AARS HOT TOPICS MEMBER NEWSLETTER

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American Acne and Rosacea Society
201 Claremont Avenue • Montclair, NJ 07042
(888) 744-DERM (3376) • info@aarsmember.org
www.acneandrosacea.org

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TABLE OF CONTENTS

Industry News

Aczone 7.5% gel now approved down to age 9. September 11, 2019. DermWire, Practical Dermatology. https://practicaldermatology.com/news/aczone-75-gel-now-approved-down-to-age-9?c4src=news-landing:feed

The FDA has approved the expanded indication for Almirall's Aczone® 7.5% Gel to include patients aged 9-11. Aczone 7.5% Gel was previously approved in February 2016 to treat inflammatory and non-inflammatory acne in patients 12 and older. The expanded approval was based on data from an open-label safety study to assess safety, pharmacokinetics, and treatment effect of Aczone Gel, 7.5% in 101 patients 9 to 11 years of age with acne vulgaris. Aczone 7.5% Gel was determined to be safe and effective in this patient population. "While acne may be commonly thought of as an issue for teenagers, according to treatment guidelines, acne is also prevalent in children under the age of 12," explains clinical study investigator and pediatric dermatologist, Adelaide Hebert, MD, of McGovern Medical School at UTHealth Houston. "Research revealed that treatment options like Aczone® 7.5% Gel can be used in these younger individuals who are living with the detrimental effects of acne." Aczone 7.5% Gel is one of thirteen branded products marketed in the US by Almirall, a global family-owned company focused on medical dermatology and skin health. Ron Menezes, President and General Manager at Almirall, LLC, says, "We are very pleased to announce this expanded indication for Aczone 7.5% Gel which further demonstrates Almirall's commitment to our patients and to continuous innovation in medical dermatology."

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New Medical Research

Selective sebaceous gland electrothermolysis using a single microneedle radiofrequency device for acne patients: A prospective randomized controlled study. Ahn GR, Kim JM, Park SJ, et al. Lasers Surg Med. 2019 Sep 10. doi: 10.1002/lsm.23152. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31502662

Background and objectives: The selective electrothermolysis of the sebaceous glands was suggested as a novel therapeutic option for facial acne. However, there has been no randomized controlled trial to evaluate the effectiveness and safety of the monopolar radiofrequency (RF) device using single microneedle with proximal insulation. The objective of the study was to evaluate the efficacy and tolerability of intralesional electrothermolysis using monopolar RF device and proximally-insulated single microneedle in acne patients. Study design/materials and methods: The prospective randomized controlled clinical trial was performed to treat moderate-to-severe facial acne. Subjects randomized to the treatment group received three treatments at 4-week intervals with an RF device, whereas the control group received micro-needling and extraction. For efficacy evaluation, reduction rate of acne lesions were evaluated by two independent physicians. Results: Sixty-three patients completed the study and the results showed statistically significant improvement of inflammatory acne at 12 weeks. The number of inflammatory lesions was significantly reduced at 12 weeks (20.86 vs. -5.13; P = 0.03) compared with controls. Conclusions: Selective sebaceous gland electrothermolysis can be a safe and effective method of achieving consistent improvement in acne.

New topical retinoid for acne achieves efficacy endpoints. Lisette Hilton. Practical Dermatology, September 10, 2019. https://www.dermatologytimes.com/acne/new-topical-retinoid-acne-achieves-efficacy-endpoints?rememberme=1&elq_mid=8614&elq_cid=895859&GUID=8314888D-05AB-4533-940F-FFBC944DD372

