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## New Medical Research

**Insights into the mechanism of *Cymbopogon martinii* essential oil in topical therapy of acne vulgaris.** Mahant S, Sahajpal NS, Nanda S. *Future Microbiol.* 2021 Oct 7;1181-1193. doi: 10.2217/fmb-2021-0039. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/34615379/>

Aim: The present study investigated the essential oil of *Cymbopogon martinii* (palmarosa oil; PRO) as a potential topical therapy in acne vulgaris. Materials & methods: GC-MS profiling and biocompatibility studies of PRO were undertaken. The antimicrobial potential was assessed against *Cutibacterium acnes*. anti-inflammatory, antityrosinase activity and lipid peroxidation were also evaluated. Results: Geraniol was identified as the major phytoconstituent, and the oil was found to be safe for topical application. The minimum inhibitory concentration and minimum bactericidal concentration values were noted as 16 µl/ml. PRO reduced the cytokine levels of TNF-α, IL-12 and IL-8 and inhibited tyrosinase. A low concentration of the oil (up to 0.5 µl/ml) produced malondialdehyde levels equivalent to that of untreated cells. Conclusion: PRO may prove useful as a natural topical agent in the management of acne.

**Pediatric hidradenitis suppurativa: A cross-sectional study on clinical features and treatment approaches.**

Garcovich S, Fania L, Caposiena D, et al. *J Cutan Med Surg.* 2021 Oct 6;12034754211039993. doi: 10.1177/12034754211039993. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/34615396/>

Background: Hidradenitis suppurativa is uncommon in patients of pediatric age, and differentiation with adult-onset disease is controversial. Treatment of pediatric hidradenitis suppurativa is scarcely standardized, and specific guidelines are lacking. Objective: We report the clinical features, relevant risk-factors, comorbidity profile, and treatment patterns of a hospital-based cohort of pediatric hidradenitis suppurativa. Methods: In a cross-sectional study data on patients' demographics, disease-specific characteristics, early/pre-pubertal onset of disease, comorbidities, and treatment management were retrieved. Reference population data and clinical data from the national hidradenitis suppurativa disease registry were used for comparison. Results: From a database of 870 patients with hidradenitis, 71 (15 males and 56 females) patients aged <18 years (mean age: 15.3 years; range 8-17 years), with mild (Hurley I, 45.1%) and moderate-severe disease (Hurley II-III, 54.9%), were retrieved. Smoking (23.9%) and overweight/obese frequencies (59.2%) were higher than reference population standards. Patient's older age at baseline (OR 1.43, 95% CI: 1.01 to 2.02) and higher BMI (OR 1.26, 95% CI: 1.07-1.48) were the only factors associated with moderate-severe disease. Family history and early/pre-pubertal onset of disease were not associated with severity or extent of disease. Sebaceous-follicular comorbid conditions were associated with cigarette smoking (P = .002). Among 81 treatment courses, clindamycin-based and zinc-sulphate-based combination regimens were most frequently used (59.3%). Female preponderance, family history of disease and extensive involvement were significantly different from the general hidradenitis suppurativa population. Conclusions: Pediatric hidradenitis suppurativa presents a clinical spectrum comparable to adult-onset disease. Increased preventive measures should target obesity and smoking in this population.

**Bioresponsive nanoarchitectonics-integrated microneedles for amplified chemo-photodynamic therapy against acne vulgaris.** Wen T, Lin Z, Zhao Y, et al. *ACS Appl Mater Interfaces.* 2021 Oct 6. doi: 10.1021/acsami.1c15673. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/34613687/>

The excessive colonization of *Propionibacterium acnes* (*P. acnes*) is responsible for the genesis of acne vulgaris, a common inflammatory disease of skin. However, the conventional anti-acne therapies are always limited by various side effects, drug resistance, and poor skin permeability. Microneedles (MNs) are emerging topical drug delivery systems capable of noninvasively breaking through the skin stratum corneum barrier to efficiently enhance the transdermal drug penetration. Herein, MNs loaded with intelligent pH-sensitive nanoplateforms were constructed for

