



## AARS **HOT TOPICS** MEMBER NEWSLETTER

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## AARS Special Request

**AARS Asks for Help for Acne Patients on behalf of the AAD, IDEOM, and ACORN.** Please take a moment to peruse the letter below:

Dear Colleagues,

The AAD is spearheading an initiative to develop a simple tool to assess the severity of inflammatory skin disease in everyday clinical practice as part of a quality initiative. The Acne Core Outcomes Research Network (ACORN) has been working with the International Dermatology Outcome Measures (IDEOM) group and the AAD to help accomplish this goal.

We are holding a meeting in Chicago to get feedback from patients on their thoughts about how acne should be measured in clinical practice.

We are reaching out to you to help identify acne patients who you think might be interested/willing to attend this meeting in Chicago Saturday Oct 13 with Friday arrivals for patients. The patient's travel cost and lodging will be covered, as well as a \$200 stipend.

At this point, we are looking for the names and email addresses of patients that we could invite to participate. We will send them information on the meeting along with the invitation.

Thank you for considering.

If you have any questions or have patients to recommend, please contact Diane Thiboutot, MD, Past AARS President via email at [dthiboutot@pennstatehealth.psu.edu](mailto:dthiboutot@pennstatehealth.psu.edu).

Kind regards,

Diane Thiboutot, MD and Jerry Tan, MD

on behalf of the Acne Core Outcomes Research Network and the IDEOM group

## Industry News

**FDA approves Altreno for acne treatment in kids, adults.** Katherine Bortz. Healio Dermatology. August 24, 2018. <https://www.healio.com/pediatrics/dermatology/news/online/%7B50ef9541-2321-4201-9a3d-083bd760ce87%7D/fda-approves-altreno-for-acne-treatment-in-kids-adults>

The FDA has approved a new drug application for Altreno, a topical treatment for acne vulgaris produced by Ortho Dermatologics. This lotion (tretinoin 0.05%) is intended for use in patients aged 9 years and older. "Today's FDA approval of Altreno builds upon our strong acne portfolio, providing physicians and patients a trusted retinoid in a lotion formulated to enhance the user's experience with the inclusion of moisturizing attributes of hyaluronic acid, glycerin and collagen," Bill Humphries, president of Ortho Dermatologics, said in a press release. "Altreno lotion spreads easily and is quickly absorbed into the skin, allowing acne patients to easily incorporate this once-daily treatment into their skin care regimen." The safety and efficacy of Altreno was assessed in two identical multicenter, randomized, double-blind, vehicle-controlled phase 3 studies, which included 1,640 patients. When compared with another vehicle, the lotion significantly reduced patients' inflammatory lesions, with researchers observing a mean

absolute reduction of 13.1% in the first trial and 13.9% in the second. Those who received a vehicle demonstrated a 10.6% reduction in the first trial and a 10.7% reduction in the second. Furthermore, Altreno was effective against noninflammatory lesions. Researchers reported a mean absolute reduction of 17.8% in the first trial and 21.9% in the second trial when using the medication. Patients who received a vehicle demonstrated 10.6% and 13.9% reductions in noninflammatory lesions. Treatment success was observed in 16.5% and 19.8% of patients administered the lotion. Adverse events were uncommon, with more than 1% of patients reporting dryness, pain, erythema, irritation and exfoliation. Nearly all patients (90%) were satisfied with the treatment, and this satisfaction rose by 53% by week 12 of treatment. “Topical retinoids are a foundational treatment for all patients with acne, but they often cause skin irritation,” Joshua Zeichner, MD, director of cosmetic and clinical research in dermatology at Mount Sinai Hospital, said in the release. “With the efficacy expected from a retinoid, plus a proven tolerability profile, Altreno will be an ideal choice for many of my patients.”

**Burt’s Bees nature-based sensitive skin care outperforms md-recommended regimen.** DermWire. Tuesday, August 14, 2018. <http://practicaldermatology.com/dermwire/2018/08/14/burts-bees-nature-based-sensitive-skin-care-outperforms-md-recommended-regimen/?c=112&t=>

