adults with active HS of any severity, will be asked to select one of five HS treatment options that is appropriate for their HS care. Participants will be allocated to their chosen treatment intervention and followed for a period of up to 12 months. Outcomes will be assessed at 3-monthly intervals using HISTORIC core outcome instruments. Video recordings of the surgical and laser operations will provide informational and training videos for future trials. Nested mixed-methods studies will characterize the interventions in

clinical practice, understand facilitators and barriers to recruitment into future HS RCTs and examine patients' and clinicians' perspectives on HS treatment choices.

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Skin microbiome reconstruction and lipid metabolism profile alteration reveal the treatment mechanism of cryptotanshinone in the acne rat. Zhu Z, Zeng Q, Wang Z, et al. Phytomedicine. 2022 Jul;101:154101. doi: 10.1016/j.phymed.2022.154101. Epub 2022 Apr 18. https://pubmed.ncbi.nlm.nih.gov/35472695/

Background: Acne has become one of the most prevalent skin disorders, affecting mostly young people's physical and mental health globally. Cryptotanshinone (CPT) is a potential drug for acne, but its mechanism of acne treatment has not been thoroughly studied on the microbiota. Till date, only a few studies are directed to the impact of acne therapy on skin microbiota and lipid metabolites. Purpose: The action mechanism of CPT treatment of acne was investigated by the strategy of microbiome integration with lipidomics. Methods: The 16Sr DNA sequencing was used to detect skin microbiota composition, and absolute quantitative lipidomics was utilized to identify lipid metabolites profiles levels. Four key proteins of the glycolysis pathway were detected with the immunochemistry method. Antibacterial analysis was used to evaluate CPT treatment of acne. Results: CPT significantly inhibited Staphylococcus epidermidis and Staphylococcus aureus. Combination of the skin microbiome and lipidomics analysis, 29 types of differentially expressed flora (DEFs) and 782 differentially expressed lipid metabolites (DELMs) were significantly altered, especially Staphylococcus, Corynebacterium, Ralstonia, Enhydrobacter, Burkholderia, and Streptococcus. Cer was mainly regulated by Staphylococcus and Corynebacterium, whereas TG and DG were mainly regulated by Ralstonia, Enhydrobacter, Burkholderia, and Streptococcus. The glycolysis pathway was significantly regulated by Staphylococcus on CPT treatment of acne. The energy metabolism, lipid metabolism, immune system, glycan biosynthesis, and metabolism could be reversed by CPT. Conclusion: CPT might help acne rats rebuild their skin microbiota and alter lipid metabolism signatures. Furthermore, since skin microbes and skin lipid metabolites have a close correlation and are both regulated by CPT, the findings potentially provide a research foundation for the discovery of biomarkers of skin microbiome imbalance and targeted treatment of acne development mechanisms.

Efficacy of acupuncture in improving symptoms and quality of life of patients with acne vulgaris: A randomized sham acupuncture-controlled trial. Jiao R, Zhai X, Zhang X, et al. Acupunct Med. 2022 Apr 18;9645284221076506. doi: 10.1177/09645284221076506. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/35437030/

Objective: The aim of this study was to examine the effectiveness of acupuncture in treating the symptoms and quality of life (QoL) of patients with moderate or severe acne vulgaris (AV). Methods: Participants were randomly assigned (1:1) to receive 12 treatment sessions of acupuncture or sham acupuncture over 4 weeks with 24 weeks of follow-up. The primary outcome was the change from baseline in the Skindex-16 scale total score at treatment completion. Secondary outcomes included Skindex-16 subscale score, Dermatology Life Quality Index scale total score, total lesion count and inflammatory lesion count, and visual analogue scale scores for itch and pain evaluation. Results: There was no statistically significant between-group difference for the primary outcome or any secondary outcomes after 4 weeks of treatment and at 16 and 28 weeks of follow-up, except for the Skindex-16 emotions subscale at week 4 ($p = 0.026$). No serious adverse events occurred in either group. Conclusion: Acupuncture may not effectively relieve the symptoms of patients with moderate or severe AV or improve QoL. Given the limitations of a relatively short treatment course compared to other studies and the likelihood that sham acupuncture is not inert, further studies with treatment durations of 12 weeks or longer and a waitlist (no treatment) control or Western medicine-treated control group should be considered to evaluate the effects of acupuncture on AV.