amplified chemo-photodynamic therapy against acne vulgaris, jointly exerting antimicrobial and anti-inflammatory effects. The photosensitizer indocyanine green (ICG) was loaded into the zeolitic imidazolate framework-8 (ZIF-8) to improve its photostability, which would be triggered by 808 nm laser irradiation to generate cytotoxic reactive oxygen species (ROS) to result in oxidative damage and disturbed metabolic activities of *P. acnes*. In addition to the efficient drug delivery, the ZIF-8 carrier could selectively degrade in response to the acidic microenvironment of acne lesions, and the released Zn<sup>2+</sup> also exhibited a potent antimicrobial activity. The fabricated ZIF-8-ICG@MNs presented an outstanding synergistic anti-acne efficiency both in vitro and in vivo. This bioresponsive microneedle patch is expected to be readily adapted as a generalized, modular strategy for noninvasive therapeutics delivery against superficial skin diseases.

**A comparative study of efficacy and safety of autologous fat grafting versus Platelet-rich plasma in the treatment of post-acne scars.** Shetty VH, Bhandary SN, Bhandary R, Suvarna C. *J Cosmet Dermatol*. 2021 Oct 4. doi: 10.1111/jocd.14503. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/34606674/>

Background: Platelet-rich plasma is a useful adjuvant therapy in the treatment of acne scars. Fat is as ideal soft tissue filler. Aims: To compare the efficacy and safety of subcision with autologous fat grafting versus subcision with intradermal Platelet-rich plasma for the treatment of acne scars. Methods: Twenty-four patients were divided into two groups with 12 patients each. One group subjected to single session of subcision with autologous fat grafting. Second group treated with subcision followed by intradermal Platelet-rich plasma monthly once for 3 months. High resolution digital photographs taken before and after every session. Single blinded physician assessment was also done. Results: In quantitative acne scar assessment scoring, both group of patients showed significant percentage of improvement in acne scars, 61.23 ± 9.48% in patients treated with subcision followed by autologous fat grafting and 44.16 ± 7.28% in patients treated with subcision followed by intradermal PRP. At the time of enrolment, 33.3% (n = 8) of patients had Grade A (milder) scarring, 50% (n = 12) had Grade B (moderate) scarring while 16.7% (n = 4) had Grade C (severe) scarring. After the completion of the treatment, it was found that 75% (n = 18) of patients were in Grade A while 20.8% (n = 5) of patients were in Grade B (p < 0.05; significant). Conclusion: Both the treatment modalities, i.e., autologous fat grafting and intradermal PRP were effective and safe for the treatment of acne scars and results in each group was significant (p < 0.001). But there were no statistically significant differences between the two treatment groups (p = 0.23).

**Surfactin inhibits the growth of propionibacterium acnes by destroying the cell wall and membrane.** Shan MY, Meng FQ, Zhou LB, et al. *Lett Appl Microbiol*. 2021 Oct 4. doi: 10.1111/lam.13576. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/34607389/>

*Propionibacterium acnes* plays a major role in acne vulgaris. In the pre-experiment, the growth of *P. acnes* was inhibited effectively using surfactin; however, the antibacterial mechanism has not been described. Therefore, the aim of this study was to evaluate antibacterial activity and analyze the mechanism of surfactin against *P. acnes*. Minimum inhibitory concentration, time-killing kinetics and scanning electron microscopy were used to evaluate the activity of surfactin against *P. acnes*, which showed that 128 µg ml<sup>-1</sup> effectively inhibited growth. Cell wall permeability was evaluated by detecting the extracellular alkaline phosphatase activity, which increased to 1.83- and 2.32-fold after incubating with 128 and 256 µg ml<sup>-1</sup> of surfactin for 10 h, respectively. Propidium iodide fluorescence, leakage of nucleic acid, protein, K<sup>+</sup>, and Ca<sup>2+</sup>, membrane potential and the leakage of calcein from small unilamellar vesicles all increased after incubation with surfactin, indicating that its strong biological activities act mainly by altering membrane integrity. In a mouse model of acne, surfactin significantly reduced *P. acnes*-induced epidermal swelling and erythema. These results indicate that surfactin effectively inhibited the growth of *P. acnes* by destroying the cell wall and membrane and is a potential candidate for acne treatment.