Burt’s Bees nature-based sensitive skin regimen is well-tolerated as well as clinically and statistically superior to a leading dermatologist-recommended synthetic regimen, according to a study in the Journal of Drugs in Dermatology. Burt’s Bees’ nature-based regimen consists of Sensitive Facial Cleanser, Sensitive Daily Moisturizing Cream and Sensitive Night Cream. This 4-week, double-blind, randomized study was conducted in 120 women with sensitive skin with clinically diagnosed rosacea, atopic dermatitis/eczema, or cosmetic intolerance. Burt’s Bees Sensitive Skin Regimen clinically and statistically improved physician-rated overall skin appearance by 34 percent with similar improvements in visual and tactile smoothness, clarity and radiance. In contrast, the maximum improvement in women using the synthetic regimen of cetyl alcohol, sodium lauryl sulphate-containing cleanser and glycerin, polyisobutene-containing lotion was 4 percent. No clinically significant tolerability issues were reported in either regimen after 4 weeks of daily administration. Both regimens improved epidermal barrier function as measured by transepidermal water loss. The Burt’s Bees regimen optimized skin hydration to improve and maintain skin health. The synthetic regimen was associated with over hydration possibly resulting from the occlusive barrier it provides. “The data suggest that nature-based products can be effective for patients who seek alternatives to conventional, synthetic skin care products,” says Zoe Draelos, MD, a dermatologist in High Point, NC and the study’s principal investigator, in a news release. “Patients with sensitive skin saw a clinical improvement in overall skin appearance, specifically in visual and tactile smoothness, clarity, and radiance.”

## New Medical News

**The investigation of the relationships of demodex density with inflammatory response and oxidative stress in rosacea.** Falay Gur T, Erdemir AV, Gurel MS, et al. Arch Dermatol Res. 2018 Aug 27. doi: 10.1007/s00403-018-1857-1. [Epub ahead of print] <https://www.ncbi.nlm.nih.gov/pubmed/30151656>

The relationships of demodex density with systemic oxidative stress, inflammatory response, and clinical severity in rosacea are not clear. This study aimed to (a) analyze the levels of systemic oxidative stress, antioxidant capacity, inflammatory parameters, and matrix metalloproteinases (MMPs) in systemic circulation in patients with rosacea, (b) identify the relationship between mite density and both oxidative stress and inflammation, and (c) investigate the role

of photoaging and sebum secretion in etiopathogenesis. Forty patients with rosacea and 40 age-, sex-, and skin phenotype-matched healthy volunteers were included in the study. Clinical disease severity of the patients was determined. Sebum levels were measured in both the groups, and photoaging was evaluated. Reflectance confocal microscopy was used to calculate demodex density. Serum total antioxidant capacity (TAC), total oxidant capacity (TOC), myeloperoxidase (MPO), MMP-1, MMP-9, arylesterase (ARES), interleukin-1 $\beta$  (IL-1 $\beta$ ), paraoxonase-1 (PON-1), and tumor necrosis factor- $\alpha$  (TNF- $\alpha$ ) levels were also analyzed. The patients with rosacea had significantly higher serum TOC and lower TAC levels ( $p < 0.001$ ). The serum ARES and PON-1 levels were significantly lower ( $p = 0.045$  and  $p < 0.001$ , respectively); however, the serum levels of MMP-1, MMP-9, IL-1 $\beta$  and MPO were higher in the patient group. Demodex parameters were higher in the patient group compared to the control group. There was no significant correlation between the number of mites and disease severity. In addition, the number of mites was not correlated with the serum levels of TAC, TOC, OSI, MPO, MMP-1, MMP-9, ARES, PON-1, TNF- $\alpha$ , and IL-1 $\beta$ . However, sebum levels were directly proportional to the number of mites. Photoaging severity was similar between the patients and control subjects. The changing sebaceous microenvironment in rosacea leads to an increase in the number of demodex mites. However, increased demodex density does not alter disease severity, level of oxidative stress, or inflammation. Although none of the patients with rosacea had any underlying systemic disease, patients' systemic oxidative stress and inflammation parameters were found high in systemic circulation. It is assumed that the patients with rosacea are more prone to systemic diseases.

**Phytocosmeceutical formulation development, characterization and its in-vivo investigations.** Mohammad IS, Naveed M, Ijaz S, et al. Biomed Pharmacother. 2018 Aug 21;107:806-817. doi: 10.1016/j.biopha.2018.08.024. [Epub ahead of print] <https://www.ncbi.nlm.nih.gov/pubmed/30142542>

