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# AARS Announcement

**AARS Clinical Research Award**.

https://acneandrosacea.org/grant-opportunities

The AARS is proud to offer research grants to advance clinical science, while nurturing young investigators in the field of acne and rosacea. The deadline for the Clinical Research Grant is February 14, 2020.

The Clinical Research Grant application is available for download.

# New Medical Research

**Randomized controlled double-blind study of a cleanser composed of 5-aminolevulinic acid and peptides on mild and moderate acne vulgaris.** Lee HJ, Kim JY, Park KD, Lee WJ. J Cosmet Dermatol. 2019 Nov 28. doi: 10.1111/jocd.13232. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31778021

Background: Existing treatments of acne vulgaris may be complicated or elicit undesirable side effects. Therefore, new and safe therapeutic modalities are needed. Objectives: We investigated the effects of a cleanser with 5-aminolevulinic acid and peptides on mild to moderate acne vulgaris. Methods: Sixty volunteers with mild to moderate acne vulgaris (IGA grade II-III) were randomly assigned to treatment or control groups of thirty respectively. Participants cleansed their faces twice a day for 8 weeks with either a cleanser with 5-aminolevulinic acid and peptides (treatment) or with basic cleanser (control). The number of acne lesions (comedones, papules, pustules, and nodules), Michaelson's acne severity, and IGA were measured every 2 weeks and patient satisfaction and adverse events at week 8. Results: Mean number of inflammatory acne lesions in treatment group decreased from 5.9 at baseline to 4.5 at week 4 and 4.1 at week 8 (in particular, $P < .05$). The mean number of noninflammatory lesions in treatment group decreased from 11.4 at baseline to 8.8 at week 4 and 7.4 at week 8 (in particular, $P < .05$). The mean value of Michaelson's acne severity index and IGA in treatment group also decreased from baseline to week 4 and week 8 (both in particular, $P < .05$). Investigator's assessment and patient satisfaction in treatment group at week 8 were better than control group. Adverse events in two groups were similar. Conclusions: We think the cleanser with 5-aminolevulinic acid and peptides is a useful and safe therapeutic agent for mild to moderate acne vulgaris.

**Effect of cedar (Ziziphus spina-christi) topical solution in mild to moderate acne vulgaris: A randomized clinical study.** Shakiba R, Nilforoushzadeh MA, Hashem-Dabaghian F, et al. J Dermatolog Treat. 2019 Nov 24:1-6. doi: 10.1080/09546634.2019.1692125. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31760846

Background: Acne is the most prevalent skin disease in the world and antibiotics as its standard treatments have limited and also adverse effects. Cedar (Ziziphus spina-christi) has medicinal properties like antibacterial activity and is used topically for treatment of some kinds of skin problems in Persian medicine. The aim of this study was to evaluation the efficacy of topical cedar solution of acne vulgaris. Methods: Eighty patients aged between 15-45 years with mild to moderate acne vulgaris were conducted in this randomized, double blind trial. The participants were allocated to receive the topical cedar solution plus clindamycin 1% or topical placebo plus 1% clindamycin solution for six weeks. Patients were evaluated at the beginning of the study, second, sixth and eighth weeks after intervention

for the acne severity index (ASI) and total acne lesions counting (TLC). Data was analyzed by SPSS software with Mann-Whitney U test. Results: From 105 subjects 68 people completed the study (33 persons in cedar group and 35 persons in placebo group). The mean and standard deviation of the age was 26.1 ± 7.5 years and 22 subjects (32.4%) were male. TLC and ASI in the sixth and eighth weeks in cedar group were significantly less than in placebo group ($p < 0.001$). Topical cedar solution had no serious side effects. Conclusion: The topical cedar solution plus clindamycin 1% was more effective and safe than placebo plus 1% clindamycin for the treatment of acne vulgaris.

**Anti-acne vulgaris effect including skin barrier improvement and 5α-reductase inhibition by tellimagrandin I from carpinus tschonoskii.** Yin J, Hwang IH, Lee MW. BMC Complement Altern Med. 2019 Nov 21;19(1):323. doi: 10.1186/s12906-019-2734-y. https://www.ncbi.nlm.nih.gov/pubmed/31752827

Background: Carpinus tschonoskii (CT) has been previously studied for various activities in the improvement of skin diseases. In the present study, we examined the in vitro anti-acne vulgaris (AV) effect of CT leaves (CTL) and tellimagrandin I (TI), one of the main ellagitannins from CT, including skin barrier improvement and 5α-reductase inhibitory activity. Methods: To test the anti-AV activities of CTL and TI, firstly, anti-oxidative and anti-inflammatory activities including DPPH radical scavenging activity, nitric oxide (NO) inhibitory activity, and cytokines [interleukin (IL)-6 and IL-8] were tested. Skin barrier improvement experiments were tested using developing cornified envelope (CE) formation, and filaggrin mRNA expression level was determined by RT-PCR. The 5α-reductase inhibitory activity was determined by measuring the testosterone levels in rat liver microsomes. Results: CTL and TI showed potent anti-oxidative activity and anti-inflammatory activities. Especially, the cytokine production inhibitory activities of TI were found to be similar to the positive control, epigallocatechin gallate (EGCG). CTL and TI enhanced the CE formation and filaggrin mRNA expression levels and showed potent activities compared to that in the positive control, 1.5 mM Ca2+. In additionally, CTL and TI showed 5α-reductase inhibitory activities in a dose-dependent manner. Conclusion: The results showed that CTL and TI inhibit AV endogenous factors such as 5α-reductase and inflammatory cytokines and affect exogenous factors such as developing skin barrier function (CE and filaggrin levels). Therefore, CTL and TI may be plant-derived agent, promising in the treatment of acne vulgaris.