Aging-conferred SIRT7 decline inhibits rosacea-like skin inflammation by modulating toll-like receptor 2–NF-κB signaling. Li G, Tang X, Zhang S, et al. J Invest Dermatol. 2022 Apr 10;S0022-202X(22)00273-1. doi: 10.1016/j.jid.2022.03.026. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/35413292/

Rosacea is a chronic inflammatory skin disorder that manifests abnormal enhanced sensitivity to environmental stimuli. The decreased prevalence of rosacea in aged population has been reported, but the underlying mechanism is unclear. In this study, we confirm that the rosacea-like skin inflammation induced by cathelicidin LL37 is alleviated in aged mice and mice with progeria. Primary mouse keratinocytes isolated from aged mice and human dermal fibroblasts that undergo senescence present a much lower sensitivity to proinflammatory stimuli. Mechanistically, toll-like receptor 2 (TLR2) is downregulated in the skin of both aged population and mice. Knockdown of TLR2 in young human dermal fibroblasts mimics the attenuated immune response to LL37 and TNF-α evidenced in aged human dermal fibroblasts, whereas overexpression of TLR2 in aged human dermal fibroblasts rescued this attenuation. At the molecular level, in response to inflammatory stimuli, SIRT7 mediates the upregulation of TLR2, which promotes the activation of NF-κB signaling. The decay of SIRT7 confers an age-related decline of TLR2–NF-κB signaling. Although the overexpression of exogenous Sirt7 abrogates skin immune reactivity reduction in aged mice, loss of Sirt7 alleviates the rosacea-like features in mice. Thus, we reveal a SIRT7–TLR2–NF-κB axis that can be targeted for the improvement of rosacea.

The effects of green tea (camellia sinensis), bamboo extract (bambusa vulgaris) and lactic acid on sebum production in young women with acne vulgaris using sonophoresis treatment. Chilicka K, Rogowska AM, Rusztowicz M, et al. Healthcare (Basel). 2022 Apr 5;10(4):684. doi: 10.3390/healthcare10040684. https://pubmed.ncbi.nlm.nih.gov/35455861/

People struggling with acne vulgaris, not only experience skin eruptions and skin pain, but also report that their quality of life is worse compared with healthy people. This study examined, for the first time, the effect of sonophoresis on select skin parameters (sebum level) in young women suffering from acne vulgaris. The study included 60 women 19-23 years of age (M = 21.45, SD = 0.91) with mild and moderate facial acne. The inclusion criteria were 19-23 years of age, female or male gender, mild to moderate acne, no dermatological treatment within last 12 months, and no hormonal contraception (women). No men volunteered for the study, so the group was homogeneous. The patients were divided into two groups. Group A underwent a sonophoresis procedure using ultrasound and ultrasound gel combined with a green tea, bamboo extract ampule, and 5% lactic acid. Group B was the placebo group, where sonophoresis was performed using only ultrasound gel (no ampules). The members of the placebo group were told that they were undergoing sonophoresis with a green tea, bamboo extract, and 5% lactic acid ampule. Before and after the series of procedures, sebum levels were measured in the skin. Each patient underwent a series of five procedures using sonophoresis equipment at one-week intervals. Sonophoresis with green tea, bamboo extract, and 5% lactic acid contributed to the reduction of skin eruptions and sebum levels in the participants of the study (group A). The study results demonstrated that the combined use of plant preparations, lactic acid, and ultrasound had a positive effect on the skin of people suffering from acne vulgaris, including reduction of skin eruptions and sebum levels on the surface of the skin.

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Clinical Reviews

What is new in adult acne for the last 2 years: Focus on acne pathophysiology and treatments. Dagnelie MA, Poinas A, Dréno B. Int J Dermatol. 2022 May 6. doi: 10.1111/ijd.16220. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/35521784/

Acne affects more than 640 million people worldwide, including about 85% of adolescents. This inflammatory dermatosis affects the entire population, from teenagers to adults, which reinforces the need to investigate it. Furthermore, in adults, acne has serious consequences, including a psychological impact, low self-esteem, social isolation, and depression. Over the last years, the understanding of acne pathophysiology has improved, mainly thanks to the identification of the pivotal role of the microbiota. The aim of this review was to screen the most recent scientific literature on adult acne and the newly tested treatments. Clinically, therapeutic innovations for the treatment of acne have been recently developed, including pre/probiotics, new molecules, and innovative formulations associated, however, with fewer side effects. Moreover, clinical trials are underway to use off-label molecules that seem to be proving their value in the fight against adult acne.