Several plants found rich in flavonoid, polyphenols, and antioxidants reported antiaging, oppose inflammation and carcinogenic properties but have rarely been applied in dermatology. The present study was an active attempt to formulate a stable phytocosmetic emulsion system loaded with 2% pre-concentrated Prosopis cineraria bark extract, aiming to revive facial skin properties. In order to obtain potent therapeutic activities, we first prepared extracts of stem, leaves, and bark and screen them on basis of phenolic, flavonoids contents and antioxidant, antibacterial, lipoxygenase and tyrosinase inhibition activities. Furthermore, cytocompatibility of the extract was also determined prior starting in vivo investigations. Then the in vivo performance of 2% bark extract loaded emulsion formulation was determined by using non-invasive probe cutometer and elastometer with comparison to base formulation. The preliminary experiment showed that bark extract has a significant amount of phenolic and flavonoid compounds with eminent antioxidant potential. Furthermore, indicated an efficient antibacterial, lipoxygenase, and tyrosinase enzyme inhibition activities. Importantly, the bark extract did not induce any toxicity or apoptosis, when incubated with HaCat cells. Moreover, the in vivo results showed the formulation (size 3  $\mu$ m) decreased the skin melanin, erythema and sebum contents up to 2.1-,2.7-and 79%, while increased the skin hydration and elasticity up to 2-folds and 22% as compared to the base, respectively. Owing to enhanced therapeutic effects the phytocosmetic formulation proved to be a potential skin whitening, moisturizer, anti-acne, anti-wrinkle, anti-aging therapy and could actively induce skin rejuvenation and resurfacing.

**Dysregulated neutrophil responses and neutrophil extracellular trap formation and degradation in PAPA syndrome.** Mistry P, Carmona-Rivera C, Ombrello AK, et al. Ann Rheum Dis. 2018 Aug 21. pii: annrheumdis-2018-213746. doi: 10.1136/annrheumdis-2018-213746. [Epub ahead of print] <https://www.ncbi.nlm.nih.gov/pubmed/30131320>

**Objectives:** Pyogenic arthritis, pyoderma gangrenosum and acne (PAPA) syndrome is characterized by flares of sterile arthritis with neutrophil infiltrate and the overproduction of interleukin (IL)-1 $\beta$ . The purpose of this study was to elucidate the potential role of neutrophil subsets and neutrophil extracellular traps (NET) in the pathogenesis of PAPA. **Methods:** Neutrophils and low-density granulocytes (LDG) were quantified by flow cytometry. Circulating NETs were measured by ELISA and PAPA serum was tested for the ability to degrade NETs. The capacity of NETs from PAPA neutrophils to activate macrophages was assessed. Skin biopsies were analyzed for NETs and neutrophil gene signatures. **Results:** Circulating LDGs are elevated in PAPA subjects. PAPA neutrophils and LDGs display enhanced NET formation compared with control neutrophils. PAPA sera exhibit impaired NET degradation and this is corrected with exogenous DNase1. Recombinant human IL-1 $\beta$  induces NET formation in PAPA neutrophils but not healthy control neutrophils. NET formation in healthy control neutrophils is induced by PAPA serum and this effect is inhibited by the IL-1 receptor antagonist, anakinra. NETs from PAPA neutrophils and LDGs stimulate IL-6 release in healthy control macrophages. NETs are detected in skin biopsies of patients with PAPA syndrome in association with increased tissue IL-1 $\beta$ , IL-8 and IL-17. Furthermore, LDG gene signatures are detected in PAPA skin. **Conclusions:** PAPA syndrome is characterized by an imbalance of NET formation and degradation that may enhance the half-life of these structures in vivo, promoting inflammation. Anakinra ameliorates NET formation in PAPA and this finding supports a role for IL-1 signaling in exacerbated neutrophil responses in this disease. The study also highlights other inflammatory pathways potentially pathogenic in PAPA, including IL-17 and IL-6, and these results may help guide new therapeutic approaches in this severe and often treatment-refractory condition.

**Buffering capacity.** Proksch E. *Curr Probl Dermatol.* 2018;54:11-18. doi: 10.1159/000489513. Epub 2018 Aug 21. <https://www.ncbi.nlm.nih.gov/pubmed/30130768>

Each biological system possesses a widely unrecognized buffer system to maintain acid-base balance to a specific pH. Our lives are dependent on the functioning of buffer systems. A buffer system is a solution that resists a change in pH when acids or bases are added. The skin possesses a fairly high buffer capacity, which is determined by the amount of H<sup>+</sup> or OH<sup>-</sup> ions that is needed until the pH value of a solution changes by the unit 1. Buffers contain a weak or medium strong acid (base) and the corresponding salt. Buffers that show a pKa in the range of the Stratum corneum surface pH are most important for the skin. Buffer capacity is reduced both in baby skin and in aged skin. External factors, water, and detergent may reduce the local buffer capacity because of the elution of buffer chemicals leading to increased pH and irritative contact dermatitis. Inflammatory diseases, including atopic dermatitis, psoriasis, and acne vulgaris, which show an increased pH should probably also have reduced buffer capacities. For the treatment of the skin diseases and in aged skin, emollient with a pH that is slightly more acidic than the average normal pH and an appropriate buffer capacity should be preferably used.