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**Alexithymia, psychological distress, and social impairment in patients with hidradenitis suppurativa.** Quinto RM, Sampogna F, Fania L, et al. Dermatology. 2019 Nov 19:1-8. doi: 10.1159/000503319. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31743903

Background: Hidradenitis suppurativa (HS) is a rare, chronic, inflammatory skin disease characterized by deep-seated nodules, abscesses, and draining fistulas. HS has a substantial adverse impact on patients' lives. Only a few studies investigated the relationship between health-related quality of life, psychological distress, and emotional dysregulation in patients with HS. Alexithymia, namely the difficulty in describing or recognizing emotions, has been associated with various psychological disorders, such as anxiety, depression, and psychological distress. Objective: The aim of this study was to examine the prevalence of alexithymia in patients with HS and its association with demographic and clinical variables, quality of life indices, and psychological distress. Methods: Ninety outpatients with HS completed the 20-item Toronto Alexithymia Scale, the 12-item General Health Questionnaire (GHQ-12), the Dermatology Life Quality Index, the Skindex-17, and the 36-Item Short-Form Health Survey. Information on sociodemographic and clinical variables was retrieved from clinical records. Results: Alexithymia or borderline alexithymia was observed in 44.4% of patients with HS, with a higher prevalence of the alexithymic trait in women than in men (51.7 vs. 31.2%).

We did not find any association between alexithymia and clinical variables. Of the entire sample analyzed, 46.1% reported high psychological distress; among them, 78% reported alexithymia or borderline alexithymia compared to 16.7% among GHQ noncases. Furthermore, HS patients with alexithymia or borderline alexithymia showed significantly higher scores on the Skindex-17 psychosocial scale and the Dermatology Life Quality Index, and a lower score on the mental component of the 36-item Short-Form Health Survey, than nonalexithymic patients. Conclusions: Dermatologists should consider alexithymia in the diagnosis and treatment of HS patients, given its important role in psychological and psychosocial distress.

**Work productivity and activity impairment in patients with hidradenitis suppurativa: A cross-sectional study.** Yao Y, Jørgensen AR, Thomsen SF. Int J Dermatol. 2019 Nov 17. doi: 10.1111/ijd.14706. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31736064

Background: The understanding of absenteeism, presenteeism, and impairments in daily activities among patients with hidradenitis suppurativa (HS) is limited. We examined the impact of disease-specific factors of HS on work and daily life among a cohort of outpatients in a tertiary hospital setting. Methods: Consecutive patients with HS were clinically evaluated and completed the Work Productivity and Activity Impairment (WPAI) questionnaire modified for HS. Results: A total of 100 patients were included. Among 57 (57.0%) patients who were employed, 21.2% reported missing work, and 60.4% reported loss of work productivity during the preceding week as a result of HS. The overall work productivity was reduced by 26.6%. Seventy-two percent reported daily activity impairment, averaging 32.7% reduction in daily activities. Moderate to strong correlations were observed between reduction in quality of life and the WPAI outcomes; presenteeism, overall work impairment, and activity impairment ($r = 0.50$-$0.77$). There were moderate correlations between disease severity and the same outcomes ($r = 0.35$-$0.46$). The mean rank of activity impairment among patients with Hurley stage I was 34.8, 60.1 for Hurley stage II, and 64.0 for Hurley stage III, $P < 0.0001$. Unemployed patients had higher activity impairment compared with employed patients (mean rank: 61.0 vs. 42.6, $P = 0.001$). Conclusion: There are considerable rates of presenteeism, overall work impairment, and activity impairment in HS patients. Presenteeism, loss of overall work productivity, and activity impairment are positively correlated with greater disease severity and reduction in quality of life.