**Prevalence and cutaneous comorbidity of acne vulgaris in the working population.** Kirsten N, Mohr N, Augustin M. *Clin Cosmet Investig Dermatol.* 2021 Oct 2;14:1393-1400. doi: 10.2147/CCID.S322876. eCollection 2021. <https://pubmed.ncbi.nlm.nih.gov/34629884/>

Purpose: Although acne vulgaris (AV) is a common disease and can persist into adulthood, there are few large-scale epidemiological studies on the prevalence of acne vulgaris in adults. The aim of our study was to characterize the epidemiology and comorbidity of acne vulgaris in working adults in Germany. Patients and methods: Within the framework of a cross-sectional study, a total of 161,269 employees underwent dermatological whole-body examinations in more than 500 German companies between 2001 and 2016. Point prevalence rates for acne vulgaris and further skin diseases and their 95% confidence intervals were calculated and differences between participants with and without acne vulgaris were tested with chi-squared tests. Results: Mean age was 43.2 years  $\pm$  10.9, 55.5% were male. In total, n = 5311 people (3.3%) with acne vulgaris were identified. Prevalence decreased by age. Controlling for age and gender, acne was significantly associated with folliculitis (OR = 1.91; CI: 1.76-2.07), contact dermatitis (OR = 1.74; CI: 1.08-2.81), rosacea (OR = 1.74; CI: 1.40-2.15), pyoderma (OR = 1.58; 1.22-2.06), seborrheic dermatitis (OR = 1.47; CI: 1.27-1.71), hand eczema (OR = 1.34; CI: 1.00-1.76), verruca vulgaris plantaris (OR = 1.29; CI: 1.09-1.51), tinea pedis (OR = 1.27; CI: 1.10-1.47), spider veins (OR = 1.26; CI: 1.16-1.38) and telangiectasia (OR = 1.15; CI: 1.02-1.30). Conclusion: These data underline the importance of acne vulgaris in the adult population. Further studies to better understand the pathophysiology of AV and its comorbidity in different phases of adulthood would be desirable to develop appropriate guidelines and therapy concepts.

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**Safety and efficacy of microneedling technology in the treatment of acne scars.** Casabona G, Alfertshofer MG, Kaye KO, et al. *J Cosmet Dermatol.* 2021 Oct 1. doi: 10.1111/jocd.14502. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/34596936/>

Background: Current options for the reduction of acne scarring (eg, ablative laser resurfacing) are associated with considerable side effects and limitations in terms of patient population. Percutaneous collagen induction via microneedling poses an alternative treatment method due to its low rates of reported adverse events and side effects. Objective: To assess the safety and effectiveness of microneedling treatments in reducing acne scars. Methods: A total of 22 patients (18 females and 4 males) with a mean age of 38  $\pm$  7.6 years were assessed regarding the appearance of facial acne scarring. Acne scars were assessed via the Acne Scar Assessment Scale (ASAS) and the Goodman and Baron acne scar grading scale before and after two/three treatments. Additionally, the post-interventional development of side reactions, adverse events, and patient-reported outcomes (eg, pain/discomfort, skin redness) was reported. Results: Compared to baseline, the mean ASAS value was improved statistically significantly on average by 1.41 and 1.46 after the second treatment as assessed by the independent raters and the patients, respectively. In patients who received a total of three treatments, a statistically significant mean improvement in ASAS value of 1.35 and 1.66 compared to baseline was assessed by the independent raters and patients, respectively. No unexpected adverse events were reported. The severity and rate of side reactions decreased over the course of this study. Conclusion: Microneedling treatments can pose a safe and effective option in the reduction of acne scarring. In this study, microneedling helped achieving a significant reduction of acne scars while showing high patient safety.

**Clinical study to assess efficacy and safety of Purifying Neem Face Wash in prevention and reduction of acne in healthy adults.** Rajaiah Yogesh H, Gajjar T, Patel N, Kumawat R. *J Cosmet Dermatol.* 2021 Sep 30. doi: 10.1111/jocd.14486. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/34590784/>

