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New Medical Research

A cream containing the sap of oat plantlets and mandarin extract soothes the symptoms of rosacea and improves the quality of life of patients. Fabbrocini G, Monteil CB, Carballido F. *J Eur Acad Dermatol Venereol.* 2022 Aug;36 Suppl 8:3-11. doi: 10.1111/jdv.18201. <https://pubmed.ncbi.nlm.nih.gov/35796500/>

Background: Rosacea is a chronic inflammatory disease of the facial skin that affects all skin types and occurs mostly in adults. The main clinical sign of rosacea is a characteristic and persistent form of centro-facial erythema that is prone to exacerbation and can impair quality of life (QoL). The current therapeutic approach for rosacea is to combine various treatments, use appropriate skincare products and avoid flare-up triggers. Objective: To evaluate the use of a facial skincare product containing protein-free sap extruded from Rhealba® oat plantlets and mandarin extract in subjects with rosacea. Methods: Three clinical studies were conducted in adult subjects with various rosacea phenotypes (erythematotelangiectatic or papulopustular) and treatment histories to assess the dermatological and ophthalmological tolerance of the study product, as well as its clinical effectiveness, after a twice-daily application on the whole face and neck for up to 4 weeks. Results: Tolerance of the product was rated as good to very good by dermatologists across the three studies, which involved a total of 105 evaluable subjects. Subjects with untreated erythematotelangiectatic rosacea reported fewer functional signs and symptoms of the disease and an improved QoL. The evaluation of skin biometric parameters revealed a reduction in transepidermal water loss, indicating that the study product helped to restore skin barrier integrity after 4 weeks, and a higher skin pH, indicating that the cutaneous microbiote was respected. Most subjects (93%) who had either undergone a superficial dermatological procedure for erythematotelangiectatic rosacea or were taking oral/topical treatments for papulopustular rosacea, rated the study product as very good (8/10) and felt it further relieved their symptoms. Conclusion: Overall, the study product was very well tolerated and may be beneficial for subjects with rosacea as an adjunct to superficial dermatological procedures or oral/topical therapies, in line with the current recommendations for rosacea management.

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Clinical and metagenomic profiling of hormonal acne-prone skin in different populations. Hrapovic N, Richard T, Messaraa C, et al. *J Cosmet Dermatol.* 2022 Jul 10. doi: 10.1111/jocd.15225. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/35810346/>

Introduction: Acne is one of the most common skin concerns of unknown etiology, often connected to the menstrual cycle in women, and possibly to the microbial profile and function. Objective: We aimed to investigate how hormonal fluctuation affects hormonal acne-prone skin in different populations in relation to skin clinical parameters and microbial profiles. Methods: We evaluated skin features by using biophysical and topographical tools. For microbial profiling, we sequenced facial skin microbiota and associated the findings with the skin clinical parameters during the different phases of the menstrual cycle. Results: We identified differences between and within hormonal phases in women of Chinese and Caucasian origin. Changes were discovered in transepidermal water loss (TEWL), sebum level, hydration level and pore volume. The most abundant identifiable genera in both ethnicities were Cutibacterium, Staphylococcus and Streptococcus, without any significant abundance differences within the menstrual cycle. Interestingly, 11 bacterial metabolic pathways were downregulated in Chinese compared to Caucasian skin during the follicular phase. The majority of these pathways were associated with skin redox balance, perhaps indicating a weaker oxidative stress response in Chinese versus Caucasian skin. Novosphingobium taxa were increased in the Chinese skin microbiome, which has been reported to protect skin from pollution mediated oxidative stress. Conclusion: Thus, the present pilot study explored some of the clinical and metagenomic changes in acne-prone skin, and provide guidance to tailor personalized skin care regimes during the menstrual cycle. Also, the skin redox status in acne-prone skin, provides more opportunity to tailor personalized skin care regimes.

