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Announcing New AARS Research Grant Opportunity

Based on an abundance of caution and the need to continue our member benefits, we regret that the AARS will not be formally meeting during the American Academy of Dermatology (AAD) next month in Boston. In lieu of our annual AARS Networking Reception, the AARS is excited to announce an additional opportunity for funding our research grants with multiple awards up to \$10,000 in 2022. The acne, hidradenitis suppurativa, and rosacea research projects that are clinical/translational in nature received preferred consideration by the AARS Grant Committee.

We invite you to view our eligibility criteria and grant submission application on our website at <https://acneandrosacea.org/grant-opportunities>. The grant application deadline is April 1, 2022.

New Medical Research

Characterization of rosacea patients in Tohoku area of Japan: Retrospective study of 340 rosacea cases.

Wada-Irimada M, Yamamoto H, Terui H, et al. *J Dermatol*. 2022 Feb 17. doi: 10.1111/1346-8138.16317. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/35174900/>

Rosacea is a chronic inflammatory skin disease with facial redness and acne-like papules and pustules. The characteristics and background of rosacea patients in Japan have not been well documented. In this study, we retrospectively collected the medical information of rosacea patients, and investigated the background, complications, exacerbating factors, and status of allergy. Between January 2010 and December 2020, 431 cases were diagnosed as rosacea or rosacea-like dermatitis. We selected 340 patients, in which we could confirm telangiectasia on facial skin. Females and males numbered 266 and 74, respectively. The average age of the first visit was 51.5 years, and the youngest and oldest were 11 and 88 years old. Among 340 cases, 323 had erythematotelangiectatic rosacea, 97 papulopustular rosacea, 20 phymatous rosacea presenting as rhinophyma, and four had symptoms of ocular rosacea. The most common complication was hay fever (93 individuals, 27.4%), and 66 (19.4%) had a medical history of contact dermatitis. Temperature differences (141 individuals, 41.5%) were the most common exacerbating factor followed by sunlight exposure (60 individuals, 17.6%). Seventy-eight individuals received allergen-specific immunoglobulin (Ig)E tests, and IgE for cedar was the most frequently observed (46 individuals, 59.0%). High frequencies of IgE for *Dermatophagoides pteronyssinus* or *D. farinae* (33 individuals, 42.3%) and house dust I (31 individuals, 39.7%) suggested that environmental conditions at home would affect rosacea symptoms. Since the facial skin is exposed to environmental stimuli every moment, this retrospective observation suggested the importance of the daily lifestyle guidance as well as medical treatments.

Facial acne: A randomized, double-blind, placebo-controlled study on the clinical efficacy of a symbiotic dietary supplement.

Rinaldi F, Marotta L, Mascolo A, et al. *Dermatol Ther (Heidelb)*. 2022 Feb;12(2):577-589. doi: 10.1007/s13555-021-00664-z. Epub 2022 Jan 21. <https://pubmed.ncbi.nlm.nih.gov/35061237/>

Introduction: Treatments other than topical and systemic antibiotics are needed to restore the dysbiosis correlated with acne onset and evolution. In this view, probiotics and botanical extracts could represent a valid adjunctive therapeutic approach. The purpose of this study was to test the efficacy of a dietary supplement containing probiotics (*Bifidobacterium breve* BR03 DSM 16604, *Lactobacillus casei* LC03 DSM 27537, and *Ligilactobacillus salivarius* LS03 DSM 22776) and botanical extract (lupeol from *Solanum melongena* L. and Echinacea extract) in subjects with mild to moderate acne over an 8-week study period. **Methods:** Monocentric, randomized, double-blind, four-arm, placebo-controlled clinical study involving 114 subjects. **Results:** A significant ($p < 0.05$) effect on the number of superficial inflammatory lesions was reported over the study period in the subjects taking the study agent (group II) (-

56.67%), the botanical extracts (group III) (-40.00%), and the probiotics (group IV) (-38.89%) versus placebo (-10.00%). A significant ($p < 0.05$) decrease in mean desquamation score, sebum secretion rate, and porphyrin mean count versus baseline was also reported, and the effect was most evident for group II. The analysis of log relative abundance after 4 and 8 weeks of treatment compared with baseline showed a significant ($p < 0.01$) decrease in *Cutibacterium acnes* and *S. aureus*, along with a contextually and significant ($p < 0.05$) increase in *Staphylococcus epidermidis*, especially in group II. No significant changes were reported for group I. Conclusion: The results from this study suggest that the administration of the dietary supplement under study was effective, safe, and well tolerated in subjects with mild to moderate acne and could represent a promising optional complement for the treatment of inflammatory acne as well as for control of acne-prone skin.