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**Serum amyloid A and C-reactive protein levels and erythrocyte sedimentation rate are important indicators in hidradenitis suppurativa.** Akdogan N, Dogan S, Incel-Uysal P, et al. Arch Dermatol Res. 2019 Nov 15. doi: 10.1007/s00403-019-02014-8. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31729595

Hidradenitis suppurativa (HS) is a chronic disabling inflammatory disease of the follicular unit especially affecting apocrine gland-bearing skin areas. Little is known about systemic inflammatory complications of the disease. This study aimed to evaluate systemic inflammation in patients with HS by assessing serum amyloid A protein (SAA) and C-reactive protein (CRP) levels and erythrocyte sedimentation rate (ESR) and to identify potential risk factors for HS. Forty-four patients (M/F: 28/16) and 44 age- and sex-matched controls (M/F: 28/16) were enrolled. Demographic, clinical, laboratory, and therapeutic data, including smoking status, body mass index (BMI), waist circumference (WC), serum fasting lipid profile, fasting blood glucose, SAA, and CRP levels, and ESR were assessed. Associations were investigated by univariate and multivariate analyses. Patients with HS showed significantly higher levels of pack-years of cigarette smoking, weight, BMI, and WC ($P = 0.01$, $P < 0.001$, $P = 0.001$) and elevated SAA and CRP levels and ESR ($P = 0.008$, $P = 0.01$ and $P < 0.001$). SAA and CRP levels and ESR were significantly associated with Hurley

staging in patients with HS (P = 0.03, P = 0.003, P = 0.02). Multivariate logistic regression analysis revealed that each unit increase in the ESR increased the HS risk by 1.08-fold (95% CI 1.02-1.13). HS is significantly associated with SAA, CRP, and ESR. Among these inflammatory parameters, ESR was an independent risk factor for HS. We recommend assessment of SAA, CRP, and ESR as biomarkers that reflect the disease severity in HS patients likely to develop complications.

**Optimizing the bactericidal effect of pulsed blue light on propionibacterium acnes - a correlative fluorescence spectroscopy study.** Bumah VV, Masson-Meyers DS, Tong W, et al. J Photochem Photobiol B. 2019 Nov 12;202:111701. doi: 10.1016/j.jphotobiol.2019.111701. [Epub ahead of print]
https://www.ncbi.nlm.nih.gov/pubmed/31759194

Propionibacterium acnes infection is the eighth most prevalent disease, affecting 80% of people worldwide. Resistance to antibiotics has been on the rise; over 40% of acne infections now resist commonly used topical and oral anti-acnes antibiotics, making treatment difficult. In our effort to refine blue light as an alternative safe clinically effective treatment, we determined if 100% bacterial suppression is attainable at ultralow irradiances and radiant energies, and explored the relationship between bacterial suppression and fluorescence during treatment. P. acnes were irradiated in vitro repeatedly three times per day at 3- or 4-hour intervals over three or more days, using 3 or 5 J/cm2 radiant energy of 450 nm pulsed blue light (PBL) at irradiances as low as 2 mW/cm2. In another series of experiments, we measured changes in P. acnes fluorescence as bacteria were repeatedly irradiated at various radiant exposures over three to four days. Our results showed that (1) 33% PBL, applied three times per day at 3-hour intervals each day over a three-day period at 2 mW/cm2 irradiance and 5 J/cm2 radiant exposure, resulted in100% bacterial suppression (7 log10 reduction), (2) the absorbed 450 nm light caused P. acnes to fluoresce predominantly in the red spectrum, with the fluorescence diminishing correlatively as treatment was repeated at 3-hour intervals and rising significantly during long periods of no treatment, and (3) treatment at 3-hour intervals gave better results than treatment at 4-hour intervals.

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**Efficacy and tolerability of a novel tretinoin 0.05% lotion for the once-daily treatment of moderate or severe acne vulgaris in adult females.** Harper JC, Baldwin H, Stein Gold L, Guenin E. J Drugs Dermatol. 2019 Nov 1;18(11):1147-1154. https://www.ncbi.nlm.nih.gov/pubmed/31741360

Background: A novel tretinoin 0.05% lotion formulation has been shown to be efficacious and well-tolerated, and especially effective in adult female acne patients. While it is perhaps counter-intuitive that patients with more severe disease would show clinically significant improvement with topical monotherapy, topical retinoids have been shown to offer realistic treatment options in these patients. Objective: To evaluate the safety and efficacy of once-daily tretinoin 0.05% lotion in adult females with moderate or severe acne. Methods: Post hoc analysis of two multicenter, randomized, double-blind, vehicle-controlled phase 3 studies. Adult females (>=18 years of age) with moderate (N=551) and severe (N=55) acne were randomized (1:1) to receive tretinoin 0.05% lotion or vehicle, once-daily for 12 weeks. Efficacy assessments included changes in baseline inflammatory/noninflammatory lesions, treatment success (at least 2-grade reduction in Evaluator's Global Severity Score [EGSS] and clear/almost clear) and quality of life (QoL) using the validated Acne-QoL questionnaire. Safety, adverse events (AEs), and cutaneous tolerability were evaluated throughout. Results: At week 12, efficacy in adult females with moderate acne (EGSS=3) treated with tretinoin 0.05% lotion was significantly greater than that reported with vehicle. Mean percent reduction in inflammatory