Clinician-created educational video for shared decision-making in the outpatient management of acne. Hung CT, Chen YH, Hung TL, et al. PLoS One. 2022 Jul 8;17(7):e0271100. doi: 10.1371/journal.pone.0271100. eCollection 2022. <https://pubmed.ncbi.nlm.nih.gov/35802643/>

Shared decision-making (SDM) provides patient-centered care. However, the limited consultation time was the main factor hindering the application. Patient education is crucial in the process of SDM. The use of visual aids as health education materials is an effective way to improve patients' health literacy and medication adherence. This study aimed to determine the effectiveness of the clinician-created educational video of acne, accessed by patients during the waiting time, including knowledge level and satisfaction. This study was conducted in dermatology outpatient clinics and collected patient responses through electronic devices. During the waiting time, patients with acne would read educational pamphlets and complete the test first. Then, a clinician-created 8-minute educational video, as a patient decision aid (PDA), was accessed by patients using their own mobile smart devices, followed by a test and questionnaire about the satisfaction of the pamphlet and video. We enrolled 50 patients with acne, including 33 males and 17 females. The mean age is 25.55 ± 6.27 years old, ranging from 15 to 47 years old. About the patients' knowledge, the test score improved significantly after watching the video ($P < .001$). The same findings were observed in the subgroup analysis of gender and different age groups. A higher proportion of patients preferred the educational video over the pamphlet in both genders and different age groups. All patients agreed with the video helped them to understand the educational information and impressed them more than reading pamphlets. The application of clinician-created educational videos in patient education seems to be an efficient solution to implement SDM in the daily clinical work. Besides, we could remind patients to watch the video anytime when they were not sure about the treatment choices, side effects, or the precautions of medications.

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Combination treatment with 30% salicylic acid and fractional CO₂ laser for acne scars: A 20-week prospective, randomized, split-face study. Zhang YJ, Chen YM, Shao XY, et al. Dermatol Ther. 2022 Jul 6;e15693. doi: 10.1111/dth.15693. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/35791845/>

Background: Multiple approaches are used to treat acne scars, but some are expensive, ineffective, and cause complications. We aimed to evaluate the efficacy and safety of ultra-pulsed CO₂ fractional laser combined with 30% supramolecular salicylic acid in the treatment of acne scars in a prospective split-face control study. Methods: Twenty patients with facial symmetrical acne scars were enrolled. One side of face was randomly treated with 30% supramolecular salicylic acid, and two sides were treated with ultra-pulsed CO₂ fractional laser. The Echelle d'evaluation clinique des cicatrices d'acne (ECCA) scale was used to evaluate the clinical efficacy before and three months after treatment, and a quartile scale was used to self-evaluate the improvement of patients. A visual analog scale was used to record pain scores after each treatment, and side effects and other adverse reactions on the face were recorded. Results: All the patients completed treatment and follow-up. There was statistical difference in ECCA scores of bilateral facial acne scars after three treatments ($P < 0.001$). ECCA scores on the combined side were lower after three treatments than those on the laser side ($P = 0.003$). The patient satisfaction quartile scale on the combined side was higher than that on the laser side alone ($P = 0.015$). Conclusion: Ultra-pulsed CO₂ fractional laser combined with 30% supramolecular salicylic acid has better efficacy in the treatment of acne scars than laser alone, and patient self-assessment of combined treatment has a greater degree of improvement in acne scars, and does not increase patient pain scores and related adverse reactions.

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Calcipotriol: A novel tool in treatment of acne vulgaris. Abdel-Wahab HM, Ali AK, Ragaie MH. *Dermatol Ther.* 2022 Jul 5;e15690. doi: 10.1111/dth.15690. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/35789164/>
 Background: Retinoids and active vitamin D3 analogues regulate the proliferation and differentiation of keratinocytes. Retinoids are the main stay in the treatment of acne vulgaris through their comedolytic and anti-inflammatory effects. However, the effect of calcipotriol on the different forms of acne lesions has not been reported. Objective: This split face prospective study aimed to detect the efficacy of topical calcipotriol in the treatment of acne lesions in comparison with that of adapalene. Methods: Forty patients with acne vulgaris were treated with topical calcipotriol (0.005%) cream and 0.1% adapalene gel on the right and left sides of the face respectively. Clinical and histological assessment of the used treatments was done 2 months after the start of treatment. Results: Two months after treatment, there was significant reduction of all acne lesions with significant decrease of physician global assessment and patient global assessment scores ($p = 0.0001$) on both sides of the face with no significant difference between both sides. Histologically, there was significant decrease in the density of inflammatory infiltrate, which was more significant on the right side ($p < 0.0001$). Conclusion: Topical calcipotriol can serve a significant role in the treatment of acne vulgaris, through its anti-inflammatory effect which was comparable to that of adapalene.

