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AARS News

Highlights from the 11th Annual AARS Annual Scientific Symposium
As part of its ongoing efforts to support research and share scientific knowledge about acne, hidradenitis suppurativa (HS), and rosacea, the American Acne and Rosacea Society (AARS) hosted its 11th Annual Scientific Symposium on May 15, 2024. The AARS was thrilled to welcome the attendees of the annual Society for Investigative Dermatology meeting to hear researchers from across the US present recent advancements in dermatological research focusing on acne, HS, and rosacea.

Read More on the AARS Website

New Medical Research

Importance: Masculinizing gender-affirming hormonal therapy is associated with the development of acne. While isotretinoin is a highly effective acne treatment, little is known about its effectiveness and safety among transgender and gender-diverse individuals receiving gender-affirming hormonal therapy. Objective: To evaluate clinical outcomes of isotretinoin among transgender and gender-diverse individuals receiving gender-affirming hormonal therapy. Design, setting, and participants: This multicenter retrospective case series study was conducted at 4 medical centers: Mass General Brigham, University of Pennsylvania, Emory University, and Fenway Health. It included patients aged between 12 and 49 years who were receiving masculinizing gender-affirming hormonal therapy and prescribed isotretinoin for the management of acne between August 14, 2015, and September 20, 2023. Exposure: Isotretinoin therapy for the management of acne. Main outcomes and measures: The percentage of patients experiencing improvement or clearance of acne, as well as rates of acne recurrence. Adverse effects and reasons for treatment discontinuation were also evaluated. Results: Among 55 included patients, the mean (SD) age was 25.4 years; 4 (7.3%) were Asian, 2 (3.6%) were Black, 4 (7.2%) were Hispanic, 1 was (1.8%) multiracial, and 36 (65.5%) were
White. The median isotretinoin course duration was 6 months (IQR, 4.0-8.0), with a median cumulative dose of 132.7 mg/kg (IQR, 66.4-168.5); the cumulative dose was less than 90 mg/kg for 16 patients (29.1%) and less than 120 mg/kg for 22 patients (40.0%). Isotretinoin was associated with improvement in 48 patients (87.3%) and clearance in 26 patients (47.3%). For the 33 patients treated with a cumulative dose of 120 mg/kg or more, these rates increased to 32 patients (97.0%) and 21 patients (63.6%), respectively. Among the 20 patients who achieved acne clearance and had any subsequent health care encounters, the risk of recurrence was 20.0% (n = 4). The most frequently reported adverse effects were dryness (n = 44; 80.0%), joint pain (n = 8; 14.5%), and eczema (n = 5; 9.1%). Laboratory abnormalities were uncommon. Reasons for premature treatment discontinuation included cost, pharmacy issues, adverse effects, logistical reasons (scheduling), and wound healing concerns for gender-affirming surgery. Conclusion and relevance: In this case series study of individuals with acne who were receiving masculinizing gender-affirming hormonal therapy and underwent isotretinoin treatment, isotretinoin was often effective and well tolerated. However, premature treatment discontinuation was common and associated with poorer outcomes. Further efforts are needed to understand optimal dosing and treatment barriers to improve outcomes in transgender and gender-diverse individuals receiving masculinizing gender-affirming hormonal therapy.