Two phase three studies suggest once daily trifarotene 50 µg/g cream effectively and safely treats moderate facial and truncal acne. Researchers reported on both 12-week double-blind, randomized, vehicle-controlled studies on people ages 9 years and older in a paper published June 2019 in the Journal of the American Academy of Dermatology (JAAD).1 The studies, called PERFECT 1 and PERFECT 2, included 200 sites in the United States, Canada, Europe and Russia and enrolled 2,420 patients with moderate facial and truncal acne who were treated with either trifarotene or vehicle. Trifarotene (Galderma) is a retinoid receptor agonist that selectively targets retinoic acid receptor gamma (RAR-γ), which distinguishes it from other topical retinoids that target both retinoic acid receptor beta (RARβ) and RARγ, according to the paper. "Trifarotene is pharmacokinetically stable in keratinocytes but is rapidly metabolized in hepatic microsomes, predicting a favorable safety profile; in addition, it has comedolytic, anti-inflammatory and anti-pigmenting properties," the authors write. The study design stands out because, while the pathophysiology and presentation of facial and truncal acne are thought to be similar, acne treatment options have not been vigorously studied on truncal acne, the authors write. The primary efficacy endpoints of the studies were Investigator's Global Assessment (IGA) success rate on the face, of clear/almost clear and at least a two-grade improvement from baseline at week 12, and absolute change from baseline in facial inflammatory and non-inflammatory lesion counts from baseline to week 12. Secondary efficacy endpoints were Physician Global Assessment (PGA) success rate on the trunk, with clear/almost clear and at least a two-grade improvement from baseline, at week 12, and absolute change in truncal inflammatory and non-inflammatory lesion counts from baseline to week 12, according to a Galderma press release. Researchers in both studies reported that trifarotene was superior to vehicle in all primary and secondary efficacy assessments. It was superior to vehicle in reducing inflammatory and noninflammatory lesion counts on the face and trunk. Trifarotene 50 µg/g cream worked quickly, according to the study, significantly reducing inflammatory and noninflammatory lesion counts in as little as one week of treatment on the face and two weeks of treatment on the trunk. Treatment with the investigational cream was relatively tolerable, manageable and consistent with topical retinoid dermatitis. Adverse events led to 1.9% of patients in the PERFECT 1 trial and 1.2% of those in the PERFECT 2 trial to discontinue trifarotene treatment. No patients in the vehicle groups discontinued due to adverse events. "Trifarotene represents a novel topical retinoid with demonstrated efficacy in patients with moderate facial or truncal acne," says Diane Thiboutot, M.D., an investigator in the phase 3 clinical trials for trifarotene and professor of dermatology at Penn State College of Medicine, Hershey, Pa. Dr. Thiboutot says she thinks trifarotene's role in acne treatment would be for patients with moderate acne comprised of either comedones with papules, pustules or both. It's not so much that trifarotene would replace current acne treatments because there's so much variability to patient response from treatment, she says. "Rather I view [trifarotene] as an effective option for patients that haven't responded to other topical retinoids. I also view it as an alternative to topical antibiotics and in some cases an alternative to oral antibiotics," Dr. Thiboutot says. Like with other retinoids, clinicians prescribing trifarotene should educate patients about typical topical retinoid side effects. This includes educating patients about the proper amount of medication to use, how to apply it and how to incorporate the use of moisturizers into their skincare regimens, she says. Trifarotene is in clinical development for the treatment of moderate facial and truncal acne, including large body surface areas, according to a Galderma press release.

Characterization and analysis of the skin microbiota in rosacea: A case-control study. Rainer BM, Thompson KG, Antonescu C, et al. Am J Clin Dermatol. 2019 Sep 9. doi: 10.1007/s40257-019-00471-5. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31502207

Background: The efficacy of antibiotics in rosacea treatment suggests a role for microorganisms in its pathophysiology. Growing concern over the adverse effects of antibiotic use presents a need for targeted antimicrobial treatment in rosacea. Objective: We performed a case-control study to investigate the skin microbiota in patients with rosacea compared to controls matched by age, sex, and race. Methods: Nineteen participants with rosacea, erythematotelangiectatic, papulopustular, or both, were matched to 19 rosacea-free controls. DNA was extracted from skin swabs of the nose and bilateral cheeks of participants. Sequencing of the V3V4 region of the bacterial 16S ribosomal RNA gene was performed using Illumina MiSeq and analyzed using QIIME/MetaStats 2.0 software. Results: Compared with controls, skin microbiota in erythematotelangiectatic rosacea was depleted in Roseomonas mucosa ($p = 0.004$). Papulopustular rosacea was enriched in Campylobacter ureolyticus ($p = 0.001$), Corynebacterium kroppenstedtii ($p = 0.008$), and the oral flora Prevotella intermedia ($p = 0.001$). The highest relative abundance of C. kroppenstedtii was observed in patients with both erythematotelangiectatic and papulopustular rosacea (19.2%), followed by papulopustular (5.06%) and erythematotelangiectatic (1.21%) rosacea. C. kroppenstedtii was also associated with more extensive disease, with the highest relative abundance in rosacea affecting both the cheeks and nose (2.82%), followed by rosacea sparing the nose (1.93%), and controls (0.19%). Conclusions: The skin microbiota in individuals with rosacea displays changes from that of healthy skin, suggesting that further studies examining a potential role for the skin microbiota in the pathophysiology of rosacea may be warranted.

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Acne beliefs, treatment-seeking behaviors, information media usage, and impact on daily living activities of Thai acne patients. Wisuthsarewong W, Nitiyarom R, Kanchanapenkul D, et al. J Cosmet Dermatol. 2019 Sep 9. doi: 10.1111/jocd.13132. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31498553