The anti-inflammatory effects of cannabidiol (CBD) on acne. Peyravian N, Deo S, Daunert S, Jimenez JJ. J Inflamm Res. 2022 May 3;15:2795-2801. doi: 10.2147/JIR.S355489. eCollection 2022. https://pubmed.ncbi.nlm.nih.gov/35535052/

Acne is the most common skin condition in the United States and affects approximately 85% of people ages 12-24. As a multifactorial disease, the pathogenesis of acne involves overproduction of sebum, irregular shedding of the cutaneous cells, accretion of Cutibacterium acnes at the pilosebaceous unit, and inflammation. To date, conventional therapies for acne include topical retinoids, over-the-counter bactericidal agents, and systematic treatments, such as oral antibiotics and isotretinoin. However, the potential for significant side effects and risk of antibiotic resistance remain limitations in these therapies, in turn reducing patient compliance and adherence to acne treatment regimens. Therefore, the use of natural plant-derived treatments or phytotherapeutics as an alternative or adjuvant to conventional treatments is attractive to patients due to their safety and minimal risk for side effects. Cannabidiol (CBD) is a non-psychoactive phytocannabinoid of the Cannabis sativa (hemp) plant. The therapeutic use of CBD has been implicated in many diseases with an inflammatory aspect, including cancers, neurodegeneration, immunological disorders, and dermatological diseases. However, the use of CBD for acne treatment remains a novel window of opportunity. Herein, we summarize the available and relevant data, highlighting the potential use of CBD in acne for its anti-inflammatory properties. To that extent, CBD and other cannabis constituents such as cannabis seeds were found to reduce inflammation and expression of inflammatory cytokines including TNF-α and IL-1β when evaluated in acne-like conditions. Treatment with these cannabis extracts was also found to be safe and well tolerated, further strengthening the prospect of CBD as an anti-inflammatory therapeutic for acne.

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Acute acne flare following isotretinoin administration successfully treated by 5-aminolevulinic acid photodynamic therapy. Jia L, Lei S, Zhang L, et al. Photodiagnosis Photodyn Ther. 2022 Apr 29;102893. doi: 10.1016/j.pdpdt.2022.102893. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/35500742/

The acne flare occurs in a small proportion of patients at the initiation of oral isotretinoin. The traditional therapy is oral corticosteroids. But for particularly patients it's also accompany with side effects, such as metabolic disorder, inhibition of immune function and so on. Here, we report a young man with acute acne flare following isotretinoin administration was treated by 5-aminolevulinic acid photodynamic therapy (ALA-PDT). 5-ALA cream (5%) has been applied on all skin lesions and kept under a black plastic film for 2 h, and then the skin lesions were exposed under a

LED PDT equipment, with a wavelength of 633 ± 6 mm, power density of 42 mW/cm2, irradiation duration of 30 min for each light spot and light dose of 75.6 J/cm2, for each treated area. A total of seven treatments were provided, with complete clearance and excellent cosmetic result. Here, ALA-PDT as a novel therapeutic option in acne flare.

Intralesional treatments in hidradenitis suppurativa: A systematic review. Cuenca-Barrales C, Montero-Vílchez T, Sánchez-Díaz M, et al. Dermatology. 2022 Apr 27;1-8. doi: 10.1159/000524121. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/35477143/

Hidradenitis suppurativa (HS) is an inflammatory chronic disease with difficult management. In some scenarios, intralesional (IL) treatments could be useful. However, the scientific evidence available is limited and heterogeneous. We aimed to synthesize the available scientific evidence on IL treatments in HS. We conducted a systematic review in July 2021. The clinical databases reviewed included MEDLINE and Embase. All types of epidemiological studies and case series with at least 10 patients were included; reviews, guidelines, protocols, conference abstracts, case series with less than 10 patients, and case reports were excluded. Fifteen articles representing 599 patients and 1,032 lesions were included for review. Corticosteroid injections were the most reported treatment. They showed effectiveness for the treatment of acute inflammatory lesions and fistulas in terms of reduction of lesion counts, symptoms, and signs of inflammation and were safe in general terms. Light-based therapies were the other main treatment group, including photodynamic therapy and 1,064-nm diode laser. They were also effective, but more local and systemic adverse events were reported. Other treatments included botulinum toxin type B and punch-trocar-assisted cryoinsufflation (cryopunch). They were effective and safe, although were reported anecdotally. The main limitation of the systematic review was the general quality of the articles included. In conclusion, IL treatments such as corticosteroid injections and light-based therapies seem to be effective and safe for both acute inflammatory lesions and fistulas, although more prospective studies, with higher sample sizes and with standardized outcomes are needed to provide more scientific evidence on the subject.