and noninflammatory lesion counts was 58.5% and 55.5% respectively compared with 50.3% and 39.8% with vehicle (P=0.039 and P<0.001). Treatment success was achieved by 25.4% of subjects by week 12, compared with 15.4% with vehicle (P=0.006). Tretinoin 0.05% lotion was numerically more effective in adult females with severe acne (EGSS=4). Mean percent reduction in inflammatory and noninflammatory lesion counts was 59.0% and 58.8% respectively (compared with 53.5% and 45.5% with vehicle), and treatment success was achieved by 17.9% of subjects (compared with 4.5% with vehicle), with 46.6% of subjects achieving at least a 2-grade improvement in EGSS by week 12. Quality of life improvements with tretinoin 0.05% lotion were significant compared with vehicle in adult females with moderate acne (except role-social), but not in severe acne (probably due to the group size). The majority of AEs were mild and transient; more frequently reported in the moderate acne population where application site pain (2.9%), and application site dryness (5.0%) were the most common, compared with one report (4.5%) of application site pain and dryness in the severe acne population. Local cutaneous safety and tolerability assessments were generally mild-to-moderate and improved by week 12. Limitations: The number of severe subjects enrolled in the studies was considerably less than the number of subjects with moderate acne, and the studies were not powered to demonstrate a difference in efficacy based on acne severity. Conclusions: Tretinoin 0.05% lotion was significantly more effective than vehicle in achieving treatment success and reducing inflammatory and noninflammatory lesions in adult females with moderate acne, with notable improvements in treating adult females with severe acne. It was well-tolerated, and all treatment-related AEs were mild or moderate.

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**Tretinoin 0.05% lotion for the once-daily treatment of moderate-to-severe acne vulgaris: Impact of gender and race on efficacy and safety.** Lain E, Day D, Harper J, Guenin E. J Drugs Dermatol. 2019 Nov 1;18(11):1128-1138. https://www.ncbi.nlm.nih.gov/pubmed/31741356

Background: There has been an increasing interest in gender and racial differences both in the pathogenesis and treatment of acne vulgaris (acne), and postinflammatory hyperpigmentation (PIH) is a major concern in patients of color. Female acne patients report more anxiety and depression with acne improvement positively influencing Quality of Life (QoL) than their male counterparts, and there are differences in acne presentation. The first lotion formulation of tretinoin was developed using novel polymeric emulsion technology to provide an important alternative option to treat these acne patients, especially those who may be sensitive to the irritant effects of other tretinoin formulations. Objective: To determine the impact of gender and race on the efficacy and safety of tretinoin 0.05% lotion in treating moderate or severe acne. Methods: Post hoc analysis of 2 multicenter, randomized, double-blind, vehicle-controlled Phase 3 studies in moderate-to-severe acne. Subjects (aged 9 to 58 years, N=1640) were randomized (1:1) to receive tretinoin 0.05% lotion or vehicle, once-daily for 12 weeks. Efficacy assessments included changes in baseline inflammatory and noninflammatory lesions and treatment success (at least 2-grade reduction in Evaluator's Global Severity Score [EGSS] and clear/almost clear). Quality of Life was assessed using the validated Acne QoL scale. Safety, adverse events (AEs), cutaneous tolerability, and hypo-/hyper-pigmentation (using a 4-point scale where 0=none and 3=severe) were evaluated at each study visit. Results: At week 12, mean percent reduction in inflammatory lesion counts were 56.9% and 53.4% respectively in female and male patients compared with 47.1% and 39.4% with vehicle (P≤0.001), with females statistically significant to males at week 8 [P=0.026]). Mean percent reduction in noninflammatory lesion counts in females and males were 51.7% and 46.1% respectively, compared with 34.9% and 29.7% with vehicle (P<0.001), with females statistically significant to males at week 12 (P=0.035). Treatment success was achieved by 23.6% and 16.1% of female and male patients treated with tretinoin 0.05% lotion by week 12 (P≤0.001 vs vehicle) with females statistically significant compared with males (P=0.013). Significant differences in inflammatory lesion count reductions were reported in Caucasian patients from week 8, and Black

African/American male patients at week 12. Only male patients reported significant differences in both races in terms of noninflammatory lesions, and only Caucasian patients reported significant differences in treatment success. Female patients treated with tretinoin 0.05% lotion had statistically significant improvements in each Acne QoL domain (except role-social) compared with vehicle. Improvements in QoL in male subjects were only statistically different for acne symptoms. Tretinoin 0.05% lotion was well-tolerated in both genders. There were more treatment-related AEs in the female subpopulation, with a significantly greater incidence of skin dryness (P=0.006), that was more common in the younger Caucasian females. Conclusions: Tretinoin 0.05% lotion has been shown to be effective and well tolerated in moderate-to-severe acne. Treatment was significantly more effective in females than males. Tretinoin 0.05% lotion was well tolerated by both genders, although there was a higher incidence of treatment-related AEs, especially skin dryness, in females. There were racial and gender differences in QoL and beneficial effects on PIH in those patients most at risk.