Background: Acne is a very common skin disease. Information on it is readily available and accessed by most patients. Nevertheless, they tend to have misunderstandings about the disease. Aims: This study investigated Thai acne patients' perceptions of, and beliefs, about acne; their treatment-seeking behaviors; and the data sources available to them. Patients/methods: A cross-sectional, questionnaire-based study was conducted among teenage and adult acne patients at the skin clinics of the Department of Dermatology and the Department of Pediatrics, Siriraj Hospital, January-December 2017. Results: A total of 330 patients with a mean age of 23.89 ± 7.19 years (range: 9-51 years) were enrolled. Hormonal factors were the most common determinant thought to worsen acne (80.6%), followed by dirt (72.4%), inadequate sleep (65.5%), cosmetics (58.2%), and stress (55.8%), whereas frequent facial washing and exercise were the least common (4.8% each). The most common information source utilized by patients was friends (40.9%), followed by digital media (36.8%). Both males and females felt their acne greatly affected their quality of life. Before visiting the hospital, most patients used vitamin supplements and over-the-counter drugs as treatment. Conclusions: Some patients had good conceptions of certain aspects of acne, such as the influence of hormones or food, whereas others had misunderstandings about the effects of poor hygiene on acne. Friends and websites were the most common information resources exploited by patients. Acne substantially impaired the quality of patients' lives.

Microneedling (Dermapen) and Jessner's solution peeling in treatment of atrophic acne scars: A comparative randomized clinical study. Ali B, ElMahdy N, Elfar NN. J Cosmet Laser Ther. 2019 Sep 8:1-7. doi: 10.1080/14764172.2019.1661490. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31495242

Background: Atrophic acne scarring is a permanent complication of acne vulgaris. It has a high prevalence and

significant impact on the quality of life. We compared between the efficacy and safety of microneedling (dermapen) and superficial chemical peeling by Jessner's solution for treatment of atrophic acne scars. Materials/Methods: Sixty patients who had atrophic acne scars were divided randomizely into three groups. Group I included 20 patients and were treated with Dermapen, group II included 20 patients and were treated with Jessner's solution peeling, and group III included 20 patients and were treated with Dermapen and Jessner's solution. Clinical assessment of patients was done according to Goodman and Baron scarring global quantitative grading system before and after the end of treatment. Results: There was a significant clinical improvement of acne scars in group III than in group I and group II, and boxcar scars showed the best clinical improvement in all studied groups. There was statistically negative correlation between the degree of improvement of acne scars and duration of lesions and age of patients. Conclusions: The combined technique (Dermapen and Jessner's solution peeling) showed the best clinical improvement with the least number of sessions followed by the microneedling technique and lastly the Jessner's solution peeling for treating atrophic acne scars.

Treatment of rosacea and demodicosis with benzyl benzoate: Effects of different doses on demodex density and clinical symptoms. Forton FMN, De Maertelaer V. J Eur Acad Dermatol Venereol. 2019 Sep 7. doi: 10.1111/jdv.15938. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31494991

Background: Patients with rosacea or demodicosis have high facial skin Demodex densities (Dds). Topical ivermectin, benzyl benzoate (BB) and crotamiton have been shown to decrease Dds in vivo, but there are few data on the clinical and acaricidal effects of BB among patients with rosacea. Objective: To evaluate the impact of topical BB (+crotamiton) treatment on Dds and clinical symptoms of rosacea and demodicosis and compare three BB treatment regimens. Methods: In this retrospective observational study, 394 patients (117 with rosacea, 277 with demodicosis) were included. Three BB (+crotamiton) treatment regimens were compared: 12% once daily, 12% twice daily and 20% once daily. Dds were measured using two consecutive standardized skin surface biopsies (superficial [SSSB1] and deep [SSSB2]) before treatment and at the first follow-up. Symptoms were evaluated using investigator global assessment. Treatment was considered effective if the Dd had normalized (SSSB1 ≤5 D/cm2 AND SSSB2 ≤10 D/cm2) or symptoms had cleared and curative if the Dd had normalized and symptoms had cleared. Results: At an average of 2.7 months after treatment start, the total Dd (SSSB1+2) had decreased by 72.4±2.6% from the initial value across the whole cohort. Dds had normalized in 139 patients (35%) and symptoms had cleared in 122 (31%). Treatment was effective in 183 (46%) patients and curative in 78 (20%). Compliance was good: 77% of patients correctly followed treatment instructions. Results were similar in patients with rosacea and those with demodicosis. The 12% once daily regimen was less effective than the other doses and had poorer compliance than the 12% twice daily regimen. Conclusion: Topical treatment with BB (+crotamiton) may be an effective treatment for rosacea as well as demodicosis, indirectly supporting a key role of the mite in the pathophysiology of rosacea. The two higher dose regimens were more effective than the lower dose.

Lipidomic analysis of facial skin surface lipid reveals the altered lipid profile in infancy acne. Zhou M, Wang H, Yang M, et al. Br J Dermatol. 2019 Sep 5. doi: 10.1111/bjd.18474. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31486074

Infancy acne (IA) can be easy to diagnose yet difficult to evaluate and manage. Evidence-based treatment is inferred from studies in older patients, but it raises relevant safety concerns in children. Quantitative and qualitative modifications in skin surface lipid (SSL) are believed to be among the most critical factors in the pathogenesis of acne. But there is no study about IA at molecular levels, which would be an important factor in the pathogenesis. In this

study, a powerful analytical technique, ultra-performance liquid chromatography-quadrupole time of flight-mass spectrometry (UPLC-QTOF-MS), and multivariate data analysis were used to investigate SSL variations in non-lesional skin of acne.