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Azelaic acid loaded chitosan and HPMC based hydrogels for treatment of acne: formulation, characterization, in vitro- ex vivo evaluation. Arpa MD, Seçen İM, Erim ÜC, et al. Pharm Dev Technol. 2022 Feb 10;1-14. doi: 10.1080/10837450.2022.2038620. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/35112652/>

In this study, hydrogels containing azelaic acid were developed using chitosan or HPMC (1-7%) for local treatment of acne vulgaris. Physicochemical properties such as viscosity, pH and mechanical properties were evaluated. In vitro release and ex vivo permeability studies were performed using the Franz diffusion cell system. The pH of the hydrogels was highly compatible with the skin pH and varied between 4.38 and 5.84. The cumulative release percentages of the hydrogels at the end of 6 hours were 65-78%, whereas the marketed product yielded 50% drug release. According to the ex vivo permeability results, azelaic acid accumulated in the skin was found to be $9.38 \pm 0.65\%$ (marketed cream), $19.53 \pm 1.06\%$ (K3), $10.96 \pm 1.91\%$ (H6). The antiacne studies with *Cutibacterium acnes* revealed that K3 (29.45 ± 0.95) and H6 (32.35 ± 0.15) had higher inhibition zones compared to the marketed cream (24.50 ± 0.90). Additionally, the gels were found to be highly stable as a result of the stability studies for 6 months. Among the hydrogels that were prepared based on experimental findings, K3 (3% Chitosan) and H6 (6% HPMC) represented elevated in vitro release profile, higher permeability and increased antiacne activity. The findings of this research suggest that the developed hydrogels might be an alternative to the marketed product.

Clinical evaluation of efficacy of intralesional platelet-rich plasma injection versus 1064 nm long-pulsed Neodymium:YAG laser in the treatment of inflammatory acne vulgaris in adolescent and post-adolescent patients: a prospective randomized split-face comparative study. Moftah NH, Mansour AM, Ibrahim SMA. Lasers Med Sci. 2022 Jan 27. doi: 10.1007/s10103-022-03510-6. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/35084634/>

Large numbers of local and systemic therapies are available for acne treatment. Common oral or topical retinoids, antibiotics, or keratolytics are used but sometimes are inconvenient, and side effects caused by these conventional therapies prompted a search for effective and safe treatments. This study aimed to evaluate the efficacy of intralesional platelet-rich plasma injection versus 1064 nm long-pulsed Nd:YAG laser in the treatment of moderate inflammatory acne vulgaris in both adolescents and post-adolescent patients. This split-face comparative study was carried out on thirty patients who suffered from moderate inflammatory and non-inflammatory acne vulgaris. The patients were classified into two groups: group I: adolescent (≤ 25 years) and group II: post-adolescent (< 25 years). Each group received four sessions of intralesional PRP injection on one side of the face and a long-pulsed Nd:YAG (1064 nm) laser on the other side with 2 weeks interval. Evaluation was done by blinded dermatologists using photographs and lesions counting and by patient satisfaction. Side effects were also noted. Both groups (adolescents and post-adolescent) showed a high statistically significant improvement of inflammatory as well as non-inflammatory lesions either in PRP or Nd:YAG laser-treated side with no significant difference between the two sides. The

intralesional PRP injection and 1064 nm long-pulsed Nd:YAG laser are safe and effective methods for controlling inflammatory as well as non-inflammatory acne vulgaris in both adolescents and post-adolescent patients.

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Clinical and histological effects of topical epidermal growth factor on acne and acne scars. Kim DH, Yang JH, Cho SI, et al. *Dermatology*. 2022 Jan 25;1-9. doi: 10.1159/000521294. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/35078198/>

Background: The inflammatory lesions of acne leave scars which greatly affect patients' quality of life. Treatment options targeting both acne and acne scars are still lacking. Objectives: To evaluate the clinical efficacy of epidermal growth factor ointment (EGFO) on acne and acne scars. Methods: The study design was 12-week, prospective, split-face, single-blinded. The 36 patients with mild to moderate acne vulgaris applied EGFO on one side of the face and the vehicle ointment on the other side twice daily. The patients were assessed every 4 weeks by acne lesion and scar counts, investigator's global assessment for acne (IGA) and scar (SGA), and the ECCA scar grading scale. Biopsies were performed before and after treatment. Results: Acne and acne scars were significantly improved on EGFO-treated sides, while control sides were not. Acne lesion and scar counts were significantly reduced after 4 weeks, while IGA, SGA, and ECCA grade significantly decreased after 8 weeks. Immunohistochemistry showed decreased expression of keratin 16, NF- κ B p65, IL-1 α , and IL-8, and increased expression of TGF- β 1, elastin, and collagen type 1, 3 after treatment. Conclusions: EGFO can be a treatment option targeting acne and acne scars.