Background: Patients with hidradenitis suppurativa have substantial unmet clinical needs and scarce therapeutic options. We aimed to assess the efficacy and safety of bimekizumab, a monoclonal IgG1 antibody that selectively inhibits interleukin (IL)-17F and IL-17A, in patients with moderate-to-severe hidradenitis suppurativa. Methods: BE HEARD I and II were two identically designed, 48-week randomized, double-blind, placebo-controlled, multicenter phase 3 trials. Patients aged 18 years or older with moderate-to-severe hidradenitis suppurativa were randomly assigned 2:2:2:1 using interactive response technology (stratified by worst Hurley Stage at baseline and baseline systemic antibiotic use) to receive subcutaneous bimekizumab 320 mg every 2 weeks; bimekizumab 320 mg every 2 weeks to week 16, then every 4 weeks to week 48; bimekizumab 320 mg every 4 weeks to week 48; or placebo to week 16, then bimekizumab 320 mg every 2 weeks. The primary outcome was an hidradenitis suppurativa clinical response of at least 50%, defined as a reduction in total abscess and inflammatory nodule count of at least 50% from baseline with no increase from baseline in abscess or draining tunnel count (HiSCR50) at week 16. Efficacy analyses included all randomly assigned study patients (intention-to-treat population). Safety analyses included all patients who received at least one full or partial dose of study treatment in the safety set, and of bimekizumab in the active-medication set. These trials are registered at ClinicalTrials.gov, NCT04242446 and NCT04242498, and both are completed. Findings: Patients for BE HEARD I were recruited from Feb 19, 2020, to Oct 27, 2021, and 505 patients were enrolled and randomly assigned. Patients for BE HEARD II were recruited from March 2, 2020, to July 28, 2021, and 509 patients were enrolled and randomly assigned. The primary outcome at week 16 was met in the group who received bimekizumab every 2 weeks using modified non-responder imputation; higher responder rates were observed with bimekizumab versus placebo in both trials: 138 (48%) of 289 patients versus 21 (29%) of 72 patients in BE HEARD I (odds ratio [OR] 2.23 [97.5% CI 1.16-4.31]; p=0.0060) and 151 (52%) of 291 patients versus 24 (32%) of 74 patients in BE HEARD II (2.29 [1.22-4.29]; p=0.0032). In BE HEARD II, HiSCR50 was also met in the group who were administered bimekizumab every 4 weeks (77 [54%] of 144 vs 24 [32%] of 74 with placebo; 2.42 [1.22-4.80]; p=0.0038). Responses were maintained or increased to week 48. Serious treatment-emergent adverse events were reported in 40 (8%) patients in BE HEARD I and in 24 (5%) patients in BE HEARD II treated with bimekizumab over 48 weeks. The most frequently reported treatment-emergent adverse events to week 48 were hidradenitis in
both trials, in addition to coronavirus infection and diarrhea in BE HEARD I, and oral candidiasis and headache in BE HEARD II. One death was reported across the two trials, and was due to congestive heart failure in a patient with substantial cardiovascular history treated with bimekizumab every 2 weeks in BE HEARD I (considered unrelated to bimekizumab treatment by the investigator). No new safety signals were observed. Interpretation: Bimekizumab was well tolerated by patients with hidradenitis suppurativa and produced rapid and deep clinically meaningful responses that were maintained up to 48 weeks. Data from these two trials support the use of bimekizumab for the treatment of patients with moderate-to-severe hidradenitis suppurativa.

Topical adapalene gel is an effective and well tolerated acne treatment that transitioned from prescription to over-the-counter (OTC) availability in 2016. Historically, prescription to OTC transitions have lowered costs to patients and payers and increased access to medications. This study used sales and prescriber data to assess access to topical retinoid therapies and their costs in the pre- and post- Rx-to-OTC transition. We demonstrate that the prescription to OTC transition of adapalene gel increased access to this medication, while lowering costs to patients and payers, including Medicare patients. These results provide a necessary call to action for future OTC shifts with other high safety profile, well-tolerated medications in ultimate efforts and hopes of cost savings for patients, insurers, and Medicare within our healthcare industry.