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Efficacy and safety of ablative resurfacing with a high-energy 1,064 Nd-YAG picosecond-domain laser for the treatment of facial acne scars in Asians. Dai YX, Chuang YY, Chen PY, Chen CC. Lasers Surg Med. 2019 Sep 4. doi: 10.1002/lsm.23151. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31483065

Objectives: There have been few studies regarding the use of a picosecond-domain laser for acne scars in Asians. This prospective study evaluated the efficacy and safety of a high-energy 1,064 nm Nd:YAG picosecond-domain laser for ablation and resurfacing of facial acne scars in Asians. Methods: Subjects were treated with a 1,064 nm picosecond laser (8 mm spot, 0.7-1.0 J/cm2 , 5 Hz) every 4 weeks for three sessions. Two blinded dermatologists evaluated the pre- and 3-month post-treatment images with a 10-point improvement scale. Subject pain, global improvement, and satisfaction were also assessed. The Facial Acne Scar Quality of Life (FASQoL) questionnaire was used to evaluate the subjects' quality of life. Results: Twenty subjects aged 18-50 years with Fitzpatrick skin type III-V were enrolled. The median dermatologist-rated improvement score was 3 out of 10. Subjects were satisfied to very satisfied with global improvement. Subjects' quality of life significantly improved with a median FASQoL score of 10 after treatment compared with 21 before treatment ($P < 0.001$). Adverse effects were limited to erythema, pain, and edema without postinflammatory hyperpigmentation. Conclusions: The 1,064 nm picosecond-domain laser with ablative resurfacing parameters is safe and effective for the treatment of acne scars in Asians.

Development of novel topical cosmeceutical formulations from nigella sativa l. with antimicrobial activity against acne-causing microorganisms. Nawarathne NW, Wijesekera K, Wijayaratne WMDGB, Napagoda M. ScientificWorldJournal. 2019 Aug 14;2019:5985207. doi: 10.1155/2019/5985207. eCollection 2019. https://www.ncbi.nlm.nih.gov/pubmed/31485198

Acne vulgaris occurs due to the inflammation of sebaceous follicles in the skin. It is triggered by the activity of some bacterial species like Propionibacterium acnes, Staphylococcus aureus, and Staphylococcus epidermidis. Acquisition of antibiotic resistance by these microorganisms and adverse effects associated with the current treatment regimens necessitate the introduction of novel therapeutic agents for acne vulgaris. Thus, this study was undertaken to develop novel gel formulations from seeds of Nigella sativa L. and to evaluate the antibacterial potential against some acne-causing bacterial species. The antibacterial activity of seed extracts was initially screened against S. aureus and P. acnes by the agar well diffusion method. Thereafter, topical gels were formulated incorporating the ethyl acetate extract of seeds of N. sativa at three different concentrations. These topical formulations were subjected to antimicrobial activity studies while the stability was evaluated over a period of 30 days. All three formulations were capable of inhibiting the growth of S. aureus and P. acnes, with the highest antibacterial activity in the formulation comprising 15% of the seed extract. Interestingly, the antibacterial potency of this formulation against S. aureus surpassed the commercial synthetic product used as the positive control. Moreover, any alteration in color, odor, homogeneity, washability, consistency, and pH was not observed while the antibacterial potency was also retained during the storage period. The potent antibacterial activity in topical gel formulations developed from the ethyl acetate extract of N. sativa signposts their suitability as alternatives to existing antiacne agents in the management of acne vulgaris.

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Clinical Reviews

A meta-analysis of the evidence for assisted therapy with platelet-rich plasma for atrophic acne scars. Hsieh TS, Chiu WK, Yang TF, et al. Aesthetic Plast Surg. 2019 Sep 10. doi: 10.1007/s00266-019-01471-w. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31506783

Background: A number of studies have investigated the role of platelet-rich plasma (PRP) as an assisted therapy for atrophic acne scars. However, the results are diverse, and no up-to-date meta-analysis was found that exclusively examined atrophic acne scar treatment. Objectives: To perform a meta-analysis to assess improvements in the side effects of PRP and the effect of assisted therapy for atrophic acne scars. Methods: This study followed PRISMA guidelines. A comprehensive search of the literature was carried out in September 2018 using the electronic databases of PubMed, EMBASE, MEDLINE, and the Cochrane Library. Results: Seven articles were included in this review. All of the studies published utilized PRP as additive therapy. The major therapies included fractional carbon laser therapy and microneedling. Five studies (249 participants) reported four degrees of improvement on an improvement scale (degrees 3 and 4 were considered improvement in this analysis). Four studies (200 participants) reported mean improvement scores. A significantly higher degree of improvement was shown in the PRP group compared to the control group (OR = 8.19; 95% CI 4.32-15.52; $p < 0.00001$), as well as better mean improvement score (WMD = 23.73; 95% CI 18.60-28.87; $p < 0.00001$). Substantial heterogeneity was seen in the degree of improvement ($I2 = 54\%$ $p = 0.07$) and the mean improvement score ($I2 = 75\%$; $p = 0.008$). There were overall fewer monitored side effects, including erythema and edema (in days), in the PRP groups; however, no significance was found. Conclusions: This review shows that PRP is a useful assisted therapy for atrophic acne scars, which can achieve better improvement. Level of evidence III: This journal requires that authors assign a level of evidence to each article. For a full description of these Evidence-Based Medicine ratings, please refer to the Table of Contents or the online Instructions to Authors www.springer.com/00266.