Impact of IPL treatments on parameters of acne skin. Zdrada J, Stolecka-Warzecha A, Odrzywołek W, et al. *J Cosmet Dermatol*. 2022 Jan 25. doi: 10.1111/jocd.14802. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/35076990/>

Background: In the treatment of acne, skin parameters such as sebum secretion, hydration, and the content of hemoglobin and melanin are very important. The values of these parameters at the appropriate level show the maintenance of good functionality of the epidermal barrier and the impact of a given treatment procedure on the condition and physiology of the epidermis. Aims: The aim of the study was to evaluate the effectiveness of anti-acne therapy with IPL by volunteers, as well as to quantify parameters such as sebum secretion, hydration level, and the content of melanin and hemoglobin in the skin. Patients/methods: The study involved 27 volunteers with moderate acne. A series of 4 treatments was performed with intense pulse light at weekly intervals. The secretion of sebum, skin hydration, and the content of melanin and hemoglobin was measured. Results: A decrease in sebum secretion in the forehead area after light treatments was observed, the level of hydration remained the same in all areas examined, as did the levels of melanin and hemoglobin. The volunteers were asked about the satisfaction with the effects of the treatment: 100% answered that they were satisfied with the effects of the treatment to a degree of 7.8 ± 1.5 . Conclusions: During anti-acne therapy, therapists usually focus only on reducing acne lesions, forgetting that proper care has a large impact on the success of dermatological therapies. It is very important to know the influence of treatment procedures on the parameters of the skin in order to choose the right care for the best treatment effect.

30% supramolecular salicylic acid peels effectively treats acne vulgaris and reduces facial sebum. Zhang L, Shao X, Chen Y, et al. *J Cosmet Dermatol*. 2022 Jan 24. doi: 10.1111/jocd.14799. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/35073439/>

Background: Acne is a chronic inflammatory skin disease with high incidence and recurrence. Aims: To study the efficacy of 30% supramolecular salicylic acid(SSA) in the treatment of acne, especially its effect on facial sebum secretion and the skin barrier. Methods: Chemical peeling treatment with SSA using self-contrast was performed every 2 weeks for a total of four treatments in 25 patients. VISIA photographs and skin parameter measurements

were recorded at every treatment, with a 2-week follow-up after the last treatment. We performed skin biopsy and immunohistochemical staining to detect sterol response element binding proteins (SREBPs), fatty acid synthase (FAS), and cyclooxygenase 2 (COX2), which are important factors involved in the regulation of sebum metabolism. Results: The global acne grading system (GAGS) score of patients with acne decreased with 30% SSA treatment. The sebum level in the nose ($p<0.001$), chin ($p<0.001$), left cheek ($p<0.05$), and right cheek ($p<0.05$) improved significantly with increasing number of treatments. The T-zone sebum level ($p<0.001$) improved more than the U-zone ($p<0.01$). The VISIA index porphyrin score also reduced ($p<0.001$). Skin hydration ($p<0.001$), transepidermal water loss (TEWL) ($p<0.05$), and pH value ($p<0.01$)-reflecting the skin barrier-were also improved. Immunohistochemistry showed decreased expression of SREBPs, FAS, and COX2. Conclusion: Peels with 30%SSA effectively treated acne and reduced facial sebum secretion without damaging the skin barrier. Reduction of sebum showed cumulative effect, which suggests that multiple 30%SSA chemical peels are beneficial to acne patients.

Evaluation of the cumulative effect of radiofrequency microneedling and fractional erbium: Glass 1565 laser in moderate to severe acne scars in skin of color. Sharad J. J Cosmet Dermatol. 2022 Jan 22. doi: 10.1111/jocd.14741. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/35064639/>

Aim and objectives: Evaluation of the cumulative effect of Radiofrequency Microneedling and fractional Erbium: Glass 1565 laser in moderate to severe acne scars in skin of color. Material and methods: This retrospective study was conducted on 20 patients of skin types III -V having moderate to severe atrophic acne scars. The study was carried out over 1 year from March 2019 to March 2020. Procedure: All patients underwent 4 sessions of non-ablative Fractional Erbium: Glass 1565 laser to alternate with 4 sessions of Fractional Radiofrequency Microneedling once a month over 8 months. Results: Of the 20 patients enrolled, 18 completed treatment protocol. Two patients were withdrawn from the study because they were unable to attend follow-up treatment sessions. The subjective evaluation was performed using photographs at baseline, 8 months, and 12 months. A photographic evaluation was performed using the following numeric responses: <25%, 25-50%, 51-75%, and 76-100% difference in severity. None of the patients had worsening of their scars. The improvement in scars was statistically significant. Conclusion: The combination of Fractional Erbium: Glass 1565 laser and Fractional Radiofrequency Microneedling can be used in the treatment of acne scars in skin of color. Our protocols helped achieve significant improvement of scars.