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The potential role of insulin-like growth factor 1 in acne vulgaris and its correlation with the clinical response before and after treatment with metformin. Albalat W, Darwish H, Abd-Elaal WH, et al. *J Cosmet Dermatol.* 2022 Jul 2. doi: 10.1111/jocd.15210. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/35780292/>

Background: Acne vulgaris (AV) is a complex and multifactorial inflammatory disease affecting the pilosebaceous follicles. Optimum treatment of AV is important to reduce the disease severity and recurrence. Aim: To evaluate the role of metformin in the treatment of acne vulgaris by reducing the level of insulin like growth factor 1. Methods: Fifty patients with AV were included in the study. Their ages ranged from 16-30 years, and they had different grades of the disease. IGF-1 levels were measured in all patients before and after the treatment with metformin. Results: After four months of therapy, there was a clinical improvement detected by an improvement in the global acne grading system (GAGS) score and also a significant decrease in IGF-level. Conclusion: IGF-1 may have an important role in the pathogenesis of acne; also we can presume that oral metformin is an effective and safe line in the treatment of AV.

Efficacy of oxybrasion in the treatment of acne vulgaris: A preliminary report. Chilicka K, Rogowska AM, Szyguła R, et al. *J Clin Med.* 2022 Jul 1;11(13):3824. doi: 10.3390/jcm11133824. <https://pubmed.ncbi.nlm.nih.gov/35807109/>

There are many cosmetic methods to reduce skin eruptions in people with acne vulgaris. As oxybrasion is a safe method of exfoliating dead epidermis, our objective was to investigate its effectiveness in young women with acne vulgaris. The Global Acne Grading System (GAGS) and Derma Unit SSC 3 device (Sebumeter SM 815, Corneometer CM 825) were used to assess acne vulgaris and skin properties. Twenty-four women aged 19-21 years ($M = 19.50$, $SD = 0.66$) with diagnosed mild acne vulgaris and a high level of sebum (more than $100 \mu\text{g}/\text{cm}^2$) participated in the study. Women on any dermatological treatment within the last 12 months and/or hormonal contraception were excluded. Probandes were randomly assigned to two equal groups. Group A (experimental) was oxybrased with 0.9% sodium chloride solution simultaneously with compressed oxygen. Group B (placebo) was the group treated with non-carbonated mineral water and oxygen from the device (not pure). A series of five treatments was performed at 10-day intervals. Skin parameters were measured before and 30 days after the end of treatment. As a result, in group A (experimental), skin hydration and GAGS improved, while sebum on the epidermis was reduced. No side effects were noted. We concluded that oxybrasion is effective in women with acne and safe, as it improved skin parameters; however, further research is needed.

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Electrostatically optimized adapalene-loaded emulsion for the treatment of acne vulgaris. Ji YB, Lee HY, Lee S, et al. *Mater Today Bio.* 2022 Jun 24;16:100339. doi: 10.1016/j.mtbio.2022.100339. eCollection 2022 Dec. <https://pubmed.ncbi.nlm.nih.gov/35799897/>

Adapalene (AD) is an FDA-approved drug that shows good therapeutic efficacy for the treatment of acne vulgaris. However, due to its negative charge, AD cannot efficiently penetrate across the also negatively-charged skin membrane. This study is the first to assess the treatment of acne vulgaris using electrostatically optimized AD emulsions prepared using anionic AD with methoxy polyethylene glycol-b-poly(ϵ -caprolactone) (MC) as an anionic emulsifier coupled with a newly synthesized MC with different contents of an amine pendant-group (MC-[NH₂]_x) as a cationic emulsifier. The AD emulsion prepared using MC-[NH₂]_x with high cationic charge potential was significantly stable in the short-term studies compared with anionic MC or no emulsifier. Furthermore, the AD emulsion prepared with the cationic MC-[NH₂]_x emulsifier provided a two or three times stronger therapeutic effect against acne vulgaris than the AD emulsion prepared with the anionic MC emulsifier or no emulsifier in an animal study. Additionally, the AD emulsion with high cationic charge potential exerted a remarkable inhibition of macrophage expression, as confirmed by histological analysis. Therefore, the electrostatic interaction between the negatively-charged skin membrane and the AD emulsion prepared with the cationic MC-[NH₂]_x emulsifier provides a promising therapeutic strategy for acne vulgaris.