Abnormal liver function tests in acne patients receiving isotretinoin. Pona A, Cardenas-de la Garza JA, Haidari W, et al. J Dermatolog Treat. 2019 Sep 9:1-4. doi: 10.1080/09546634.2019.1662882. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31498706

Background: Isotretinoin is an efficacious treatment option for severe acne. Although isotretinoin often causes mild liver enzyme elevation, how acne patients should be monitored on isotretinoin therapy is not well characterized. Objective: The purpose of this study was to assess the management and clinical outcome of acne patients with abnormal aspartate transaminase (AST) and alanine aminotransferase (ALT) when receiving isotretinoin. Methods: A retrospective chart review was conducted in acne subjects with abnormal AST and ALT levels receiving isotretinoin. Abnormal liver enzymes were graded using the Common Terminology Criteria for Adverse Events version 5. Results: Of 108 subjects with abnormal liver enzymes, 79 subjects were on isotretinoin 80 mg and 23 subjects were on isotretinoin 40 mg. Most abnormalities were during Month 1 of therapy (48). Of the 122 abnormal Grade 1 AST elevations, 40 normalized, 38 remained in Grade 1, and 1 increased into Grade 2 when a healthcare provider maintained the isotretinoin dose. Of the 102 abnormal Grade 1 ALT levels managed by maintaining the isotretinoin dose, 31 normalized and 38 remained persistently elevated. Conclusion: Most mild elevations of isotretinoin therapy do not worsen. Acne patients with isotretinoin may not need continued testing when experiencing low-grade liver enzyme abnormalities.

The efficacy of fractional ablative carbon dioxide (CO2) laser combined with other therapies in acne scars. Mu YZ, Jiang L, Yang H. Dermatol Ther. 2019 Sep 8:e13084. doi: 10.1111/dth.13084. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31496020

Fractional ablative carbon dioxide laser resurfacing is a frontline treatment for acne scars. It creates multiple microscopic treatment zones (MTZs) to accelerate the collagen formation and the healing process of re-epithelialization, according the principle of Fractional Photothermolysis (FP). At present, the fractional CO2 laser with a wavelength of 10,600 nm is commonly used in the field of cosmetology and clinical therapies for various skin diseases, and it can effectively improve skin regeneration and scar formation. To obtain satisfactory results for patients with scars, repetitive fractional laser therapy is always required; however, this treatment could easily lead to complications such as erythema, edema, infection, and post-inflammatory hyperpigmentation. In addition, different types of acne scars may have different responses to laser, further limiting its widespread use. In recent studies both home and abroad, a new pattern of fractional laser combined with other therapies to improve acne scar has been recommended to guarantee the safety and effective of treatment. This article reviews the recent pertinent literatures and summarized the progression of ablative fractional CO2 laser combined with other therapies on acne scar.

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The safe management of acne vulgaris in lupus erythematosus: A systematic review with evidence-based treatment recommendations. Forouzandeh M, Maderal AD. Am J Clin Dermatol. 2019 Sep 7. doi: 10.1007/s40257-019-00469-z. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31494859

Background: To date, there have been no studies that have specifically investigated which medications can and cannot be safely used to treat acne vulgaris in patients who have lupus erythematosus (LE). These patients require a highly individualized treatment approach, as the use of certain acne medications may exacerbate LE symptomology, such as photosensitivity and hypercoagulability. Objective: In this systematic review, we examine safety outcomes associated with commonly prescribed oral acne medications, specifically in the context of LE. Methods: A literature search, conducted on PubMed/MEDLINE, revealed 146 studies, of which 13 met the criteria. We assigned a level of evidence to each study and sought to determine evidence-based recommendations for each class of drug; each recommendation was then assigned a corresponding grade. Results: There were very few high-quality studies available on this topic. Although we determined recommendations based on the existing literature, the grading was occasionally unfavorable due to the low-quality nature of the evidence supporting the recommendation. However, our recommendation against the use of combined oral contraceptive pills and in favor of spironolactone for the treatment of acne, in the setting of LE, received a satisfactory grading (grade A). Conclusion: While no definitive recommendations for the treatment of acne in LE can be made based on the existing quality and quantity of studies available, this article aims to provide a comprehensive overview and analysis of oral acne medication safety in patients with LE, while emphasizing the immense need for higher quality studies and distinct acne treatment guidelines for this vulnerable patient population.