Acne, a chronic inflammatory condition of the pilo-sebaceous unit, often results in scarring with significant aesthetic and psychological consequences for patients. While various treatments exist, including surgical and non-surgical approaches, a combined method has shown promise in effectively addressing acne scarring. Lipofilling, with its adipose-derived stem cells, has emerged as a promising technique for volume restoration and collagen stimulation but may not be suitable for all patients, especially those who prefer non-surgical treatments. Recently, a novel approach involving simultaneous injection of hyaluronic acid (HA) and calcium hydroxyapatite (CaHa) has been introduced in the literature, showing lifting properties, improving dermal thickness and skin texture, and inducing neocollagenesis. HArmonyCa™ (Allergan Aesthetics, an AbbVie Company) is a hybrid filler combining HA (20 mg/mL) and CaHa 55.7% (microspheres 25-45 µm) with 0.3% lidocaine in a 1.25-ml syringe. It has demonstrated volumizing, lifting, and skin-tightening effects, along with increased fullness, elasticity, and turgor of the skin. It has also shown an increase in viscoelasticity, suggesting new collagen formation, making it suitable for treating conditions like solar elastosis. Compared to lipofilling, HArmonyCa™ offers a non-surgical alternative with comparable outcomes and patient satisfaction. These findings have led us to employ this hybrid filler for the treatment of post-acne scarring. We present a case of a 35-year-old woman with post-acne scarring, treated with HArmonyCa™ combined with Volite™ injections, CO2 laser resurfacing, and chemical peels. Significant improvement in skin texture, reduction of shadowing effect, and restoration of tissue elasticity were observed, resulting in high patient satisfaction. While HArmonyCa™ presents a promising solution for post-acne scarring, further research is needed to comprehensively evaluate its efficacy and suitability. This study contributes to the growing body of literature exploring the potential applications of hybrid fillers, particularly in addressing post-acne scarring.

Importance: Inconsistent reporting of outcomes in clinical trials of rosacea is impeding and likely preventing accurate data pooling and meta-analyses. There is a need for standardization of outcomes assessed during intervention trials of rosacea. Objective: To develop a rosacea core outcome set (COS) based on key domains that are globally relevant and applicable to all demographic groups to be used as a minimum list of outcomes for reporting by rosacea clinical trials, and when appropriate, in clinical practice. Evidence review: A systematic literature review of rosacea clinical trials was conducted. Discrete outcomes were extracted and augmented through discussions and focus groups with key stakeholders. The initial list of 192 outcomes was refined to identify 50 unique outcomes that were rated through the Delphi process Round 1 by 88 panelists (63 physicians from 17 countries and 25 patients with rosacea in the US) on 9-point Likert scale. Based on feedback, an additional 11 outcomes were added in Round 2. Outcomes deemed to be critical for inclusion (rated 7-9 by ≥70% of both groups) were discussed in consensus meetings. The outcomes deemed to be most important for inclusion by at least 85% of the participants were incorporated into the final core domain set. Findings: The Delphi process and consensus-building meetings identified a final core set of 8 domains for rosacea clinical trials: ocular signs and symptoms; skin signs of disease; skin symptoms; overall severity; patient satisfaction; quality of life; degree of improvement; and presence and severity of treatment-related adverse events. Recommendations were also made for application in the clinical setting. Conclusions and relevance: This core domain set for rosacea research is now available; its adoption by researchers may improve the usefulness of future trials of rosacea therapies by enabling meta-analyses and other comparisons across studies. This core domain set may also be useful in clinical practice.


Omega-3 fatty acids (ω-3 FAs) exert anti-inflammatory effects, including the downregulation of pro-inflammatory cytokines, eicosanoids, and insulin-like growth factor-1. Therefore, they may improve acne severity as an adjunct treatment. However, there is a paucity of data regarding patients’ existing deficits. The aim of this study was to determine ω-3 FA levels in acne patients in correlation with self-reported dietary preferences and clinical severity. A single-center, cross-sectional study of 100 acne patients was conducted. Patients’ blood parameters, including ω-3 FAs levels, were assessed using the HS-omega-3 Index® in erythrocytes (Omegametrix® GmbH, Martinsried, Germany). Dietary preferences were assessed using a standardized food frequency questionnaire. Clinical dermatologic evaluation was performed using the Investigator Global Assessment (IGA) of acne. The values of the HS-omega-3 Index® were outside the recommended range of 8-11% in 96 patients (mean 5.15%), independent of the clinical severity or affected anatomic sites. A severe deficit (HS-omega-3 Index® < 4%) was seen more commonly in men than in women (p = 0.021). The regular consumption of legumes was significantly associated with higher ω-3 FA levels (p = 0.003), as was oral ω-3 FA supplementation (p = 0.006) and the lack of sunflower oil intake (p = 0.008). This pilot study demonstrated a deficit of ω-3 FAs in a German acne cohort. Higher ω-3 FAs levels were observed in patients with regular legume intake and oral ω-3 FAs supplementation. Further prospective studies are needed to investigate whether the clinical severity of acne improves in patients with normal HS-omega-3 Index®.