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Fatty acid profiling in facial sebum and erythrocytes from adult patients with moderate acne. Cao K, Liu Y, Liang N, et al. *Front Physiol.* 2022 Jun 21;13:921866. doi: 10.3389/fphys.2022.921866. eCollection 2022. <https://pubmed.ncbi.nlm.nih.gov/35800343/>

Fatty acid (FA) metabolism has been involved in acne vulgaris, a common inflammatory skin disease frequently observed in adolescents and adults, but it remains poorly defined whether the distributions or location of FA in facial sebum and those in the circulation differentially correlate with the disease. In a cohort of 47 moderate acne patients and 40 controls, sebum samples from forehead and chin areas were collected using Sebutape adhesive patches, and erythrocytes were separated from the fasting blood. Total FAs were analyzed by the gas chromatograph-mass spectrometry method. Compared to control female subjects, female patients showed increased levels of saturated fatty acids (SFAs) and monounsaturated fatty acids (MUFAs) from both facial areas, whereas decreased levels of polyunsaturated fatty acids (PUFAs) from chin areas were observed. Interestingly, the levels of docosahexaenoic acid (DHA) in the circulating erythrocytes were significantly decreased in male patients compared with control. In addition, DHA levels in erythrocytes were positively correlated with PUFAs from sebum only in male subjects. Furthermore, female patients with moderate acne had more severe sebum abnormality and chin-specific FA profiles, consistent with higher acne incidences than males in adulthood, especially in the chin areas. Importantly, serum insulin-like growth factor 1 (IGF-1) levels were positively correlated with SFAs and MUFAs from sebum only in male subjects. In summary, differential spatial FA distributions in facial sebum and correlation with those in erythrocytes and IGF1 levels in serum may shed some light on the pathology of acne in male and female adults.

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A comparison of microneedling versus glycolic acid chemical peel for the treatment of acne scarring. Ishfaq F, Shah R, Sharif S, et al. *J Clin Aesthet Dermatol.* 2022 Jun;15(6):48-52. <https://pubmed.ncbi.nlm.nih.gov/35783564/>
Background: Acne vulgaris is a common skin disease that frequently results in scarring. Scars secondary to acne can lead to physical disfigurements and a profound psychological impact. Early and effective treatment is the best means to minimize and prevent acne scarring. In patients with darker skin tones, current acne scar treatments pose complications, including dyspigmentation, further scarring, and overall unsatisfactory clinical outcomes. Objective:

We sought to compare the efficacy of microneedling versus 35% glycolic acid chemical peels for the treatment of acne scars. Methods: Sixty patients with Fitzpatrick Skin Phototype IV to VI with atrophic acne scars were randomized into two groups: Group A underwent microneedling every two weeks for a total of 12 weeks and Group B received chemical peels every two weeks for a total of 12 weeks. Acne scar treatment efficacy was represented by an improvement greater than one grade from baseline according to the Goodman and Baron Scarring Grading System, measured two weeks after the completion of the last treatment session. Results: Group A demonstrated more improved outcomes in acne scar treatment compared to Group B; 73.33% (n=22) of patients in Group A achieved treatment efficacy while 33.33% (n=10) in Group B did the same. Additionally, 26.67% (n=8) in Group A showed no efficacy after treatment compared to 66.67% (n=20) in Group B. Conclusion: Microneedling provided better treatment outcomes compared to 35% glycolic acid peels for acne scar treatment in our patient population with Fitzpatrick Skin Phototypes IV to VI.