A split face comparative study using a novel triple combination therapy for the treatment of persistent post acne erythema. Agamia N, El-Nagdy S, El-Ariny A. Dermatol Ther. 2022 Jan 20;e15327. doi: 10.1111/dth.15327. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/35060229/>

Persistent post acne erythema (PAE) is common cosmetically unacceptable and challenging sequelae of acne lesions. Tranexamic acid (TXA) is an antifibrinolytic agent that shows a positive effect on wound healing in several studies, and it showed benefits in treating skin diseases like melasma, rosacea erythema and ultraviolet induced pigmentations. Oxymetazoline (OXZ) is a synthetic, highly selective agonist for alpha 1A-adrenoceptor. It is a potent vasoconstrictor. OXZ hydrochloride 1% cream was approved by the FDA in January 2017 as a topical treatment for persistent facial erythema in rosacea patients. Brimonidine tartrate (BMT) is highly selective α_2 adrenergic receptor agonist, results in direct, potent vasoconstriction of small arterioles and veins. In 2013, brimonidine 0.33% gel was the first topical therapy to be FDA approved for the treatment of persistent facial erythema from rosacea. To evaluate the efficacy and safety of topical triple combination (TXA 5% + OXZ 1.5% + BMT 0.33%) in the treatment of PAE planned as split face comparative study. This study was conducted on 40 patients diagnosed with persistent PAE for at least 3 months, the right side of the face was treated with topical triple combination in liposomal base and was compared to the left side to which topical lipocream (placebo) was applied as a control. Our treatment plan lasted for 3 months. According to the investigator's global assessment of photographs and computerized analysis of erythema

using image analysis software, topical triple combination applied on the right side of face was significantly effective in diminishing PAE when compared to topical placebo left side. Topical triple combination is a safe and cost-effective treatment for PAE.

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Real-world safety and effectiveness of adalimumab in patients with hidradenitis suppurativa: 12-week interim analysis of post-marketing surveillance in Japan. Hayashi N, Hayama K, Takahashi K, et al. J Dermatol. 2022 Jan 17. doi: 10.1111/1346-8138.16297. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/35040156/>

Hidradenitis suppurativa (HS) is a painful chronic skin disease characterized by abscesses, nodules, and tunnels in the skin. Adalimumab, a monoclonal antibody against tumor necrosis factor- α , is approved for the treatment of HS in Europe, the USA, and Japan. This multicenter, open-label, post-marketing, observational study (ClinicalTrials.gov: NCT03894956) evaluated the safety and effectiveness of adalimumab in routine clinical practice in Japan (March 2019-May 2021). Patients with HS were treated with s.c. doses of adalimumab according to the dosage described in the package insert. The primary end-point was safety (data cut-off, December 2020). Secondary end-points assessed effectiveness, including HS Clinical Response (HiSCR), skin pain, Dermatology Life Quality Index (DLQI), and C-reactive protein (CRP). Here, we report 12-week interim effectiveness results. A total of 84 eligible patients from 65 sites were enrolled; 83 patients were included in this analysis. Mean age was 42.0 years, mean body mass index was 26.9 kg/m², 78.3% of patients were male, 61.4% had Hurley stage III disease, 39.8% had a disease duration \geq 10 years, and 7.2% had a family history of HS. The most common affected sites were the axilla (60.2%), buttocks (59.0%), and the inguinal and femoral regions (47.0%). Mean abscess and inflammatory nodule count was 13.0 (standard deviation, 12.0). Among patients with a comorbidity (57.8%), the most common were diabetes mellitus, hypertension, and chronic kidney disease. No patient reported a serious infection or any safety event of special interest. One patient died from a serious adverse event of cardiac failure unrelated to adalimumab. At week 12, 57.4% of patients achieved HiSCR, and significant reductions from baseline in skin pain, DLQI (both $p < 0.0001$), and CRP ($p = 0.0029$) were observed. These results support the administration of adalimumab as a well-tolerated and effective treatment for Japanese patients with HS in real-world clinical practice.

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Effect of cognitive behavior oriented psychological intervention on the psychological status of depressed facial acne scar patients undergoing fractional photothermolysis. Peng Y, Bai Z, Guo Y, et al. J Craniofac Surg. 2022 Jan 12. doi: 10.1097/SCS.00000000000008448. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/35025824/>