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Efficacy of low-level laser versus topical erythromycin 2% in the treatment of inflammatory acne vulgaris.

Introduction: Acne vulgaris is a skin problem affecting many people of different ages. Despite many options that are available for treatment of acne vulgaris, many patients still respond inadequately to treatment. Phototherapy is one of the best acne treatment options. Objectives: It was to compare the efficacy of low-level laser therapy in treatment of inflammatory acne versus topical erythromycin 2% cream. Methods: This study included 40 patients (18 males, 22 females) with different clinical severities of acne vulgaris. All the participants underwent split-face treatment: one side with 8 treatments (twice per week) of a low-level continuous infrared diode laser (808 nm) wavelength and (500 Hz) frequency and the other side with topical erythromycin 2% twice daily (aknemycin cream 2%). Evaluation was done at start of sessions, 2 weeks after the end of sessions and 3 months after stoppage of treatment depending on: photographs, global evaluation of acne scale, and Indian acne association grading. Results: There was improvement of acne lesions on laser side and antibiotic side (assessed as non-inflammatory and inflammatory lesion counts). Laser side showed better results than antibiotic side. Patients were more satisfied with laser treatment due to minimal side effects and less relapse. Conclusions: A series of 8 treatments using low level continuous infrared diode laser represents a cheap, safe and effective non-invasive therapeutic option for acne vulgaris.

Efficacy of autologous platelet rich plasma with subcision vs platelet rich plasma with microneedling in atrophic acne scars: A single-center, prospective, intra-individual split-face comparative study.

Background: Severe post-acne scarring has been implicated as a cause of considerable psychological distress, mainly among adolescents. Subcision and microneedling are cutting-edge treatment options available nowadays. Aim: In this study, we aimed to compare the efficacy of microneedling with platelet-rich plasma (PRP) against subcision with PRP in treating atrophic post-acne scars in a split-face study design. Materials and methods: Fifty patients with atrophic post-acne facial scars were included in this prospective interventional study. Group A included the left side of the face managed by microneedling with PRP and group B included the right side of the face that was subjected to subcision with PRP. Results were assessed based on Goodman and Baron qualitative and quantitative grading. Results: In our study, at the end of the treatment, on the left side, 5 (10%) had 1 grade of improvement showing good response, 35 (70%) had 2 grades of improvement showing very good response, and 10 (20%) had 3 grades of improvement showing excellent response. On the right side, 1 (2%) patient had no improvement in acne grade showing poor response, 9 (18%) had 1 grade of improvement showing good response, 25 (50%) had 2 grades of improvement showing very good response, whereas 15 (30%) had 3 grades of improvement showing excellent response. Conclusion: Till date, apart from ours no other study has compared the two modalities head-to-head with adjuvant PRP in both groups. Although both modalities showed statistically significant results individually, there was no significant difference in qualitative improvement of acne scars between the two groups.

Alterations in alanine transaminase, aspartate transaminase, gamma-glutamyl transpeptidase, and creatine kinase in acne patients undergoing isotretinoin treatment: A retrospective evaluation of laboratory tests.