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Hydroxocobalamin: An effective treatment for flushing and persistent erythema in rosacea. Huang YW, Huang HP, Hsu CK, Lee JY. *J Clin Aesthet Dermatol.* 2022 Jun;15(6):42-45. <https://pubmed.ncbi.nlm.nih.gov/35783562/>

Background: Expression of inducible nitric oxide synthase (NOS) is higher in rosacea skin samples than in normal skin controls. Hydroxocobalamin is a potent inhibitor of all isoforms of NOS, capable of reducing the vasodilatations induced by nitric oxide. Objective: We aimed to evaluate the role of hydroxocobalamin in treating facial flushing and persistent erythema of rosacea. Methods: Thirteen patients with rosacea who displayed facial flushing and persistent erythema received 1 to 4 weekly intramuscular injections of hydroxocobalamin 1 to 2 mg. The outcomes were measured using the Clinician's Erythema Assessment (CEA) by photography and an infrared thermometer to evaluate the difference in skin surface temperature (SST) of the cheeks before and after treatment. Results: Thirty minutes after the first dose of intramuscular injection of hydroxocobalamin, the mean CEA significantly reduced from 2.2 ± 0.6 to 1.2 ± 0.4 ($p < 0.001$), and average SST also significantly reduced from $36.7 \pm 0.70^\circ\text{C}$ to $36.2 \pm 0.61^\circ\text{C}$ ($p < 0.001$) on the cheeks. Conclusion: In our patient sample, intramuscular administration of hydroxocobalamin was effective for immediate reduction of facial erythema associated with rosacea.

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Sarecycline demonstrates clinical effectiveness against staphylococcal infections and inflammatory dermatoses: Evidence for improving antibiotic stewardship in dermatology. Grada A, Ghannoum MA, Bunick CG. *Antibiotics (Basel).* 2022 May 27;11(6):722. doi: 10.3390/antibiotics11060722. <https://pubmed.ncbi.nlm.nih.gov/35740129/>

Tetracycline class antibiotics are widely used for multiple skin diseases, including acne vulgaris, acne rosacea, cutaneous infections, inflammatory dermatoses, and autoimmune blistering disorders. Concerns about antibiotic resistance and protecting the human/host microbiome beg the question whether broad-spectrum tetracyclines such as doxycycline and minocycline should be prescribed at such a high rate by dermatologists when a narrow-spectrum tetracycline derivative, sarecycline, exists. We evaluated the clinical effectiveness of oral sarecycline against cutaneous staphylococcal infections, eyelid stye, and mucous membrane pemphigoid to determine whether sarecycline is a viable option for clinicians to practice improved antibiotic stewardship. We observed significant improvement in staphylococcal infections and inflammatory dermatoses with courses of oral sarecycline as short as 9 days, with no reported adverse events. These clinical findings are consistent with in vitro microbiological data and anti-inflammatory properties of sarecycline. Our data provides a strong rationale for clinicians to use narrow-spectrum sarecycline rather than broad-spectrum tetracyclines as a first-line agent in treating staphylococcal skin infections and inflammatory skin diseases for which tetracyclines are currently commonly employed. Such advancement in the

practice paradigm in dermatology will enhance antibiotic stewardship, reduce risk of antibiotic resistance, protect the human microbiome, and provide patients with precision medicine care.

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Analysis on the difference of skin surface lipids during blue light therapy for acne by lipidomics. Ding W, Hu Y, Yu X, et al. Biomed Opt Express. 2022 May 16;13(6):3434-3445. doi: 10.1364/BOE.452614. eCollection 2022 Jun 1. <https://pubmed.ncbi.nlm.nih.gov/35781946/>