Objective: To explore the effect of cognitive behavior oriented psychological intervention on the psychological status of depressed facial acne scar patients receiving fractional photothermolysis. Methods: The study enrolled 48 depressed facial acne scar patients who received treatment at our hospital between May 2018 and May 2021. They were randomized to the control group and the fractional photothermolysis group with 24 patients in each group using the random number table method. They received nursing intervention and cognitive behavior-oriented psychological intervention, respectively. Results: The Hamilton Anxiety and Hamilton Depression scores were lower after intervention than before intervention in both groups, and the fractional photothermolysis group had lower Hamilton Anxiety and Hamilton Depression scores than the control group ($P < 0.05$). The interpersonal sensitivity had hostility and phobic anxiety scores were lower after 12 weeks of treatment than before intervention in both groups, and the fractional photothermolysis group had lower interpersonal sensitivity hostility and phobic anxiety scores than the control group ($P < 0.05$). The H, M, V, and P scores after 12 weeks of intervention were both lower in the 2 groups than those before intervention. The humanistic care quality of service nursing care and health education scores were

lower after intervention before intervention in both groups and the fractional photothermolysis group had significantly lower humanistic care quality of service nursing care and health education scores than the control group ($P < 0.05$). Conclusions: Cognitive behavior-oriented psychological intervention can effectively improve the psychological status and psychological health of depressed facial acne scar patients receiving fractional photothermolysis.

Insights from a Box-Behnken optimization study of microemulsions with salicylic acid for acne therapy.

Anicescu MC, Dinu-Pîrvu CE, Talianu MT, et al. *Pharmaceutics*. 2022 Jan 12;14(1):174. doi: 10.3390/pharmaceutics14010174. <https://pubmed.ncbi.nlm.nih.gov/35057071/>

The present study brings to attention a method to develop salicylic acid-based oil in water (O/W) microemulsions using a tensioactive system based on Tween 80, lecithin, and propylene glycol (PG), enriched with a vegetable oat oil phase and hyaluronic acid. The systems were physically characterized and the Quality by design approach was applied to optimize the attributes of microemulsions using Box-Behnken modeling, combined with response surface methodology. For this purpose, a 33 fractional factorial design was selected. The effect of independent variables namely X1: Tween 80/PG (%), X2: Lecithin (%), X3: Oil phase (%) was analyzed considering their impact upon the internal structure and evaluated parameters chosen as dependent factors: viscosity, mean droplet size, and work of adhesion. A high viscosity, a low droplet size, an adequate wettability-with a reduced mechanical work-and clarity were considered as desirable for the optimal systems. It was found that the optimal microemulsion which complied with the established conditions was based on: Tween 80/PG 40%, lecithin 0.3%, oat oil 2%, salicylic acid 0.5%, hyaluronic acid 1%, and water 56.2%. The response surface methodology was considered an appropriate tool to explain the impact of formulation factors on the physical properties of microemulsions, offering a complex pattern in the assessment of stability and quality attributes for the optimized formulation.

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Intense pulsed light versus benzoyl peroxide. Al Abdullah MJ, Mahdi YG. *J Popul Ther Clin Pharmacol*. 2022 Jan 10;28(2):e54-e61. doi: 10.47750/jptcp.2022.856. eCollection 2022. <https://pubmed.ncbi.nlm.nih.gov/35044116/>

The intense pulsed light (IPL) therapy has three mechanisms of action in acne vulgaris: photochemical, photoimmunological, and photothermal. In this clinical trial, 47 patients with facial inflammatory acne lesions, ages ranging from 15 to 40 years, were enrolled. Patients were categorized into two groups: (a) 20 patients in Group A treated with IPL for 3 sessions, 3 weeks apart, (b) and 27 patients in Group B treated with benzoyl peroxide (BPO) 2.5% gel daily at night for 9 weeks. Follow up was done at 3 weeks after the end of treatment. The effect of treatment was evaluated objectively according to total lesion counting and digital photographic assessment and subjectively according to the patients' satisfaction. IPL is an effective and well-tolerated method for the treatment of inflammatory facial acne like BPO. Therefore, the IPL can be used as a standard therapy for inflammatory acne vulgaris.

Clinical features of acne in primary care patients assessed through tele dermatology.

Giavina-Bianchi M, Azevedo MFD, Cordioli E. *J Prim Care Community Health*. Jan-Dec 2022;13:21501319221074117. doi: 10.1177/21501319221074117. <https://pubmed.ncbi.nlm.nih.gov/35098785/>

Introduction/objectives: Acne is present in about 90% of teenagers and 12% to 14% of adults. Face and trunk are the most affected areas. Lesions can result in postinflammatory hyperpigmentation and scarring, leading to reduced quality of life. Asynchronous tele dermatology has been increasingly used around the world, facilitating patient access to dermatologists. Our objectives were to assess: (1) clinical features of acne patients according to gender, age, severity, site of lesions, excoriation, postinflammatory hyperpigmentation (PIH), and atrophic scar (AS) and (2) how many referrals to in-person consultations with dermatologists could be avoided using asynchronous tele dermatology in primary care attention? Methods: We analyzed images, demographic and clinical data of 2459 acne patients