Background: Acne vulgaris is a chronic, inflammatory skin condition of pilosebaceous units. The standard treatment

involves topical and oral antibiotics, retinoids, benzoyl peroxide, and other synthetic compounds, mostly associated with adverse effects. Hence, herbal skincare products are considered nowadays. Aim: To evaluate the safety and efficacy of Purifying Neem Face Wash (PNFW), an herbal skincare product in the prevention and/or reduction of mild-to-moderate acne. Methods: An open-label, single-center, single-arm, four-week clinical study was conducted with subjects having either mild-to-moderate acne or oily skin and non-existent acne. The performance of PNFW in the reduction and/or prevention of acne was detected by counting cutaneous inflammatory and non-inflammatory acne lesions in each of the four visits. Sebum level and skin hydration of both cheeks were measured via sebumeter and corneometer, respectively. Self-assessment questionnaires were used to assess the subjects' responses toward PNFW. Results: Out of 120 study subjects, 79% and 72% showed either reduction or no new appearance of inflammatory and non-inflammatory acne lesions, respectively, from baseline to Visits 3 and 4. Skin sebum level and skin hydration showed a statistically significant decrease ( $p < 0.001$ ) and increase ( $p < 0.001$ ), respectively, in Visits 3 and 4. Self-assessment surveys showed the satisfaction of the subjects about the product in terms of condition improvement, ease in use, and fragrance. Conclusion: The present study indicated the beneficial effect of the herbal ingredients (neem and turmeric) of Himalaya's PNFW in the prevention and reduction of mild-to-moderate acne with no side effects.

**Modulation of skin microbiome in acne patients by aminolevulinic acid-photodynamic therapy.** Yang Y, Tao S, Zeng R, et al. Photodiagnosis Photodyn Ther. 2021 Sep 29;102556. doi: 10.1016/j.pdpdt.2021.102556. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/34600122/>

Background: Aminolevulinic acid-photodynamic therapy (ALA-PDT) has been an effective treatment for moderate to severe acne. However, effect of ALA-PDT on skin microbiome in acne is limitedly known. Aim: To examine the composition, diversity, and resilience of skin microbiome in acne patients before and after ALA-PDT. Method: A prospective study was conducted on five patients with moderate to severe acne. All patients underwent a 5% ALA-PDT at a two-week interval for four sessions. Epidermal and follicular samples of acne patients were acquired for 16S rRNA gene amplicon metasequencing at baseline and before the final session. Result: ALA-PDT inhibited *Cutibacterium acnes* of follicular microbiome in acne. Follicular residential bacteria, mainly *Bacillus* and *Lactococcus*, rose in abundance after PDT. ALA-PDT increased the diversity of skin microbiome in acne and clustered follicular microbiome toward epidermal microbiome, both taxonomically and functionally. Conclusion: ALA-PDT exerts its therapeutic effect on acne partially through inhibiting *C. acnes* and modulating the composition and potential function of skin microbiome in acne.

**A pilot study evaluating the efficacy and safety of retinaldehyde-loaded niosomes against mild-to-moderate acne.** Kim J, Kim J, Lee YI, et al. J Cosmet Dermatol. 2021 Sep 29. doi: 10.1111/jocd.14478. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/34587353/>

Background: Retinoids are the mainstay of topical therapy for acne. To improve the efficacy and minimize the side effects of retinoids, various novel drug delivery mechanisms, including nanoparticles, have been developed. Aim: To evaluate the efficacy and safety of a retinaldehyde-loaded niosome (RA-N) nanoemulsion against sebum secretion and keratinization on mild-to-moderate acne. Patients/methods: Twenty-three participants exhibiting mild-to-moderate acne with both closed and open comedones were included. They applied a 0.05% RA-N nanoemulsion daily for 4 weeks, did not to use any other emollient or topical pharmaceutical, and were asked to report any symptoms and treatment satisfaction. Results: The participants demonstrated significantly fewer closed and open comedones after 2 and 4 weeks of treatment than at baseline ( $*p < 0.05$ ). The mean sebum secretion, measured using Sebumeter®, was  $327.95 \pm 90.20 \mu\text{g cm}^{-2}$  at baseline and reduced to  $282.60 \pm 99.70$  and  $250.65 \pm 97.6 \mu\text{g cm}^{-2}$ , respectively, after 2 and 4 weeks of treatment ( $*p < 0.05$ ). The mean desquamation index, determined using Visioscan®, was 10.99

$\pm 1.69$  at baseline and decreased to  $9.81 \pm 1.10$  and  $8.89 \pm 1.32$ , respectively, after 2 and 4 weeks of treatment (\* $p < 0.05$ ). The application of the RA-N nanoemulsion resulted in a significantly lower desquamation level, suggesting that the RA-N nanoemulsion was well-tolerated without any skin irritation. None of the participants reported a serious adverse event during this study. Conclusion: Our findings suggest that the RA-N nanoemulsion was effective in improving comedones in acne-prone skin and safe for long-term application. Further studies are necessary to investigate the long-term effects of the application of the RA-N nanoemulsion in participants with inflammatory acne and acne scars.