Background Isotretinoin therapy is a commonly prescribed medication by dermatologists for the treatment of acne. Regular laboratory assessments are recommended throughout the treatment period to detect any potential complications. Objectives This study aims to present the alterations in laboratory parameters throughout the course
of isotretinoin therapy and identify required diagnostic testing. Methods This study involved 136 patients undergoing isotretinoin treatment at doses of 0.3-0.5 mg/kg/day, with ages ranging from 18 to 41 years. A retrospective evaluation was conducted on biomarkers including aspartate aminotransferase (AST), alanine aminotransferase (ALT), gamma-glutamyl transpeptidase (GGT), creatine kinase (CK), triglycerides, total cholesterol, low-density lipoprotein cholesterol (LDL-C), high-density lipoprotein cholesterol (HDL-C), hemoglobin, white blood cells, and thrombocytes. Levels of these parameters were analyzed prior to treatment and at the third month of treatment from the records of patients and the data were compared statistically. Moreover, the parameters of ALT, AST, CK, and GGT were graded objectively, and any alterations were noted in the patients. Results The levels of ALT, AST and GGT, along with triglycerides, total cholesterol, LDL-C, and thrombocyte levels showed significant elevation (p=0.001, p<0.001, p<0.001, p=0.001, p<0.001, p<0.001, and p=0.003, respectively). A significant decrease in HDL-C with hemoglobin was also noted (p=0.022, p=0.006, respectively). One patient (0.73%) exhibited grade 1 elevations in ALT, AST, and CK. One patient (0.73%) displayed grade 1 elevations in ALT and AST. One patient (0.73%) exhibited grade 1 elevations in AST and CK, while another patient (0.73%) had grade 1 elevation in AST and grade 3 elevation in CK. Furthermore, one patient (0.73%) had a grade 1 elevation exclusively in ALT, two patients (1.47%) had a grade 1 elevation exclusively in AST, and six patients (4.41%) exhibited a grade 1 elevation in CK only. No grade changes were observed in the GGT levels in the patients. Conclusion During isotretinoin treatment, changes in ALT and AST levels were more frequently associated with the muscle enzyme CK, while GGT levels remained unaffected. Therefore, GGT can be considered a reliable parameter for evaluating liver function in patients undergoing isotretinoin treatment.

Clinical Reviews


Hidradenitis suppurativa (HS) is an inflammatory follicular dermatological condition that typically affects the intertriginous and anogenital regions of the apocrine gland-bearing skin. The management of this chronic and recurring disease necessitates a combination of lifestyle changes, medication, and surgical approaches to achieve the best possible outcomes. While medical treatments are recommended for this multimodal disease, surgical therapy, which is the gold standard of treatment for HS, has proven to be the most effective treatment because it provides long-lasting local disease control, reduces the recurrence of lesions, and ensures complete healing of lesions. In the last decade, there has been exponential growth in research into various surgical techniques and reconstructive care, enabling patients to have more surgical options. There is a wide range of surgical management procedures available, such as incision and drainage, deroofing, excisional surgery, carbon dioxide laser therapy, and skin tissue-sparing excision with electrosurgical peeling. Among these surgical procedures, wide surgical excision is the best option since it can eradicate all the affected lesions. Meanwhile, the preferred approach to reconstruction at various anatomical locations remains debatable. Here, we review a variety of surgical treatments and reconstructive techniques for HS, particularly various flap techniques for the axillary, gluteal, and inframammary regions.
Bioactive compounds from medicinal plants as potential adjuvants in the treatment of mild acne vulgaris.

In recent years, there has been a growing interest in the use of medicinal plants and phytochemicals as potential treatments for acne vulgaris. This condition, characterized by chronic inflammation, predominantly affects adolescents and young adults. Conventional treatment typically targets the key factors contributing to its development: the proliferation of Cutibacterium acnes and the associated inflammation. However, these treatments often involve the use of potent drugs. As a result, the exploration of herbal medicine as a complementary approach has emerged as a promising strategy. By harnessing the therapeutic properties of medicinal plants and phytochemicals, it may be possible to address acne vulgaris while minimizing the reliance on strong drugs. This approach not only offers potential benefits for individuals seeking alternative treatments but also underscores the importance of natural remedies of plant origin in dermatological care. The primary aim of this study was to assess the antimicrobial, antioxidant, and anti-inflammatory properties of plants and their phytochemical constituents in the management of mild acne vulgaris. A comprehensive search of scientific databases was conducted from 2018 to September 2023. The findings of this review suggest that medicinal plants and their phytochemical components hold promise as treatments for mild acne vulgaris. However, it is crucial to note that further research employing high-quality evidence and standardized methodologies is essential to substantiate their efficacy and safety profiles.