Acne is a chronic inflammatory skin disease of the sebaceous glands of the hair follicles, caused by a variety of factors and tends to recur, causing skin damage and psychological stress to patients. Blue light (415nm) is a popular physical therapy for acne, however, studies on the effects of blue light on skin surface lipids (SSL) have not been exhaustively reported. So, we want to investigate the difference in SSL before and after acne treatment with blue light and to reveal the potential mechanism of acne treatment with blue light from the lipid level. SSL samples were collected and physiological indicators (moisture content, transepidermal water loss (TEWL), sebum content and pH) were measured. By using ultra performance liquid chromatography coupled with quadrupole time-of-flight mass spectrometry (UPLC-QTOF-MS) with multivariate data analysis methods to obtain specific information on the lipid composition. Analysis of the physiological index data showed a significant increase in moisture content ($p = 0.042$), pH ($p = 0.000$) and a significant decrease in sebum content ($p = 0.008$) in the after treatment area (AT group), while there was no significant change in TEWL values. A total of 2398 lipids were detected by lipidomics analysis and 25 differential lipids were screened. Triacylglycerols (TGs), isoprenoids and hopanoids being the potential differential lipids. Among the lipids associated with the skin barrier, only monounsaturated fatty acids (MUFA) ($p = 0.045$) were significantly increased. This study revealed significant changes in SSL after blue light treatment for acne, suggesting that blue light exposure may cause changes in the relative lipid content and redistribution of lipid components, and that whether it damages the skin barrier requires further study.

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Development and evaluation of herbal formulation AKIGTU01 and AKIGCL03 against acne producing microbes. Abdullah, Zuberi MH, Haroon U, et al. Pak J Pharm Sci. 2022 May;35(3):819-825. <https://pubmed.ncbi.nlm.nih.gov/35791482/>

Acne vulgaris is a common global skin disease affecting teenagers and adults and exerting serious psychological impacts which includes everlasting scarring, reduced self-image, depression and anxiety. One of the suspected causative agent of acne is Propionibacterium acnes; a Gram positive anaerobic organism which lives in skin hair follicle and openings. Treatments currently available for acne include use of oral antibiotics, hormones, isotretinoin and also physical treatments like lesion removal and photo-therapy. All these are associated with risks and none is completely satisfactory. Therefore, natural alternatives are gaining greater research support but lacks sufficient studies. In our study we have isolated Propionibacterium acnes from infected individuals and tested the effect of certain chemicals and herbs/ vegetable extracts against it. Their anti-acne property was studied and compared with commercially used antibiotics including Clinigel (Clindamycin phosphate), Vibramycin (Doxycycline), Erythromycin, Novidat (Ciprofloxacin) and Amoxil (Amoxicillin). Results indicate that some of the selected herbs and chemicals showed good activity against Propionibacterium acnes synergistic to the antibiotics when used alone or in combination. Findings of this research can play an important role in natural product based drug discovery for the treatment of Acne vulgaris.

Clinical Reviews

A systematic review and network meta-analysis of topical pharmacological, oral pharmacological, physical and combined treatments for acne vulgaris.

Mavranouzouli I, Daly CH, Welton NJ, et al. *Br J Dermatol.* 2022 Jul 5. doi: 10.1111/bjd.21739. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/35789996/>

Background: Various treatments for acne vulgaris exist, but little is known about their comparative effectiveness by acne severity. Objectives: To identify best treatments for mild-to-moderate and moderate-to-severe acne, as determined by clinician-assessed morphological features. Methods: We undertook a systematic review and network meta-analysis of randomised controlled trials (RCTs) assessing topical pharmacological, oral pharmacological, physical and combined treatments for mild-to-moderate and moderate-to-severe acne, published up to May 2020. Outcomes included percentage change in total lesion count from baseline, treatment discontinuation for any reason and due to side effects. Risk of bias was assessed using the Cochrane risk-of-bias tool, and bias-adjustment models. We report below effects versus placebo for treatments with ≥50 observations each. Results: We included 179 RCTs with ≈35,000 observations across 49 treatment classes. For mild-to-moderate acne, the most effective options for each treatment type were (mean difference, 95% credible intervals): topical pharmacological - combined retinoid with benzoyl peroxide [BPO] (26.16%, 16.75%-35.36%); physical - chemical peels, e.g., salicylic or mandelic acid (39.70%, 12.54%-66.78%) and photochemical therapy [combined blue/red light] (35.36%, 17.75%-53.08%). Oral pharmacological treatments (e.g., antibiotics, hormonal contraceptives) did not appear to be effective after bias adjustment. BPO and topical retinoids were less tolerated than placebo. For moderate-to-severe acne, the most effective options for each treatment type were: topical pharmacological - combined retinoid with lincosamide [clindamycin] (44.43%, 29.20%-60.02%); oral pharmacological - isotretinoin of total cumulative dose ≥120mg/kg/single course (58.09%, 36.99%-79.29%); physical - photodynamic therapy [light therapy enhanced by a photosensitizing chemical] (40.45%, 26.17%-54.11%); combined - BPO with topical retinoid and oral tetracycline (43.53%, 29.49%-57.70%). Topical retinoids and oral tetracyclines were less tolerated than placebo. Quality of included RCTs was moderate-to-very low, with evidence of inconsistency between direct and indirect evidence. Uncertainty in findings was high, in particular for chemical peels, photochemical and photodynamic therapies. However, conclusions were robust to potential bias in the evidence. Conclusions: Topical pharmacological treatment combinations, chemical peels and photochemical therapy were most effective for mild-to-moderate acne. Topical pharmacological treatment combinations, oral antibiotics combined with topical pharmacological treatments, oral isotretinoin, and photodynamic therapy were most effective for moderate-to-severe acne. Further research is warranted for chemical peels, photochemical and photodynamic therapies for which evidence was more limited.