**Polyphyllin I inhibits propionibacterium acnes-induced IL-8 secretion in HaCaT cells by downregulating the CD36/NOX1/ROS/NLRP3/IL-1  $\beta$  pathway.** Yang S, Jiang Y, Yu X, et al. Evid Based Complement Alternat Med. 2021 Sep 21;2021:1821220. doi: 10.1155/2021/1821220. eCollection 2021. <https://pubmed.ncbi.nlm.nih.gov/34603464/>

Acne vulgaris (AV) is a chronic skin disease involving inflammation of the pilosebaceous units. Propionibacterium acnes (*P. acnes*) hypercolonization is one pathogenic factor for AV. *P. acnes* that triggers interleukin-1 $\beta$  (IL-1 $\beta$ ) by activating the pyrin domain-containing 3 protein (NLRP3) inflammasome of the NOD-like receptor family in human monocytes. Reactive oxygen species (ROS) acts as a trigger for the production of IL-8 and activates the NLRP3 inflammasome. IL-8 promotes the metastasis and multiplication of different cancerous cells, whereas keratinocyte proliferation and migration contribute to the progression of AV. A steroidal saponin called polyphyllin I (PPI) that is extracted from Paris polyphylla's rhizomes has anti-inflammatory properties. This study investigates the regulatory role of *P. acnes* in the secretion of IL-8 mediated by the CD36/NADPH oxidase 1 (NOX1)/ROS/NLRP3/IL-1 $\beta$  pathway and the effects of PPI on the CD36/NOX1/ROS/NLRP3/IL-1 $\beta$ /IL-8 pathway and human keratinocyte proliferation and migration. HaCaT cells were cultured and stimulated with 108 CFU/ml of *P. acnes* for 0, 6, 12, 18, 24, 30, and 36 hours. *P. acnes* induced IL-8 secretion from HaCaT cells via the CD36/NOX1/ROS/NLRP3/IL-1 $\beta$  pathway. PPI inhibited the CD36/NLRP3/NOX1/ROS/IL-8/IL-1 $\beta$  pathway and HaCaT cell proliferation and migration. PPI alleviates *P. acnes*-induced inflammatory responses and human keratinocyte proliferation and migration, implying a novel potential therapy for AV.

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**Pathogenic characteristics of Th17 cells based on the IL-17 signaling pathway in the regulation of sebaceous gland lipoprotein metabolism in an acne rat model.** He Y, Yang Q, Zhang T, et al. Iran J Immunol. 2021 Sep;18(3):191-195. doi: 10.22034/iji.2021.88231.1855. <https://pubmed.ncbi.nlm.nih.gov/34596585/>

Background: Acne is a common and chronic inflammatory dermatosis of human hair follicle sebaceous gland units. Acne is closely related to immune cytokines and cells including T reg cells (Th17 cells). Mis-regulated glycolipid metabolism also has a vital role to play in the process. Objective: This investigation aims to explore the role of IL-17 in signaling pathways controlling sebaceous gland lipoprotein metabolism in rat model of acne. Methods: We have performed experimental studies, generated the rat ear acne model, and have investigated the pathological changes of acne skin tissue by histological analysis and the changes of critical factors including DEFB1, GPR65, FADS1, and FADS2 by Western Blot in acne rat model. Results: There were more Th17 cells in the rat ear acne model than in the control mice. The expression levels of DEFB1, GPR65, FADS1, FADS2 and MOGAT1 were significantly upregulated in serum and tissue from rat acne models, which indicated that Th17 cells play a major role in the occurrence of acne based on the IL-17 signal pathway. Conclusion: Although acne is associated with immune effects and glycolipid metabolism, inhibition of IL-17 signaling pathway might be a novel way for acne therapy. Our findings also suggest a new target therapy strategy for acne.