assisted by teledermatology, with the aim to confirm the diagnoses, to classify acne severity according to grades I to IV, and to search for the presence of postinflammatory hyperpigmentation, atrophic scars, and/or excoriated acne (EA). We compared the clinical and biological data, looking for associations among them. Results: Acne severity and age were associated with the most common sequels: postinflammatory hyperpigmentation (mainly on the trunk and in females, $P < .0001$) and atrophic scars (mainly on the face and in males, $P < .0001$). We also observed different frequencies according to age and sex: 13 to 24 years in males ($P = .0023$); and <12 ($P = .0023$) and 25 to 64 years old ($P < .0001$) for females; 68% of the patients had no need for in-person dermatologists' referral, being kept at primary care attention with proper diagnosis and treatment. Conclusion: Clinical features of acne and its sequels differ according to gender, age, site, and severity. The new findings of PIH associated with women and AS, with men, may help offer a more personalized management to patients. Teledermatology was suitable for the majority of the acne cases in primary care.

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Clinical Reviews

Advances in molecular pathogenesis of hidradenitis suppurativa: Dysregulated keratins and ECM signaling.

Kashyap MP, Khan J, Sinha R, et al. *Semin Cell Dev Biol.* 2022 Feb 4;S1084-9521(22)00014-3. doi: 10.1016/j.semcdb.2022.01.006. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/35131152/>

Hidradenitis suppurativa (HS) is characterized by deep-seated, highly inflamed, and painful lumps/abscesses, fistulae, and sinus tracts that grow extensively deep in the dermis and are highly immunogenic in nature. In about one-third of the HS patients there is strong evidence for the role of γ -secretase mutations along with dysregulated Notch signaling. However, the contribution of dysregulated Notch signaling in HS pathogenesis in relation to hair follicle alterations and hyper-activation of the immune system remains undefined. A genome-wide association study (GWAS), proteomic data and functional investigations of identified sequence variants in HS pathology are not fully revealing. The disease initiation or progression may involve bacterial infection besides intrinsic functional defects in keratinocytes, which may be key to further exacerbate immune cell infiltration and cytokine production in and around the lesional tissue. The absence of a suitable animal model that could fully recapitulate the pathogenesis of HS is a major impediment for proper understanding the underlying mechanisms and development of effective treatments. The presence of extracellular matrix (ECM) degradation products along with dysregulation in keratinocytes and, dermal fibroblasts ultimately affect immune regulation and are various components of HS pathogenesis. Bacterial infection further exacerbates the complexity of the disease progression. While anti-TNF α therapy shows partial efficacy, treatment to cure HS is absent. Multiple clinical trials targeting various cytokines, complement C5a and ECM products are in progress. This review provides state-of-the-art information on these aspects with a focus on dysregulated keratinocyte and immune cells; and role of ECM, and Keratin functions in this regard.

A systematic review of evaluating the efficacy of acne scar treatment by fractional laser with or without using adjunctive treatments.

Ghazzawi R, Hamadah O. *J Cosmet Laser Ther.* 2022 Feb 2;1-8. doi: 10.1080/14764172.2022.2033785. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/35109741/>

Fractional laser (FL) resurfacing has proved its effectiveness in acne scars treatments. To evaluate the efficacy of Fractional laser systems for treatment of acne scars as a monotherapy, and as adjunctive therapy with other treatment types. A systematic literature review was performed by searching the electronic databases PubMed, Google Scholar, and Embase. Fractional laser has proven therapeutic efficacy of over 26% in treating acne scars, with minor and transient side effects, and well-tolerant pain. The application of PRP not only accelerated recovery and reduced adverse events, but also enhanced localized collagen neogenesis and redistribution. The addition of surgical

treatments to Fractional Laser Systemes (FLS) therapy delivers the best treatment results for Icepick scars. Fractional laser is an effective tool for treating acne scars. The degree of effectiveness varies according to the laser parameters, the number of treatment sessions, skin photo type, the severity and the type of scars. The application of Platelet-Rich Plasma (PRP) and Fractional Radiofrequency Microneedle (FRM) in addition to the FL treatment improves the therapeutic efficacy and reduces the appearance of Post Inflammatory Hyper-Pigmentation (PIH), and is the ideal treatment for dark-skinned patients. FL therapy along with surgical methods such as subsicion and punch techniques provided the best improvements for deep scars.