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The emerging utility of the cutaneous microbiome in the treatment of acne and atopic dermatitis. Woo TE, Sibley CD. J Am Acad Dermatol. 2019 Sep 6. pii: S0190-9622(19)32686-6. doi: 10.1016/j.jaad.2019.08.078. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31499149

The cutaneous microbiome has potential for therapeutic intervention in inflammatory-driven skin disease. Research into atopic dermatitis and acne vulgaris has highlighted the importance of the skin microbiota in disease pathogenesis, prognostication and targets for therapeutic intervention. Current management of these conditions aims to control the inflammatory response thought to be associated with specific pathogens using both topical and systemic antimicrobials. However, commensal microbiota found naturally on the skin have been shown to play an important role in the resolution of disease flares. While often efficacious, the mainstay treatments are not without side effects and raise concerns regarding the development of antimicrobial resistance. Augmentation of microbial communities with targeted biotherapy could revolutionize the way inflammatory conditions of the skin are treated. Herein, we review evidence for the role of the cutaneous microbiome in atopic dermatitis and acne vulgaris and suggest that these conditions highlight the potential for microbiome-directed therapeutics.

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Severe acne and metabolic syndrome: A possible correlation. Biagi LG, Sañudo A, Bagatin E. Dermatology. 2019 Sep 4:1-7. doi: 10.1159/000501986. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31484190

Background/purpose: Chronic inflammatory skin diseases have been shown to increase or predispose metabolic or vascular damage. However, little is known about systemic effects of the pro-inflammatory state of severe acne. We analyzed data of 85 patients at Lipid Outpatient Clinics (UNIFESP/EPM) who were treated for metabolic syndrome (MS). Medical history and physical examinations were performed in order to search characteristics of acne scars. Methods: Patients' electronic records were accessed for one year. The ones presenting MS were evaluated by clinical examination in order to detect presence of acne scars. Clinical analysis comprised anamnesis, measurement of abdominal circumference, blood pressure, and body mass index (BMI). Laboratory tests included fasting glucose, CBC, serum levels of insulin, triglycerides, LDL, HDL, ALT, AST, urea, and creatinine. Statistical analysis consisted of prevalence (95% CI) of acne history/scars among patients treated at the Lipid Outpatient Clinics. The $\chi 2$ test, Pearson's test, or Fisher's exact test was used to evaluate the association of social and demographic data, clinical and lab exams with the presence of MS or acne scars. Statistical 5% significance level was adopted. Results: Fifty-two patients confirmed having a medical history of acne, and 33 denied. Acne scars were found in 61.17%. There was no statistical difference between the groups according to medium value of BMI, hypertension, abdominal circumference, and serum levels of hemoglobin, leucocytes, platelets, triglycerides, LDL, HDL, AST, ALT, glycemia, creatinine, and urea. Twenty-seven out of the 52 patients with acne history presented acne scars, which symbolizes a 31.76% prevalence. This equals a 51.92% prevalence among all patients with acne history. There was no statistical difference among groups according to mean (±SD) in data such as family history, weight, BMI, hypertension, abdominal circumference, serum levels of hemoglobin, leucocytes, platelets, LDL, HDL, AST, ALT, glycemia, creatinine, and urea. A statistical difference in the triglyceride level was present, being elevated in patients with acne scars. Discussion: Apart from the limitation (small sample size), a correlation between acne and MS could be suggested. The high prevalence of acne history/scars in patients treated for MS may indicate a possible correlation with any type of acne. This hypothesis may raise discussion about an association like the already proven risk of metabolic alterations in other inflammatory chronic dermatoses, such as psoriasis or rosacea, regardless of acne severity. We highlight the importance of early treatment and follow-up for patients with MS that could be observed in this study, as clinical and laboratory criteria were all within normal levels among patients from that specific outpatient clinic. Results can draw attention to evaluation of clinical and laboratory investigation related to risk of MS. It corroborates to early diagnosis and prevention of complications of MS. Further studies are needed to confirm our findings.

A case of fractional microneedling radiofrequency induced rosacea. Aşiran Serdar Z, Aktaş Karabay E. J Cosmet Laser Ther. 2019 Sep 2:1-3. doi: 10.1080/14764172.2019.1661487. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31476963

Fractional microneedling radiofrequency (FMR) has been reported to improve cutaneous wrinkles due to its effects of inducing neoelastogenesis and neocollagenosis. Furthermore, FMR has shown to be effective in acne scars, acne lesions, hyperhidrosis, acne-related postinflammatory erythema and recently in rosacea. FMR treatment has been suggested to improve rosacea by reducing inflammation and abnormal vessel proliferation. Here we present a 61-year-old female who developed rosacea symptoms after the treatment of FMR for cutaneous wrinkles. Since the case shows conflictory findings with the previous data, it was found worthy presentation.