## Clinical Reviews

**The importance of assessing burning and stinging when managing rosacea: A review.** Schaller M, Dirschka T, Lonne-Rahm SB, et al. *Acta Derm Venereol.* 2021 Oct 13. doi: 10.2340/actadv.v101.356. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/34643244/>

Rosacea, a chronic condition usually recognized by its visible presentation, can be accompanied by invisible symptoms, such as burning and stinging. This aim of this review is to gather the most recent evidence on burning and stinging, in order to further emphasize the need to address these symptoms. Inflammatory pathways can explain both the signs and symptoms of rosacea, but available treatments are still evaluated primarily on their ability to treat visible signs. Recent evidence also highlights the adverse impact of symptoms, particularly burning and stinging, on quality of life. Despite an increasing understanding of symptoms and their impact, the management of burning and stinging as part of rosacea treatment has not been widely investigated. Clinicians often underestimate the impact of these symptoms and do not routinely include them as part of management. Available therapies for rosacea have the potential to treat beyond signs and improve burning and stinging symptoms in parallel. Further investigation is needed to better understand these benefits and to optimize the management of rosacea.

**Should we consider broad-spectrum quinolone antibacterial agent as acne treatment in the antimicrobial resistance era?** Ruffier d'Epenoux L, Guillouzouic A, Bémer P, et al. *J Eur Acad Dermatol Venereol.* 2021 Oct 8. doi: 10.1111/jdv.17727. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/34626030/>

We read with great interest the recent paper by Nenoff et al. regarding the antimicrobial activity of nadifloxacin against *Cutibacterium acnes* strains isolated from patients with acne<sup>1</sup>. However, we would like to add a few points relevant to the subject. Whether *C. acnes* remains the most prevalent microorganism involved in acne, phylotype determination and potential correlation with some resistant lineages would have been of interest, especially with phylotype IA1 and clonal complex CC32. We agree that a significant number of resistance with erythromycin and clindamycin are found clinically.

**Acupuncture: A therapeutic approach against acne.** Chun-Yan C, Ming-Shu X, Yan-Yan S, et al. *J Cosmet Dermatol.* 2021 Oct 2. doi: 10.1111/jocd.14487. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/34599626/>

Acne is a common but chronic skin disease that influence large population especially juvenile. Acne can continue, begin, or grow into severe form in adult age, affecting face, back, and chest. It may be a serious issue if not cared or treated timely. Even if acne got treated it leaves a persistent scar, which is difficult to alleviate. These acne lesions are long-lasting and result in significant impact on mental and physical health of an individual. There are four mechanisms that are involved in acne lesion formation. However, the accurate series of events of the interaction among the factors in acne pathogenesis is still unsettled. Pubescent acne is due to increase hormone levels, when in fact adult acne is due to fluctuation in hormone levels. There are various approaches for the treatment of acne, including oral medications, creams or gels, acupuncture. Traditional Chinese Medicine stated acne as a infection that is associated with the pathogenic influence of damp heat and heat on specific meridians. As an ancient and integral part of Chinese medicine acupuncture therapy is employed in the treatment of many diseases including acne. It functions by ameliorating the deep-rooted mechanisms playing crucial role in acne development. In this review, we have explained the acne causes, pathogenesis, and its available treatment options. Additionally, we also discussed the acupuncture therapy methods, devices, different techniques. and its mechanism of action in treating acne. Furthermore, clinical trials studies motivated us to highlight the scope of acupuncture in the growing system of medicine.

**A comparison of alternative medicine users and non-users in patients with hidradenitis suppurativa.** Lane J, Emmerich V, Senthilnathan A, et al. *J Drugs Dermatol.* 2021 Oct 1;20(10):1072-1074. doi: 10.36849/JDD.6046. <https://pubmed.ncbi.nlm.nih.gov/34636524/>

Background: Hidradenitis suppurativa patients often seek non-prescription therapies. Objective: To determine the prevalence of alternative medicine use and characterize the differences between patients who report using alternative medications versus those who do not. Methods: We surveyed 67 patients with hidradenitis suppurativa regarding demographics, alternative medicine use, disease severity, and quality of life. Results: 25 (37.2%) of the HS subjects reported alternative medicine use. Alternative medicine users tended to be younger (36.7 vs 40.8 years), have a shorter time since diagnosis (12.6 vs 14.6 years), and reported worse quality of life (14.1 vs 11.0) than non-users. These differences were not statistically significant. Limitations: Limitations included a small sample size. Conclusion: Alternative medicine use among patients with hidradenitis is common regardless of disease severity; even mild disease may drive patients to seek alternative treatment.