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**Safety and effectiveness of microfocused ultrasound with visualization for the correction of moderate to severe atrophic acne scars.** Maas CS, Joseph JH. J Drugs Dermatol. 2019 Nov 1;18(11):1109-1114. https://www.ncbi.nlm.nih.gov/pubmed/31741353

Objective: To assess the effectiveness of microfocused ultrasound with visualization (MFU-V) for treating moderate to severe atrophic acne scars. Design: Healthy subjects (N=20) seeking correction of moderate to severe atrophic acne scars on the cheeks and/or temples were enrolled. Scars were predominantly rolling- and boxcar-type, affecting an area ≥5.0cm2. Eighteen subjects completed the study. Intervention: The treatment area was marked with 14mm2 and 25mm2 squares and treated with four transducers: 7 MHz (3.0mm focal depth) and 10 MHz (1.5mm focal depth), each in 14mm and 25mm widths. During each session, MFU-V treatment lines were applied 2-3mm apart, within each treatment area, with a maximum length of 25mm. Each square received 30 treatment lines at two transducer depths (60 total lines). Subjects received three total treatments, with 30 days between each session. The primary outcome measure was improvement in baseline appearance of scars at 90 and 180 days after the final treatment. Secondary outcome measures included changes in severity using an Acne Scar Improvement Scale (ASIS) and Global Aesthetic Improvement Scale (GAIS) at 60-, 90-, and 180-days post-treatment, and a satisfaction questionnaire at 90-days post-treatment. Results: Among the 90-day images available for assessments (n=11), 100% were rated as improved by blinded reviewers, and 64% of pre- and post-treatment images were correctly selected. Among 180-day images (n=15), 100% were rated as improved, and 40% of pre- and post-treatment images were correctly selected. Most subjects were determined to have 25-50% improvement in investigator ASIS scores at 60-, 90-, and 180-days post-treatment. All subjects noted some improvement in severity at the 60-day assessment when measured using ASIS. Based on investigator GAIS scores, 100% of subjects were “Improved” or “Much Improved” at 60-, 90-, and 180-days post-treatment. Based on subject GAIS scores, all subjects noted improvement at the 60-day assessment, and 83% and 89% at the 90- and 180-day assessments, respectively. Overall, 17 subjects (94.4%) expressed some degree of satisfaction at 90-days post-treatment. Conclusions: The results of this study demonstrated that MFU-V therapy is beneficial and well tolerated for the treatment of rolling- and boxcar-type acne scars.

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**A cohort study using a facial cleansing brush with acne cleansing brush head and a gel cleanser in subjects with mild-to-moderate acne and acne-prone skin.** Gold MH, Ablon GR, Andriessen A, et al. J Drugs Dermatol. 2019 Nov 1;18(11):1140-1145. https://www.ncbi.nlm.nih.gov/pubmed/31741359

Introduction: Acne vulgaris is a highly prevalent skin condition that can adversely affect the quality of life. Acne-predisposed skin is in a state of subclinical inflammation leading to skin barrier dysfunction. A multi-center cohort study was designed to evaluate clinical efficacy and safety of twice daily facial cleansing using an oscillatory sonic brush, acne brush head, and cleansing gel for 4 weeks. Methods: Subjects with mild-to-moderate acne and acne-prone skin used the cleansing regime after which they applied the skin care products they routinely used. Physician-assessed skin condition comparing baseline versus week 4 using the FDA/IGA scale and subject satisfaction with cleansing efficacy and handling properties of the regime were scored during the last visit. Results: Forty-six subjects completed the study. Physician-scored skin condition showed a statistically significant improvement in FDA/IGA scores and a significant reduction of inflammatory and non-inflammatory lesions comparing baseline versus 4 weeks. Thirty-five (76.0%) subjects had cleared or almost cleared. Subjects similarly assessed their skin to be improved. Conclusion: Both the physician and subject scores revealed the gentle cleansing routine using the sonic brush to be effective reducing the number of acne lesions, improving skin condition. No adverse events were reported during the study period. The cleansing regime may offer an attractive, safe option for maintenance and treatment of subjects with mild-to-moderate acne and acne-prone skin.

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**Combined 400-600nm and 800-1200nm intense pulsed phototherapy of facial acne vulgaris.** Knight JM. J Drugs Dermatol. 2019 Nov 1;18(11):1116-1122. https://www.ncbi.nlm.nih.gov/pubmed/31741354