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Infliximab in hidradenitis suppurativa: A systematic review and meta-analysis.

Shih T, Lee K, Grogan T, et al. *Dermatol Ther.* 2022 Jul 5:e15691. doi: 10.1111/dth.15691. Online ahead of print.

<https://pubmed.ncbi.nlm.nih.gov/35790062/>

Background: Hidradenitis suppurativa (HS) is a chronic inflammatory dermatosis often recalcitrant to treatment. There is a lack of an updated systematic data review for infliximab use in HS. Objectives: Conduct a systematic review and meta-analysis of literature on infliximab in HS. Methods: This study was performed following PRISMA guidelines and was pre-registered on PROSPERO (CRD42021283596). In 9/2021, MEDLINE and EMBASE were systematically searched for articles on infliximab in HS. Non-English, duplicate, and studies with <5 HS patients were excluded. Study quality was assessed utilizing Cochrane Risk of Bias for prospective trials and Newcastle-Ottawa Scale for cohort studies. Random effects meta-analytical model, Cochran's Q statistic, and I squared index were performed. Results: 19 articles (314 patients) met inclusion criteria (6 prospective, 13 retrospective studies). All patients with HS

severity data available (n=299) had moderate-to-severe disease. Outcome measures used for meta-analysis of the pooled response rate were largely based on clinician reported outcomes (16 studies). One utilized both clinician and patient assessment. Two utilized patient-reported response alone. The pooled response rate of HS patients to infliximab was 83% (95% CI, 0.71-0.91). The most common AEs included non-serious infections (13.2%) and infusion reaction (2.9%). The rate of serious AEs was 2.9%. Study limitations include the small number of prospective studies and heterogeneity between studies. Conclusions: Infliximab is an effective treatment for moderate-to-severe HS. The rate of AEs is aligned with the expected side effect profile for infliximab. Efficacy of infliximab in HS should be compared to other biologics in larger, randomized controlled trials.

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Acne scarring-pathophysiology, diagnosis, prevention and education - Part 1. Jennings T, McLarney M, Renzi M, et al. *J Am Acad Dermatol.* 2022 Jul 2;S0190-9622(22)00677-6. doi: 10.1016/j.jaad.2022.04.021. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/35792196/>

Acne scarring is common and can occur despite effective acne management. Acne scarring patients suffer from significant psychosocial morbidity including depression and suicidality. Despite availability and advancement of therapeutic modalities, treatment for acne scarring is uncommon and often overlooked in the acne patient encounter. The utilization of acne scarring assessment tools and identification of specific acne scar subtypes allow for a tailored therapeutic approach. Part I of this continuing medical education series covers the pathophysiology and morphology of textural and pigmented acne scars, scarring assessment tools and medical treatment options. The principles reviewed will aid in the approach and initiation of acne scar treatment in the outpatient setting.