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**Fifty years of minocycline and its evolution: A dermatological perspective.** Baldwin HE, Ward DB Jr. *J Drugs Dermatol.* 2021 Oct 1;20(10):1031-1036. doi: 10.36849/JDD.6370. <https://pubmed.ncbi.nlm.nih.gov/34636517/>

2021 is the 50th anniversary of the FDA approval of minocycline (MCN). While many other antibiotics have become obsolete during this time, MCN continues to be quite useful. In dermatology, MCN is used prominently in acne vulgaris, and is also employed in many other dermatological conditions because of its molecular and pharmacological properties. In this article, we review the history of minocycline, and outline the evolution of the drug since its inception. Based on its existing longstanding utility and continued innovations in formulation and delivery systems, we postulate that it will continue to have a prominent position in the dermatologist's armamentarium.

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**Topical clascoterone: The first novel agent for acne vulgaris in 40 years.** Piszczatoski CR, Powell J. et al. *Clin Ther.* 2021 Oct 1;S0149-2918(21)00306-4. doi: 10.1016/j.clinthera.2021.08.007. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/34607697/>

Purpose: Acne vulgaris is a ubiquitous condition in men and women starting in adolescence. It is often persistent and refractory to multiple treatment methods. Although multiple medications may be used on- or off-label for treatment, many adverse effects and risks exist with these treatments, and there has not been an agent with a novel mechanism of action introduced in 40 years. Clascoterone is a recently approved topical acne medication with the first novel mechanism of action since isotretinoin. The purpose of this article was to review the clinical data regarding the safety and efficacy of topical clascoterone for the treatment of acne vulgaris in male and female subjects aged >12 years. Methods: A literature search of PubMed, EMBASE, and MEDLINE was conducted for clinical trials published between January 2014 and March 2021 in the English language using the key words Winlevi, clascoterone, and acne vulgaris. Articles were selected if they were related to the approval by the US Food and Drug Administration of clascoterone or provided novel data regarding this drug entity. Findings: Two Phase III randomized controlled trials (NCT02608450 and NCT02608476) were ultimately selected, as these trials provided pivotal information to the US Food and Drug Administration for the approval of topical clascoterone. Implications: The findings of this review show that topical clascoterone is likely an effective and safe option for the treatment of acne vulgaris. It offers efficacy rates similar to those of current medications through a novel mechanism of action. Its place in therapy remains unclear, but it might be placed ahead of other androgen receptor antagonists such as spironolactone due to its avoidance of systemic side effects.

**Biologic use in pediatric patients with hidradenitis suppurativa: A systematic review.** Sachdeva M, Kim P, Mufti A, et al. *J Cutan Med Surg.* 2021 Sep 29;12034754211049711. doi: 10.1177/12034754211049711. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/34587768/>

Background: There is currently at least 1 biologic (adalimumab) approved in North America for treatment of Hidradenitis Suppurativa in the pediatric population. However, no reviews or clinical trials have specifically analyzed the effectiveness and safety data of biologic use in this population. The objective of this systematic review is to identify and summarize the outcomes of biologic therapy in pediatric patients with HS. Methods: MEDLINE and EMBASE databases were used to conduct the search on Sept 18, 2020. Results: The 15 included studies consisted of 26 patients, with the mean age of  $15 \pm 2.3$  years. Females accounted for 53.8% (n = 14/26) of cases. The mean duration of HS prior to biologic initiation was  $3.5 \pm 2.9$  years, with the majority having Hurley Stage II. The 26 patients received 34 biologics in total: 85.3% treated with TNF alpha inhibitors (adalimumab n = 17, infliximab n = 10, etanercept n = 1, unspecified n = 1), 5.9% with IL-12/23 inhibitors (ustekinumab n = 2), 5.9% with IL-1 inhibitors (i.e., anakinra n = 2) and 2.9% received IL-23 inhibitors (i.e., guselkumab n = 1) biologics. Of the 26 patients, 23.1% (n = 6/26) experienced complete resolution (CR), 73.1% (n = 19/26) experienced partial resolution (PR), and 3.8% (n = 1/26) had no resolution outcomes reported. The time to resolution of HS lesions after biologic initiation ranged from 10 days to 11.5 months (mean: 5.1 months). No adverse events were reported in the studies. Conclusion: Although anti-TNF alpha were the most common biologics used for HS in pediatric cases, large-scale trials specific to pediatric patients with HS are needed to confirm these findings.