Background and objective: Laser and light-based therapies are relatively new treatment options for acne vulgaris patients. Intense pulsed light (IPL) is believed to exploit the photosensitivity of P. acnes residing in the pilosebaceous units at lower wavelengths and induce anti-inflammatory effects by influencing cytokine release at higher wavelengths. Our study aimed to assess the clinical safety and efficacy of a novel dual-band “notch” acne filter (400-600nm and 800-1200nm) in improving inflammatory and non-inflammatory lesions in patients presenting with mild-to-moderate acne. Materials and methods: The study was designed as a single-site, prospective study of 10 patients with Fitzpatrick skin types II-V presenting with mild to moderate inflammatory facial acne vulgaris. A total of five whole-face light treatments were conducted at 1-2-week intervals with an IPL system (Lumenis M22 System, Lumenis Ltd.) equipped with a dual-band “notch” acne filter (400-600nm and 800-1200nm). Follow-up visits were performed at 1 and 4 weeks following the last treatment session. Acne mean change from baseline was assessed using the 4-point Investigator Global Assessment (IGA) scale. Comprehensive facial photographs were taken, and lesions were counted at screening, treatment 4, and both 1- and 4-week follow-up visits. The investigator and the patients assessed overall improvements in appearance, using the 5-point Likert scale. Subjects also completed the Cardiff Acne Disability Index (CADI) questionnaire and rated their satisfaction from treatment. Subject-reported pain, using the visual analog scale (VAS), and downtime were also recorded. Results: Treatment impact on overall lesion clearance was most substantial at 4 weeks follow-up, at which 50% of patients showed at least a 50% reduction from baseline of lesion counts ($P<0.0001$). IGA scores improved throughout the course of the study, and significant improvements in the overall skin condition was noted, with mean 1.63-point and 1.50-point increases from baseline in the acne improvement ratings, at 1- and 4-weeks follow-up, respectively ($P=0.0074$, 0.0063). Patient-assessed CADI improved throughout the treatment and follow-up visits, peaking at a 3.22-point and 4.9-point average reductions from baseline at 1-week follow-up ($P=0.0001$) and 1-month follow-up ($P<0.0001$), respectively. The majority of the patients (80%)

rated their acne lesions as improved, much improved, or very much improved at 4-weeks follow-up (P=0.0004). Significant enhancements were also noted for skin texture. Eighty percent of the patients reported overall satisfaction with treatment outcomes, while 60% rated their satisfaction as “good” or “very good” at 4-weeks follow-up (P<0.0001). Treatments were well tolerated, with mean per-session VAS scores being ≤3.77, while the mean downtime was negligible (a few hours). Conclusion: The use of an IPL device equipped with a proprietary “notch” acne filter elicited a significant effect on acne vulgaris. No severe pain, erythema, edema, folliculitis, crusting or exfoliation was noted, emphasizing the safety of our technique.

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## Clinical Reviews

**Rosacea treatment: A patient-centric approach.** Elewski B. Br J Dermatol. 2019 Nov 26. doi: 10.1111/bjd.18616. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31773725

Rosacea is a common disease with a variety of phenotypic manifestations and heterogeneous symptoms, so no two patients are exactly alike. Interestingly, treatment has traditionally been directed towards the particular subtype (erythematotelangiectatic, papulopustular, phymatous and ocular) described by Wilkin and colleagues from the National Rosacea Society Expert Committee, although most agency-approved medications are indicated only for the papulopustular subtype. More recently, rosacea classification and management has evolved, and a phenotypic approach based upon the patient's presenting symptoms and clinical features has largely replaced classification by specific subtype. The ROSacea COnsensus (ROSCO) 2017 project recommended this phenotypic approach and used a modified Delphi strategy to reach consensus on a treatment algorithm. In this issue of the BJD, the ROSCO 2019 paper also uses the modified Delphi method to reach consensus. This method is unusual, but a good choice for rosacea because of the conglomeration of symptoms and clinical signs. Although Cochrane Reviews include data from randomized clinical trials and are the highest level of evidence, the modified Delphi method relies on a panel of experts with diverse clinical experience. This is important in rosacea treatment because, although it is a common condition, there are no controlled studies on the management of many of its less common clinical features and symptoms, and high-quality evidence is scant. ROSCO 2019 includes 19 dermatologists and two ophthalmologists globally. Their combined experience, in addition to prior literature review, is the basis of this guideline development. ROSCO 2019 is a granular discussion to provide a better characterization of rosacea and approach treatment based upon clinical presentation, including signs and symptoms, rather than a particular ‘subtype’. Emphasis is placed on psychological and nonvisible symptoms (burning, stinging, dryness), including the patient's report of the factors that impact their quality of life. The panel also recommended assessing impact over the past month vs. the past week, as this is a better representation of the disease cycle. The Dermatology Life Quality Index is dermatology-specific, it is not a disease-specific tool; therefore, another tool for rosacea assessment is needed. Additionally, the authors updated the 2017 treatment algorithm from ROSCO 2017 and added the concept of a rosacea tracker tool, which would serve to capture an ongoing record of a patients’ rosacea phenotype by tracking changes in severity, patient impact and response to treatment.5 ROSCO 2019 also introduces patient case studies in the hope of reaching a consensus on management. Significantly, this paper offers additional guidance on ocular rosacea, providing practical support for diagnosis, and referral points for patients with ocular involvement. Patients with rosacea have a high burden of disease, and the authors stress the need to improve management of patients with rosacea by directing attention to symptoms, in addition to clinical signs, with a target of clear skin. The authors’ approach incorporated

personalized care in the era of 'precision medicine'. What is the next step in establishing and validating standards for patient-centric rosacea management? Further study is needed, including large-scale clinical research utilizing a phenotype approach to expand treatment options and the development of objective and validated, disease-specific, quantitative severity and quality-of-life assessment tools.