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Acne vulgaris is a common dermatological condition that can present across different ages but predominantly affects adolescents and young adults. Characterized by various lesion types, the pathogenesis of acne is complex, involving genetic, hormonal, microbial, and inflammatory factors. This review comprehensively addresses current and emerging acne management strategies, emphasizing both topical and systemic treatments, procedural therapies, and dietary modifications. Key topical agents include retinoids, benzoyl peroxide, antibiotics, and other specialized compounds. Systemic options like antibiotics, hormonal therapies, and retinoids offer significant therapeutic benefits, particularly for moderate to severe cases. Procedural treatments such as laser devices, photodynamic therapy, chemical peels, and intralesional injections present viable alternatives for reducing acne symptoms and scarring. Emerging therapies focus on novel biologics, bacteriophages, probiotics, and peptides, providing promising future options. This review underscores the importance of personalized approaches to treatment due to the multifaceted nature of acne, highlighting the potential of innovative therapies for improving patient outcomes.

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Acne vulgaris is a widespread a chronic inflammatory dermatosis that affects millions of people around the world, which has a significant influence on patients' standard of living. The progression of this dermatosis results in the appearance of inflammatory and non-inflammatory changes, and, in severe cases, disfiguring scars and hyperpigmentation. The aetiopathogenesis of acne is complex. It involves a complex interaction of many different factors, both endo- and exogenous in their effect on the hair and sebaceous unit. Genetic predisposition, hormones, the skin and gut microbiome, psychological stress, air pollutants, aggressive facial products, and certain medications are cited as factors influencing acne formation. The link between nutrition and acne is extensively debated for many years and is still relatively controversial. Diet is commonly recognized to have a direct relationship with certain
biochemical markers and the transcription of genes related to sebaceous gland function, and the proliferation of bacteria and inflammation that encourage the progression of the disease. In this review, the authors take a closer look at the existing scientific reports on the involvement of nutrition in the development of acne vulgaris.


Introduction: Acne vulgaris, a chronic inflammatory condition, is associated with significant physical and psychosocial burden. Since 2019, three new topical agents for acne vulgaris have been approved in the USA and Canada. We performed a systematic review and meta-analysis to compare the efficacy between twice-daily clascoterone cream 1%, once-daily trifarotene 0.005% cream, and once-daily tazarotene 0.045% lotion for acne treatment. Methods: Randomized controlled trials (RCTs) comparing clascoterone, trifarotene, or tazarotene with vehicle in patients with moderate-to-severe acne were identified from a systematic literature review and included in a meta-analysis. Primary outcomes were percentage reduction in inflammatory and noninflammatory lesion count (ILC and NILC, respectively) and treatment success rate (≥ 2-grade improvement in Investigator’s Global Assessment or Evaluator’s Global Severity Score and a rating of clear or almost clear) at week 12. DerSimonian and Laird random-effects models with the inverse variance method were used to calculate the mean difference (MD) for percentage reduction in ILC and NILC, and odds ratios (ORs) for the rate of treatment success. Results: Six Phase 3 RCTs were included in the meta-analysis. The analyses showed robust differences favoring the interventions for ILC (MD: - 11.5; 95% confidence interval [CI]: - 14.39, - 8.62), NILC (MD: - 12.25; 95% CI: - 15.21, - 9.29), and treatment success rate (OR: 2.14; 95% CI: 1.81, 2.53). No differences were observed between clascoterone, trifarotene, and tazarotene for ILC (MD: - 12.8, - 11.2, and - 10.1, respectively), NILC (MD: - 11.6, - 13.9, and - 12.8, respectively), or treatment success rate (OR: 2.9, 1.9, and 2.1, respectively (all P > 0.05). Conclusion: No significant differences in efficacy were observed between clascoterone, trifarotene, and tazarotene after 12 weeks of treatment in patients with moderate-to-severe acne. Differences in application frequency and safety profile should also be taken into consideration when making treatment decisions.