Rosacea management: A comprehensive review. Sharma A, Kroumpouzou G, Kassir M, et al. *J Cosmet Dermatol.* 2022 Feb 1. doi: 10.1111/jocd.14816. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/35104917/>

Rosacea is a chronic cutaneous disorder affecting primarily the face, characterized by erythema, transient or persistent, telangiectasia, and inflammatory lesions including papulo-pustules and swelling. The essential component of the disease is the persistent erythema of facial skin. Episodes of flushing (acute-subacute intermittent vasodilation) are common. Swelling and erythema of the nose along with dilatation of the pilosebaceous poral orifices, known as rhinophyma, can be noted in chronic cases. Rosacea affects up to 10% of the world population and is especially noted in fair-skinned individuals aged 35-50. Women are affected more often than men. Several treatment modalities including topical medications, systemic drugs, lasers, and light-based therapies have been used for the management of rosacea with variable results. Topical medications such as azelaic acid, metronidazole, and sulfacetamide/sulfur, oral antibiotics such as tetracyclines, and oral retinoids alone or, most commonly, in combination form the mainstay of treatment. Light therapies such as intense pulsed light and pulsed dye laser are best used for the erythemato-telangiectatic type. Topical brimonidine, oxymetazoline, ivermectin, tacrolimus, pimecrolimus, low-dose modified-release tetracyclines and botulinum toxin are the new additions to the therapeutic armamentarium. This article provides a comprehensive review of the various therapies used for rosacea.

Adult female acne: Clinical and therapeutic particularities. Branisteanu DE, Toader MP, Porumb EA, et al. *Exp Ther Med.* 2022 Feb;23(2):151. doi: 10.3892/etm.2021.11074. Epub 2021 Dec 16. <https://pubmed.ncbi.nlm.nih.gov/35069832/>

Acne is a chronic inflammatory condition affecting the pilosebaceous unit that was traditionally viewed as a disease of the adolescence. However, over the past several years, an increasing number of adult women have been reported to suffer from this condition. The prevalence of adult female acne ranges between 12 and 54%. Two clinical types can be distinguished in this population, a 'retentional' and an 'inflammatory' type, which usually tend to overlap. In terms of evolution, three main subtypes can be identified: Persistent acne, which is the most frequent subtype, late-onset acne and recurrent acne. This type of acne is mainly mild-to-moderate in severity and may be refractory to conventional treatment. The etiopathogenesis is complex and has yet to be fully elucidated. It appears to involve an interaction among genetic predisposition, hormonal factors, and chronic activation of the innate immune system overlapping with external factors, such as daily stress, Western-type diet, use of tobacco and cosmetics. The treatment may be challenging and a holistic approach is required, with special attention to the individual needs and particularities of adult women. Both topical and systemic treatments are available, with hormonal therapies being of special value in this population. The aim of the present article was to provide up-to-date, evidence-based information on the clinical presentation, etiopathogenesis and treatment of adult female acne.

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Efficacy and toxicity of classical immunosuppressants, retinoids and biologics in hidradenitis suppurativa.

Das K, Daveluy S, Kroumpouzou G, et al. *J Clin Med*. 2022 Jan 27;11(3):670. doi: 10.3390/jcm11030670. <https://pubmed.ncbi.nlm.nih.gov/35160122/>

Hidradenitis suppurativa (HS) is a chronic inflammatory disorder of the apocrine glands characterized by recurrent episodes. Although several therapies exist, none is completely curative. Several immunosuppressives have been studied with encouraging results and targeted approaches. In this review, we highlight the various immunosuppressives used in this condition along with their salient features to enable physicians to choose the correct therapy for their patients. The search of the peer-reviewed literature included clinical trials, scientific reviews, case series, case reports, and guidelines. The literature was identified from electronic databases (MEDLINE and PubMed) through November 2021; additional articles were included from the references of the identified articles.

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Post-acne erythema treatment: A systematic review of the literature.

Kalantari Y, Dadkhahfar S, Etesami I. *J Cosmet Dermatol*. 2022 Jan 25. doi: 10.1111/jocd.14804. Online ahead of print.

<https://pubmed.ncbi.nlm.nih.gov/35076997/>

Post-acne erythema (PAE) is a common sequela of acne inflammation, and it refers to telangiectasia and erythematous lesions remaining after the acne treatment. Although some PAE lesions may improve over time, persisting PAE might be esthetically undesirable for patients. The efficacy of various treatment options for PAE has been investigated in many studies but there exists no gold standard treatment modality. In this study, we aimed to give a systematic literature review on various treatment options for PAE, the advantage of each modality, and compare their efficacy, safety, and feasibility. By using the selected keywords, we carried out a systematic search for articles published from the inception to 28 April 2021 in PubMed/Medline and Embase databases. Of the 5796 initially retrieved articles, 18 of them were fully eligible to be enrolled in our study. In this study, we found that light and laser-based devices were the most frequently used treatments for PAE. Generally, pulsed-dye lasers were the most commonly used laser devices for PAE. Neodymium:yttrium aluminum-garnet lasers were the second most commonly used modalities in treating PAE. Topical treatments such as oxymetazoline, tranexamic acid, and brimonidine tartrate are promising treatments in reducing PAE lesions. In our study, no severe side effects were found. In conclusion, both laser devices and topical agents seem to be effective for PAE lesions; however, further randomized clinical trials are needed in this field.