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**Caveolin-1 as a possible target in treatment for acne.** Kruglikov IL, Scherer PE. Exp Dermatol. 2019 Nov 26. doi: 10.1111/exd.14063. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31769542

Expression of caveolin-1 (Cav-1) is an important pathophysiological factor in acne. Cav-1 strongly interacts with such well-recognized etiopathogenic factors such as hyperseborrhea, follicular hyperkeratinization, and pathogenicity of C. acnes. Cav-1 is a strong negative regulator of transforming growth factor beta (TGF-β) expression. It acts as a critical determinant of autophagy, which is significantly induced in acne lesions through C. acnes and by absorption of fatty acids. Cav-1 also demonstrates different correlations with the development of innate immunity. We propose that normalization of Cav-1 expression can serve as a target in anti-acne therapy.

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**Long-term safety of adalimumab in 29,967 adult patients from global clinical trials across multiple indications: An updated analysis.** Burmester GR, Gordon KB, Rosenbaum JT, et al. Adv Ther. 2019 Nov 20. doi: 10.1007/s12325-019-01145-8. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31748904

Introduction: The safety profile of adalimumab was previously reported in 23,458 patients across multiple indications. Here we report the long-term safety of adalimumab in adults with plaque psoriasis (Ps), hidradenitis suppurativa (HS), rheumatoid arthritis (RA), ankylosing spondylitis, psoriatic arthritis, non-radiographic axial spondyloarthritis, peripheral spondyloarthritis, Crohn's disease (CD), ulcerative colitis (UC), and non-infectious uveitis (UV). Methods: Safety data from 77 clinical trials were pooled. Safety assessments included adverse events (AEs) and serious AEs (SAEs) that occurred after the first study dose and within 70 days (5 half-lives) after the last study dose. Results: A total of 29,967 patients were included, representing 56,916 patient-years (PY) of exposure. The most frequently reported SAE of interest was infection (3.7/100 PY) with highest incidences in CD, RA, UV, and UC (3.5/100 PY-6.9/100 PY); serious infections in Ps (1.8/100 PY) and HS (2.8/100 PY) were lower. The observed number of deaths was below what would be expected in an age- and sex-adjusted population for most adalimumab-treated patients (including Ps). Lack of real-life data and limited long-term data (> 5 years) for most patients are limitations of this analysis. Conclusion: The safety profile of adalimumab was consistent with previous findings and no new safety signals were observed.

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**Effects of zinc supplementation on inflammatory skin diseases: A systematic review of the clinical evidence.** Dhaliwal S, Nguyen M, Vaughn AR, et al. Am J Clin Dermatol. 2019 Nov 19. doi: 10.1007/s40257-019-00484-0. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31745908

Background: Zinc has been used in patients with acne vulgaris for its anti-inflammatory effects; however, it is unclear if zinc supplementation is also beneficial in other inflammatory skin conditions. Objective: The objective of this article was to determine the effect of zinc supplementation on inflammatory dermatologic conditions. Data sources: We

searched the Cochrane Central Register of Controlled Trials, EMBASE, MEDLINE, and Ovid with no time limit up to 29 May, 2019. Trials examining supplementation with zinc in the treatment of inflammatory dermatological conditions (acne vulgaris, atopic dermatitis, diaper dermatitis, hidradenitis suppurativa, psoriasis, and rosacea) in children and adults were selected. Results: Of 229 articles, 22 met inclusion criteria. Supplementation with zinc was found to be beneficial in ten of 14 studies evaluating its effects on acne vulgaris, one of two studies on atopic dermatitis, one of one study on diaper dermatitis, and three of three studies evaluating its effects on hidradenitis suppurativa. However, the one article found on psoriasis and the one article found on rosacea showed no significant benefit of zinc treatment on disease outcome. Conclusions and implications: Some preliminary evidence supports the use of zinc in the treatment of acne vulgaris and hidradenitis suppurativa; however, more research is needed with similar methodologies and larger sample sizes in these diseases. Further, zinc may be of some benefit in the treatment plan for atopic dermatitis and diaper dermatitis; however, additional studies should be conducted to further evaluate these potentially positive associations. To date, no evidence is available to suggest that zinc may be of benefit in rosacea and psoriasis; however, limited data are available evaluating the use of zinc in these conditions.

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**Revealing the secret life of skin - with the microbiome you never walk alone.** Sfriso R, Egert M, Gempeler M, et al. Int J Cosmet Sci. 2019 Nov 19. doi: 10.1111/ics.12594. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31743445

The human skin microbiome has recently become a focus for both the dermatological and cosmetic fields. Understanding the skin microbiota, i.e. the collection of vital microorganisms living on our skin, and how to maintain its delicate balance is an essential step to gain insight into the mechanisms responsible for healthy skin and its appearance. Imbalances in the skin microbiota composition (dysbiosis) are associated with several skin conditions, either pathological such as eczema, acne, allergies or dandruff or non-pathological such as sensitive skin, irritated skin or dry skin. Therefore, the development of approaches which preserve or restore the natural, individual balance of the microbiota represents a novel target not only for dermatologists but also for skin care applications. This review gives an overview on the current knowledge on the skin microbiome, the currently available sampling and analysis techniques as well as a description of current approaches undertaken in the skin care segment to help restoring and balancing the structure and functionality of the skin microbiota.