Quantitative evaluation of atrophic acne scars using 3D image analysis with reflected LED light. Tanizaki H, Tanioka M, Yamashita Y, Hayashi N. Skin Res Technol. 2019 Sep 2. doi: 10.1111/srt.12756. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31478266

Background: Methods for objective evaluation of acne scars have not been established yet. In this study, the capability of three-dimensional image analysis of acne scarring was examined. Methods: Two dermatologists evaluated the severity and counted the number of atrophic acne scars in a defined evaluation area of each cheek (3.5 cm × 3.5 cm) of 22 subjects (age, 21-38 years). Images of the evaluation area were obtained with an Antera 3D® (Miravex Limited, Ireland) camera three times, and three parameters (affected area, volume, and max depth) were measured. Three different filters (small, medium, and large), which limit measurement targets based on the diameters of concavities, were used for measurement. The relationships between each parameter and the evaluation results of scars by dermatologists were analyzed using Spearman's correlation coefficients. Results: The correlations between the evaluation results of scars by dermatologists and each parameter measured were the highest when the large filter was used. The correlation coefficients between the severity of scars by dermatologists and each of affected area, volume, and max depth were 0.736, 0.728, and 0.722, respectively, and those between scar counts and each of affected area and volume were 0.783 and 0.770, respectively. The correlations, scatter plots, and regression lines among three measurements of parameters suggested high repeatability. Conclusions: Three-dimensional image analysis has the capability to evaluate changes in the shape of scars before and after treatment quantitatively.

Sarecycline: A narrow spectrum tetracycline for the treatment of moderate-to-severe acne vulgaris. Moore AY, Charles JEM, Moore S. Future Microbiol. 2019 Sep 2. doi: 10.2217/fmb-2019-0199. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31475868

Sarecycline is a novel, narrow-spectrum, once-daily tetracycline-derived oral antibiotic that is FDA-approved in the US to be taken with or without food for moderate-to-severe acne vulgaris for ages 9 years of age and older. Sarecycline possesses anti-inflammatory properties and potent activity against Gram-positive bacteria, including activity against multiple strains of Cutibacterium acnes, while exhibiting minimal activity against enteric aerobic Gram-negative bacteria. Unlike many acne studies, sarecycline was investigated for chest and back acne. Significant reduction in inflammatory lesions was seen at week 12 at 1.5 mg/kg/day of sarecycline, with statistically significant improvement seen as early as week 3. No reports of phototoxicity, dizziness, pseudotumor cerebri or lupus but 1.2% nausea and 1.2% vaginal candidiasis was reported in the pivotal Phase III studies.

Download Reference Document

Sarecycline review. Haidari W, Bruinsma R, Cardenas-de la Garza JA, Feldman SR. Ann Pharmacother. 2019 Aug 28:1060028019873111. doi: 10.1177/1060028019873111. [Epub ahead of print]
https://www.ncbi.nlm.nih.gov/pubmed/31462063

Objective: Sarecycline is a new oral tetracycline antibiotic recently approved by the US Food and Drug Administration. The aim of this article was to evaluate the data from published clinical trials of sarecycline in the treatment of acne, review the drug's pharmacology, and understand how this new medication may apply to clinical practice. Data Sources: A systematic literature review was performed using the terms sarecycline (Seysara), P005672, and WC-3035 in the MEDLINE and EMBASE databases. ClinicalTrials.gov was searched to identify ongoing or nonpublished studies. Study Selection and Data Extraction: Articles in English between January 2000 and April 2019 relating to clinical trials, pharmacology, safety, and microbiological profile were evaluated. Data Synthesis: In a phase 3 clinical trial (SC1401), absolute change from baseline in facial inflammatory lesion count at week 12 was -15.3 for the sarecycline arm and -10.1 for placebo ($P < 0.01$). In another phase 3 clinical trial (SC1402), the absolute change in this category was -15.7 for sarecycline and -10.7 for placebo ($P < 0.01$). Mean percentage change in facial inflammatory lesion count was higher in the sarecycline group than in the placebo group in both studies ($P < 0.01$). Relevance to Patient Care and Clinical Practice: The 1.5-mg/kg sarecycline dose has efficacy in reducing inflammatory lesions, is well tolerated, and has more targeted antimicrobial activity, which may help reduce the risk of developing antibiotic resistance. Conclusions: This novel, once-daily treatment may represent a useful treatment for patients with moderate to severe acne.