Efficacy comparison of pulsed dye laser vs. microsecond 1064-nm neodymium:yttrium-aluminum-garnet laser in the treatment of rosacea: A meta-analysis.

Li Y, Wang R. *Front Med (Lausanne)*. 2022 Jan 20;8:798294. doi: 10.3389/fmed.2021.798294. eCollection 2021. <https://pubmed.ncbi.nlm.nih.gov/35127754/>

Purpose: The advantage of pulsed dye laser (PDL) for the treatment of rosacea is not yet clear. This meta-analysis compared the curative effect of PDL to neodymium:yttrium-aluminum-garnet (Nd:YAG) laser for the treatment of rosacea. **Methods:** The PubMed, Embase, and Cochrane Library databases were searched for clinical studies on the efficacy of PDL for the treatment of rosacea through October 13, 2021, and heterogeneity tests among studies were evaluated. Meta-analysis was conducted to combine the effects of physicians' clinical assessments, patient global assessment, erythema index, and visual analog scale. **Results:** A total of 326 articles were obtained from three databases and ten articles were finally included. The clinical improvements of >50% clearance of up to 68.6% in the PDL group and 71.4% in the control group, and the subjective satisfaction rate of patients in the PDL group of 88.6% compared to 91.4% in the Nd:YAG group, but there were no significant differences in the rates of patients with rosacea with clinical improvement (>50% clearance) (relative risk [RR] = 0.94, 95% confidence interval [CI]: 0.75-1.17, P = 0.578) or patient subjective satisfaction rate (RR = 0.96, 95% CI: 0.70-1.33, P = 0.808) between PDL and Nd:YAG

groups for rosacea treatment. Also, the pain score for PDL and Nd:YAG were not significant (mean = 3.07, 95% CI: 1.82-4.32, P = 0.115). Conclusion: Two treatments all showed clinical efficacy and patient satisfaction for the treatment of rosacea, with no significant differences observed between treatments. The pain scores for PDL and Nd:YAG were not significant.

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Therapies for hidradenitis suppurativa: A systematic review with a focus on Brazil. Rivitti-Machado MC, Ferreira Magalhães R, Souto da Silva R, et al. *Drugs Context.* 2022 Jan 19;11:2021-9-6. doi: 10.7573/dic.2021-9-6. eCollection 2022. <https://pubmed.ncbi.nlm.nih.gov/35145556/>

Background: Hidradenitis suppurativa (HS) is a chronic inflammatory skin disease associated with a significant negative impact on the quality of life of patients. Methods: We conducted a systematic review to assess current treatment for HS, with a special focus on therapies approved or used in Brazil. We used the PICO framework to improve the research process. The systematic review was reported in line with the PRISMA statement checklist. The search was conducted with clinical questions on two global databases (PubMed (MEDLINE) and Google Scholar) and three databases especially selected to retrieve Brazilian outcomes (BVS, SCIELO and REDALYC). Results: Overall, 4640 articles were screened, 182 articles were analysed and 70 were used in a thematic qualitative analysis. Of these, 12 articles were from Brazil. The evidence-based literature was largely limited to case reports, case series, observational studies and expert opinion. Topical therapy, lifestyle interventions and oral antibiotics appeared as effective measures for mild HS. However, moderate-to-severe HS remains refractory to conventional treatments. Conclusion: Some biologic agents, such as adalimumab, infliximab, ustekinumab and secukinumab, have been shown to be effective in the management of moderate-to-severe HS that failed conventional treatment and demonstrated a good tolerability and safety profile.

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New developments in topical acne therapy. Drake L, Reyes-Hadsall S, Barbieri JS, Mostaghimi A. *Am J Clin Dermatol.* 2022 Jan 18. doi: 10.1007/s40257-021-00666-9. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/35041198/>

Acne vulgaris is a common chronic inflammatory disease with a multifactorial pathogenesis. Although myriad acne treatments are available, current options may not be sufficient because of a lack of efficacy, limited tolerability, or burden of cost to patients. In this review, we highlight recently approved topical acne treatments, as well as those currently in clinical trials. Novel formulations of tretinoin, tazarotene, and minocycline provide modifications of and improvements to existing products. Trifarotene, a novel fourth-generation retinoid, has demonstrated improved tolerability compared with existing topical retinoids. Clascoterone is a novel first-in-class antiandrogen that topically addresses the hormonal etiology of acne. The late-phase clinical trials pipeline consists of agents with bactericidal and anti-sebum mechanisms. Although it is evident that acne treatments continue to evolve, it is important to recognize the need for further comparative studies among new and existing agents to define optimal treatment algorithms that address not only safety and efficacy but also cost-effective care.

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