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**Exploring the lived experience of women with rosacea: Visible difference and psychological impact.** Carter C, Martin K, Gordon C, Goulding JMR. *Br J Dermatol.* 2021 Sep 28. doi: 10.1111/bjd.20768. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/34582568/>

Rosacea is a chronic, symptomatic and potentially disfiguring inflammatory skin condition with high prevalence, particularly among women. Quantitative research into the psychosocial factors associated with rosacea has consistently reported the presence of anxiety, depression, decreased quality of life and feelings of stigmatisation. Such factors may be challenging to identify in clinical practice, since the objective severity of a visible difference does not always correlate with the lived experience.

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**Alcohol consumption and the risk of rosacea: A systematic review and meta-analysis.** Liu L, Xue Y, Chen Y, et al. *J Cosmet Dermatol.* 2021 Sep 28. doi: 10.1111/jocd.14483. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/34582097/>

Background: Rosacea is a chronic inflammatory skin disease that affects people's life quality. It has been found to be related to many detrimental factors including ultraviolet exposure. However, the association between alcohol consumption and rosacea has long been debated. Aims: To elucidate this association, we conducted a systematic review and meta-analysis. Methods: We performed a systematic search of the literature published before February 16, 2021 on PubMed, Embase, and the Cochrane database and used a meta-analytic approach to calculate the pooled odds ratios (ORs) and the corresponding 95% confidence intervals (CIs). Results: Finally, 14 eligible studies were identified, and alcohol consumption was not found to be a risk factor for rosacea. However, in subgroup analysis, alcohol consumption increased the risk of phymatous rosacea (PhR) and the pooled OR was 4.17 (95% CI = 1.76-9.91). Conclusion: Overall, our study showed that alcohol consumption was a risk factor in phymatous rosacea (PhR). More studies of rosacea investigating sex distribution, alcohol intake levels, and types of alcoholic beverages consumed are needed in the future.

**Features of the skin microbiota in common inflammatory skin diseases.** Ferček I, Lugović-Mihić L, Tambić-Andrašević A, et al. *Life* (Basel). 2021 Sep 14;11(9):962. doi: 10.3390/life11090962. <https://pubmed.ncbi.nlm.nih.gov/34575111/>

Many relatively common chronic inflammatory skin diseases manifest on the face (seborrheic dermatitis, rosacea, acne, perioral/periorificial dermatitis, periocular dermatitis, etc.), thereby significantly impairing patient appearance and quality of life. Given the yet unexplained pathogenesis and numerous factors involved, these diseases often present therapeutic challenges. The term "microbiome" comprises the totality of microorganisms (microbiota), their genomes, and environmental factors in a particular environment. Changes in human skin microbiota composition and/or functionality are believed to trigger immune dysregulation, and consequently an inflammatory response, thereby playing a potentially significant role in the clinical manifestations and treatment of these diseases. Although cultivation methods have traditionally been used in studies of bacterial microbiome species, a large number of bacterial strains cannot be grown in the laboratory. Since standard culture-dependent methods detect fewer than 1% of all bacterial species, a metagenomic approach could be used to detect bacteria that cannot be cultivated. The skin microbiome exhibits spatial distribution associated with the microenvironment (sebaceous, moist, and dry areas). However, although disturbance of the skin microbiome can lead to a number of pathological conditions and diseases, it is still not clear whether skin diseases result from change in the microbiome or cause such a change. Thus far, the skin microbiome has been studied in atopic dermatitis, seborrheic dermatitis, psoriasis, acne, and rosacea. Studies on the possible association between changes in the microbiome and their association with skin diseases have improved the understanding of disease development, diagnostics, and therapeutics. The identification of the bacterial markers associated with particular inflammatory skin diseases would significantly accelerate the diagnostics and reduce treatment costs. Microbiota research and determination could facilitate the identification of potential causes of skin diseases that cannot be detected by simpler methods, thereby contributing to the design and development of more effective therapies.

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