Isotretinoin-induced sacroiliitis in patients with hidradenitis suppurativa: A case-based review. Coskun BN, Yagiz B, Pehlivan Y, Dalkilic E. Rheumatol Int. 2019 Aug 27. doi: 10.1007/s00296-019-04434-1. [Epub ahead of print]
https://www.ncbi.nlm.nih.gov/pubmed/31455984

Hidradenitis suppurativa (HS) is a chronic, suppurative skin disease characterized by painful nodules, particularly in the axillae and groin. Isotretinoin can be used in the treatment of HS; however, it may paradoxically lead to skin lesions or worsen the existing lesions. Isotretinoin, which is commonly used in the treatment of severe acne, is associated with several side effects, including rheumatic side effects and rarely sacroiliitis. In this study, we discussed two cases who presented with low back pain after isotretinoin was used for the treatment of acne vulgaris. The patients did not have low back pain before isotretinoin use and did not have enthesitis, dactylitis, uveitis, psoriasis, recent infection, trauma, and family history spondylitis. HLA-B27 was negative. Bone-marrow edema was detected at the sacroiliac joint on magnetic resonance imaging. Because of these findings, sacroiliitis related to the drug was considered in our patients and isotretinoin treatments were discontinued. Because the patients' low back pain continued when they administered non-steroidal anti-inflammatory drugs, biological drug treatments were started. Both cases presented had a simultaneous HS lesion. After the treatment, both low back pain and HS lesions regressed. Patients with isotretinoin therapy should be alerted for inflammatory low back pain and HS lesions that may develop. We should note that biologic agents should be considered in the treatment of resistant cases.

Link between rosacea and systemic inflammatory diseases. Ingrid Torjesen. Practical Dermatology, May 8, 2019.
https://www.dermatologytimes.com/current-and-emerging-treatments-acne/link-between-rosacea-and-systemic-inflammatory-diseases?rememberme=1&elq_mid=8614&elq_cid=895859&GUID=8314888D-05AB-4533-940F-FFBC944DD372

Research suggests that people with rosacea may have a genetic susceptibility to developing the condition and that environmental factors, in particular the microbiome, also play a role. Most importantly, however, there is mounting

evidence that rosacea might be an outcome of systemic inflammation. There is a small but significant association between systemic inflammatory diseases, some of which can be potentially serious, and rosacea. The greatest evidence is for links between rosacea and cardiovascular disease and inflammatory bowel disease, but there are also less strongly validated links with certain neurological diseases, in particular parkinsonism, but also dementia and Alzheimer's. A greater understanding of rosacea's shared etiology will not only aid diagnosis and treatment for patients with rosacea, it could have wider clinical implications. If rosacea is shown to have high predictive value for the development of particular systemic disorders, it could provide a valuable early warning sign for these conditions, says Richard L. Gallo M.D., Ph.D., Irma Gigli Endowed Chair, Distinguished Professor and Founding Chairman, Department of Dermatology, University of California, San Diego. "We are getting increasing evidence that some of the inflammatory mediators that are released in the skin of rosacea patients and psoriasis patients as well can act systemically so something that is produced in the skin may circulate around and act on vessels of the heart or the lumen of the gut," he says. For example, there is now evidence implicating TH1 and TH17 cytokines and B cells in rosacea. Unfortunately, Gallo adds, "A biochemical marker that would distinguish the inflammation of rosacea from other types of inflammation has not been clearly identified." A biochemical identifier unique to rosacea would enable dermatologists to easily confirm suspected diagnosis and monitor disease progression, and researchers to assess the potential of new candidate therapies. Other than improvements in therapy this would be the most useful step forward that could be made in our knowledge of the condition, he says. While, there are a lot of therapies for rosacea, including antimicrobial approaches, vasoactive approaches and physical approaches such as lasers, Gallo says, "We still could do better, much better." Potential new therapies in the pipeline include protease modification. "It is a different approach which could add to the efficacy of existing regimens," he explains. The rationale of protease modification is to interrupt the signaling pathway that generates the proinflammatory molecules by either blocking the trigger or blocking the pathway. At present the pathophysiology of flushing and blushing, the interaction between the nervous and immune systems during neuroinflammation (flushing, erythema), and the immune responses (erythema, papules, pustules) remains unclear. This month, Gallo and colleagues will present an abstract to the Society for Investigative Dermatology meeting in Chicago on the mechanism connecting vascular inflammation with increased sensitivity to light. "One of the most common factors that patients report for increased symptoms in rosacea is ultraviolet light exposure and we are reporting on a biochemical explanation for that," he says. Gallo emphasizes that rosacea also occurs in individuals with darker skin phototypes, but perhaps is more likely to be missed. "A few reports have suggested that the centrofacial erythema that characterizes rosacea has been vastly unappreciated in darker skinned individuals," he notes. "So, it may not be that the incidence is low in that pigment type but more a diagnostic problem or a detection problem." In individuals with darker skin types, erythematous signs can appear as a dusky brown discoloration, so symptoms such as burning, stinging, flushing, papules, and pustules might be more appropriate indicators of rosacea than primary centrofacial erythema. Both the National Rosacea Society and American Acne and Rosacea Society offer funding for research to further understanding and management of rosacea, and Gallo encourages anyone with an idea for studies to apply for the grants.