Background: To date, a consensus on the relative efficacy and safety of CO2 fractional laser versus erbium-doped yttrium aluminum garnet (Er:YAG) fractional laser treatments for atrophic acne scars has not been reached. This meta-analysis aims to systematically assess and compare their effectiveness and safety in clinical practice. Methods: For this meta-analysis, we conducted comprehensive searches in Pubmed, Embase, and Cochrane databases, covering publications from their inception up to August 2023. Our focus was on studies comparing fractional CO2 laser with Er:YAG fractional laser treatments for atrophic acne scars. We excluded duplicate publications, research lacking full-text access, incomplete data, or cases where data extraction was not feasible. Additionally, animal experiments, reviews, and systematic reviews were not considered. Data analysis was performed using STATA 15.1. Results: Eight studies (seven randomized controlled trials (RCTs) and a retrospective study) were included in this meta-analysis. The sample size ranged from 28 to 106 with a total of 418 patients, including 210 in the CO2 fractional group and 208 in Er:YAG fractional group. The pooled results showed that the effective rate of CO2 fractional laser
in treating atrophic acne scar was significantly higher than that of Er:YAG fractional laser (OR = 1.81, 95% CI: 1.08-3.01) and the downtime of CO2 fractional laser in treating atrophic acne scar was significantly shorter than that of Er:YAG fractional laser (Weighted Mean Difference (WMD) = -2.11, 95% CI: -3.11 to -1.10). In addition, VAS of CO2 fractional laser in treating atrophic acne scar was significantly higher than that of Er:YAG fractional laser (WMD = 1.77, 95% CI: 1.32-2.21) and the duration of erythema of CO2 fractional laser in treating atrophic acne scar was significantly longer than that of Er:YAG fractional laser (WMD = 1.85, 95% CI: 1.63-2.07). However, there was no significant difference in the duration of pain and incidence of PIH between CO2 fractional laser and of Er:YAG fractional laser. Conclusion: When it comes to treating atrophic acne scars, CO2 fractional laser demonstrates superior efficacy and leads to shorter downtime. However, it is important to note that CO2 fractional laser treatments tend to result in higher pain intensity and may carry a higher risk of post-treatment pigmentation compared to Er:YAG fractional laser procedures.

Efficacy of topical treatments in the management of mild-to-moderate acne vulgaris: A systematic review.
Acne vulgaris, commonly called acne, is a skin condition affecting many individuals globally. It is a chronic condition characterized by developing pimples, blackheads (open comedones), whiteheads (closed comedones), and other skin lesions. Acne usually appears on the face, neck, chest, and back. It is commonly associated with puberty and adolescence but can also affect adults of all ages. Acne can be very frustrating and embarrassing, leading to low self-esteem and social isolation. The condition arises from various factors, including clogged pores, excessive sebum production, bacteria, and inflammation. This systematic review assesses the effectiveness of topical antibiotics, retinoids, niacinamide, azelaic acid, and clascoterone in treating mild-to-moderate acne vulgaris. A comprehensive search across PubMed, PubMed Central, and Google Scholar yielded 10 articles focused on topical antibiotics, with findings from 198 subjects indicating the efficacy of doxycycline against inflammatory lesions. Retinoids, such as tretinoin and adapalene, significantly improved both lesion types (open and closed comedones). Niacinamide,
examined in a randomized controlled trial involving 41 participants, reduced sebum production. Another study with 60 patients revealed that azelaic acid effectively reduced both inflammatory and non-inflammatory lesions. Clascoterone emerged as a promising antiandrogenic treatment, supported by a randomized controlled trial involving 4,440 patients. It is essential that individualized therapy, incorporating patient preferences and considering adverse effects, is emphasized for optimizing acne management.


Acne scars pose a significant cosmetic concern and can have a profound impact on individuals' self-esteem and quality of life. Laser therapy has emerged as a promising treatment modality for improving the appearance of acne scars by promoting collagen remodeling and tissue regeneration. This comprehensive review compares two commonly used laser modalities, CO2 and erbium-doped yttrium aluminum garnet (Er:YAG), focusing on their mechanisms of action, efficacy, safety profiles, and patient outcomes. While CO2 lasers offer deeper tissue penetration and the potential for more significant improvement in severe acne scars, Er:YAG lasers provide a gentler approach with a lower risk of post-inflammatory hyperpigmentation. Recommendations for clinical practice include tailoring treatment approaches to individual patient characteristics, educating patients about treatment expectations and post-treatment care, considering combination therapies for enhanced outcomes, and implementing regular follow-up care. Areas for further research include long-term outcome studies, investigation of laser therapy in ethnically diverse populations, exploration of combination therapies, and evaluation of emerging laser technologies. This review aims to provide clinicians and patients with valuable insights to inform treatment decisions and optimize outcomes in managing acne scars.