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Itch in hidradenitis suppurativa/acne inversa: A systematic review. Agarwal P, Lunge SB, Shetty NS, et al. *J Clin Med.* 2022 Jun 30;11(13):3813. doi: 10.3390/jcm11133813. <https://pubmed.ncbi.nlm.nih.gov/35807098/>

Hidradenitis suppurativa/acne inversa (HS) is a chronic inflammatory disease of the pilosebaceous unit leading to formation of painful, inflammatory nodules, abscesses and tunnels in apocrine gland-bearing areas of the skin. Pain and drainage are the most important symptoms associated with reduction of quality of life in HS. On the other hand, an overlooked symptom in quality of life studies is itch, despite the fact that several studies have reported its importance. Various theories have tried to explain the pathogenesis of itch in HS, such as the presence of mast cells in the cell infiltrates and elevated Ig E levels in the lesional skin. Smoking and advanced stage of disease have been found to be associated with increased intensity of itch. A PUBMED search was conducted to perform a systematic literature review using the term "hidradenitis suppurativa" [all fields], the keywords "pruritus", "itching", "itch" [all fields] and with "AND" as operator. Mast cells and mTor signaling were found to be raised in both lesional and perilesional skin. Itch as a presenting symptom has been found in 35-82.6% of patients across multiple studies. It often co-presents with pain and may be misinterpreted as burning, stinging, tickling, tweaking, pricking, etc. The presence of itch is associated with reduced quality of life, depression and impairment of social life. Brodalumab, a monoclonal antibody against IL-17A receptor, produced significant improvements in itch, pain, QoL and depression in patients with moderate to severe HS. Statins have shown some reduction in itch intensity score. Further studies are required to gain a better understanding of the etiopathogenesis and optimal therapeutic modalities for itch in HS that will allow clinicians to better address issue and reduce its impact on quality of life.

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Truncal acne: An overview. Woo YR, Kim HS. J Clin Med. 2022 Jun 24;11(13):3660. doi: 10.3390/jcm11133660. <https://pubmed.ncbi.nlm.nih.gov/35806952/>

Acne is a relatively common disease of the pilosebaceous units. Many aspects of facial acne have been studied. However, there is limited evidence regarding truncal acne. Truncal acne is also observed in a significant number of patients, but it is often ignored by patients and clinicians. Although the pathogenesis of facial and trunk acne is considered to be similar, the characteristics of the skin on the trunk and face are thought to be different. As truncal acne can cause scars on large areas of the body and adversely affect the quality of life of patients, more attention should be given to patients with truncal acne. Although only a few studies have been published to date, the epidemiology, etiology, severity assessment tool, assessments of the quality of life, and new treatments targeting truncal acne are currently being studied. Therefore, in this review, the latest knowledge on truncal acne will be discussed.

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Biologics and small molecule inhibitors for treating hidradenitis suppurativa: A systematic review and meta-analysis. Huang CH, Huang IH, Tai CC, Chi CC. Biomedicines. 2022 Jun 2;10(6):1303. doi: 10.3390/biomedicines10061303. <https://pubmed.ncbi.nlm.nih.gov/35740325/>

Background: The treatment guidelines for hidradenitis suppurativa (HS) vary among different countries, and several biologics and small molecule inhibitors have been tested for treating moderate-to-severe HS over the past few years. However, treatment guidelines for HS vary among different countries. Methods: A systematic review and meta-analysis was performed to exam the efficacy and serious adverse events (SAEs) of biologics and small-molecule inhibitors in treating moderate-to-severe HS. Binary outcomes were presented as risk ratio (RR) with 95% confidence interval (CI). Results: We included 16 RCTs with a total of 2076 participants on nine biologics and three small-molecule inhibitors for treating moderate-to-severe HS, including adalimumab, anakinra, apremilast, avacopan, bimekizumab, CJM112, etanercept, guselkumab, IFX-1, INCB054707, infliximab, and MABp1. The meta-analysis revealed only adalimumab (RR 1.77, 95% CI, 1.44-2.17) and bimekizumab (RR 2.25, 95% CI, 1.03-4.92) achieved significant improvement on hidradenitis suppurativa clinical response (HiSCR), and adalimumab was superior to placebo in achieving dermatology life quality index (DLQI) 0/1 (RR 3.97; 95% CI, 1.70-9.28). No increase in SAEs was found for all included active treatments when compared with placebo. Conclusions: Adalimumab and bimekizumab are the only two biologics effective in achieving HiSCR with acceptable safety profile, whereas adalimumab is the only biologic effective in achieving DLQI 0/1.

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