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**Flares in hidradenitis suppurativa in treatment with adalimumab.** Caposiena Caro RD, Bianchi L. J Eur Acad Dermatol Venereol. 2019 Nov 18. doi: 10.1111/jdv.16093. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31736161

We read with great interest the article by van der Zee et al. regarding the impact of disease flare on health-related quality of life Hidradenitis Suppurativa (HS) patients and the effect of adalimumab on disease flare. HS is an inflammatory skin disease described as chronic and recurrent, with intermittent periods of worsening, also described as 'flares'; although, a recent literature review demonstrated that there are few precise definitions of HS flare.

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**Investigating race and gender in age at onset of hidradenitis suppurativa.** Morss PC, Porter ML, Savage KT, et al. J Eur Acad Dermatol Venereol. 2019 Nov 17. doi: 10.1111/jdv.16095. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31736152

Hidradenitis suppurativa (HS) has been reported to disproportionately affect black patients and female patients. We examined the natural history of HS by race and gender to determine their effect on self-reported age at onset of HS symptoms.

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**The impact of hidradenitis suppurativa on work productivity and activity impairment.** Sandhu VK, Shah M, Piguet V, Alavi A. Br J Dermatol. 2019 Nov 8. doi: 10.1111/bjd.18695. [Epub ahead of print] https://www.ncbi.nlm.nih.gov/pubmed/31707731

Hidradenitis suppurativa (HS) is an inflammatory skin condition affecting skin fold regions. HS is associated with a marked reduction in quality-of-life (QoL), financial burden, and high incidence of comorbid mental illness. This disease begins in early adulthood, a time of psychiatric vulnerability and immense professional growth. This is a critical time in planning careers and establishing social contacts that overtime may change an individual's life course. However, there is limited research on HS's impact on employment and work productivity.

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**Menopausal acne - challenges and solutions.** Khunger N, Mehrotra K. Int J Womens Health. 2019 Oct 29;11:555-567. doi: 10.2147/IJWH.S174292. eCollection 2019. https://www.ncbi.nlm.nih.gov/pubmed/31754313

Although acne is a disease predominant in adolescence, it is being increasingly observed in adult life, including the menopausal period. The etiology of menopausal acne is multifactorial, with hormonal imbalance being the major culprit. There is a relative increase of androgens in the menopausal female that leads to clinical hyperandrogenism manifesting as acne, hirsutism and androgenetic alopecia. Other endocrine disorders including thyroid abnormalities, hyperprolactinemia and insulin resistance also play a role. Genetics, stress, dietary changes, lack of sleep and exercise and other lifestyle changes are implicated as trigger factors. Most menopausal women with isolated few acne lesions have normoandrogenic serum levels and do not require extensive investigations. However, baseline investigations including total testosterone are useful. Patients must also be evaluated for associated comorbidities such as obesity, diabetes, hypertension and dyslipidemia. A detailed history can help to exclude polycystic ovarian syndrome, late-onset congenital adrenal hyperplasia or medications as a cause of acne. The evaluation of menopausal acne and the approach to treatment depend on the severity of acne and associated features. In patients with mild acne without virilization, prolonged topical therapy is the mainstay of treatment. Though combined oral contraceptives are effective, they are relatively contraindicated in the postmenopausal period. Spironolactone is the first choice of therapy in the subset of patients that require oral anti-androgen therapy. Procedural treatment can be useful as it can also help in the treatment of associated acne scars and concomitant skin aging. It is also important to focus on lifestyle changes such as reducing stress, controlling obesity, having a healthy diet, exercise and proper skin care routine to reduce acne. The focus of this article is on the clinical presentation and management challenges of menopausal acne, which represents a special subtype of acne.

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**Secondary prevention of hidradenitis suppurativa.** Kurzen H, Kurzen M. Dermatol Reports. 2019 Oct 25;11(2):8243. doi: 10.4081/dr.2019.8243. eCollection 2019 Sep 19.
https://www.ncbi.nlm.nih.gov/pubmed/31728176

Hidradenitis suppurativa (HS) is a multifactorial disease with many facets of uncertain importance for optimal treatment and prevention. In order to explore options for secondary prevention in HS, we randomly and retrospectively selected 40 patients with HS that were analyzed on the basis of supposed trigger factors and proposed prevention measures. 67% of our HS patients were current smokers. They had started smoking on average 8 years prior to abscess formation. 35% complained of digestive problems and had tried different sorts of diet. We identified 2 cases of gluten-sensitive enteropathy, in which HS improved after introduction of gluten-free diet. In 7 further patients, introduction of low dairy/low carbohydrate diet considerably improved HS. 77.5% had never used any skin care in the intertriginous areas. Implementing secondary prevention by reducing irritation, avoiding shaving, improving skin care, performing laser epilation or applying fusidic acid/betamethasone cream led to an improvement in 62.5% of patients. We suggest a structured approach in daily practice in order to identify individual trigger factors. The crucial point for secondary prevention is the improvement of patient education.

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