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Nanofat and platelet-rich plasma injections used in a case of severe acne scars. Pons S, Jammet P, Galmiche S, et al. J Stomatol Oral Maxillofac Surg. 2022 Apr 26;S2468-7855(22)00107-0. doi: 10.1016/j.jormas.2022.04.018. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/35487496/

Background: Acne is a common chronic inflammatory disease, which can result in permanent scarring. Different types of treatments have been used in order to treat acne scars. However, esthetic results have proved variable. Furthermore, none of these treatments has had an impact on the underlying inflammatory process. Objective: The main purpose of this case-report is to suggest a new potential therapy for acne scar management combining esthetic filling with an anti-inflammatory and a regenerative action. Methods: A Platelet rich plasma (PRP) and Nanofat mixture was injected into the pathological dermis in order to treat and fill severe acne scars. Results: After a one- year follow-up, skin elasticity had improved, scar reduction and a reversal of the inflammation process had been observed. Conclusions: PRP and Nanofat could represent a new and promising therapeutic approach in the treatment of the inflammatory scarring process in severe acne.

Procedural and surgical treatment modalities for acne scarring - part 2. Renzi M, McLarney M, Jennings T, et al. J Am Acad Dermatol. 2022 Apr 22;S0190-9622(22)00678-8. doi: 10.1016/j.jaad.2022.04.022. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/35469981/

The optimal treatment of acne scarring is challenging because it involves consideration of several factors, including the type and number of scars, Fitzpatrick skin type, and the amount of downtime permissible to the patient. The second article in this CME series discusses the procedural treatments available for acne scarring, including the use

of chemical peels, fillers, radiofrequency microneedling, lasers and surgical procedures. The indications for each modality, evidence for its benefits, and the adverse effects are discussed. This section aims to help guide the reader to select and implement the most appropriate treatment based on the patient's preferences, acne scar and skin type.
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Surgical treatment in hidradenitis suppurativa. Shukla R, Karagaiah P, Patil A, et al. J Clin Med. 2022 Apr 21;11(9):2311. doi: 10.3390/jcm11092311. https://pubmed.ncbi.nlm.nih.gov/35566438/
Hidradenitis suppurativa (HS) is a chronic, progressive inflammatory disorder of follicular occlusion with pubertal onset that presents as painful inflammatory nodules, sinus tracts, and tunnelling in apocrine-gland-rich areas, such as the axilla, groin, lower back, and buttocks. The disease course is complicated by contractures, keloids, and immobility and is often associated with a low quality of life. It is considered a disorder of follicular occlusion with secondary inflammation, though the exact cause is not known. Management can often be unsatisfactory and challenging due to the chronic nature of the disease and its adverse impact on the quality of life. A multidisciplinary approach is key to prompt optimal disease control. The early stages can be managed with medical treatment, but the advanced stages most likely require surgical intervention. Various surgical options are available, depending upon disease severity and patient preference. In this review an evidence-based outline of surgical options for the treatment of HS are discussed. Case reports, case series, cohort studies, case-control studies, and Randomized Clinical Trials (RCT)s available in medical databases regarding surgical options used in the treatment of HS were considered for the review presented in a narrative manner in this article.
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New insights in the treatment of SAPHO syndrome and medication recommendations. Cheng W, Li F, Tian J, et al. J Inflamm Res. 2022 Apr 13;15:2365-2380. doi: 10.2147/JIR.S353539. eCollection 2022. https://pubmed.ncbi.nlm.nih.gov/35444448/
Synovitis, acne, pustulosis, hyperostosis, osteitis (SAPHO) syndrome is a rare autoinflammatory disease characterized by dermatological disorders and osteoarticular inflammatory lesions. This article reviews the application of biologics and other treatments based on the therapeutic target and the size of molecules in SAPHO syndrome. We found that drugs, especially biologics, have different effects on bone, joint, and skin damage. This may relate to the different inflammatory pathways involved in the osteoarticular and cutaneous symptoms in SAPHO patients. In this study, we provide stratified medication recommendations for SAPHO syndrome. Patients with osteoarticular symptoms can consider tumor necrosis factor blockers, JAK inhibitor, interleukin (IL)-1 inhibitor, and IL-17 inhibitor. Patients with cutaneous symptoms should consider IL-17 and JAK inhibitors. Apremilast, Tripterygium wilfordii Hook F, and bisphosphonates are other effective treatments.
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