**Evaluation the effects of oral and topical simvastatin as adjunct therapy in the treatment of acne vulgaris.** Ahmadvand A, Yazdanfar A, Yasrebifar F, et al. *Curr Clin Pharmacol.* 2018 Aug 21. doi: 10.2174/1574884713666180821143545. [Epub ahead of print] <https://www.ncbi.nlm.nih.gov/pubmed/30129417>

**Objectives:** Acne vulgaris is a common dermatologic disorder which results in psychological consequences. Inflammation plays an important role in the formation of acne lesions. Recently, many studies demonstrated anti-inflammatory effects of statins; thus, the aim of this study was to evaluate the efficacy of oral and topical Simvastatin as adjunct treatment in acne vulgaris. **Material and method:** In 76 patients with moderate to very severe acne vulgaris, beside antibiotic treatment including oral azithromycin (250 mg, 3 times a week, orally) and topical benzoyl peroxide gel (5%, once daily), oral group received 20mg/day of oral simvastatin and blank solution, topical group received

simvastatin 1% topical solution and oral placebo, and placebo group received oral placebo and blank solution. Acne severity of each patient was determined by global acne grading system (GAGS) at baseline and after 8 weeks treatment. Result: Comparing the three groups' differences of acne severity scores at baseline and 8 weeks of treatment showed that topical simvastatin was associated with greater decrease in acne severity as compared with those of oral and placebo groups, while the oral simvastatin appeared to be more efficacious as compared with placebo group (P value<0.001). Also, oral and topical simvastatin were well tolerated in all patients. Conclusion: Although preliminary, the results of this study showed that oral and topical statins, agents with anti-inflammatory properties, can be considered as effective treatment for acne vulgaris adjunct to standard treatment. However, further studies with larger sample size and longer follow-up are needed to confirm these results.

**Polyphyllin I inhibits propionibacterium acnes-induced inflammation in vitro.** Zhu T, Wu W, Yang S, et al. *Inflammation*. 2018 Aug 18. doi: 10.1007/s10753-018-0870-z. [Epub ahead of print] <https://www.ncbi.nlm.nih.gov/pubmed/30120655>

Propionibacterium acnes (*P. acnes*) has been implicated in the progression of acne inflammation. Because current acne medications have various side effects, it is necessary to explore alternative medications possessing anti-inflammatory activity against *P. acnes*. We investigated the inhibitory effects of polyphyllin I (PPI) on *P. acnes*-induced inflammation in vitro. In this study, we examined the effects of PPI on the production of inflammatory cytokines in HaCaT keratinocytes treated with heat-killed *P. acnes*. These treated HaCaT keratinocytes showed increased expression of Toll-like receptor 2 (TLR2) and production of inflammatory cytokines. PPI significantly suppressed the secretion of inflammatory cytokines, including interleukin (IL)-6, IL-8, and tumor necrosis factor (TNF)- $\alpha$ , and the expression of TLR2 in *P. acnes*-treated cells. Moreover, we studied the influence of PPI on the nuclear factor- $\kappa$ B (NF- $\kappa$ B) and mitogen-activated protein kinase (MAPK) signaling pathways in *P. acnes*-treated keratinocytes. PPI diminished the activation of NF- $\kappa$ B. Phosphorylated p38 levels were markedly increased after treatment with heat-killed *P. acnes* but were decreased after treatment with PPI, while the effect of PPI on ERK phosphorylation was not significant. Heat-killed *P. acnes* and PPI did not have any effect on JNK phosphorylation. Furthermore, we confirmed that NF- $\kappa$ B p65 inhibitor (BAY11-7082), p38 MAPK inhibitor (SB203580), and PPI blocked the expression of IL-8 in heat-killed *P. acnes*-treated cells. These results demonstrated that PPI has potential for development as a treatment for acne inflammation.

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**Application of plasma-combined regeneration technology in managing facial acne scars.** Tian J, Lei XX, Xuan L, et al. *J Cosmet Laser Ther*. 2018 Aug 15:1-7. doi: 10.1080/14764172.2018.1481512. [Epub ahead of print] <https://www.ncbi.nlm.nih.gov/pubmed/30110184>

Background and objectives: Plasma skin regeneration (PSR) and platelet-rich plasma (PRP) have gained popularity in the treatment of acne scars due to their efficacy and improved tolerability. The objective of this investigation was to evaluate the synergistic effect of PRP plus PSR (plasma-combined regeneration technology, PCRT) in managing facial acne scars. Methods: From March 2015 to June 2017, a total of 25 cases with facial atrophic acne scars were treated with PCRT treatment for three to five times. Treatments were repeated at an interval of 8 weeks. Treatment parameters were titrated to an immediate end point of moderate erythema. The clinical end point for cessation of treatment was the attainment of satisfactory clinical results. Results were monitored photographically up to 6 months after treatment. The efficacy and adverse effects were evaluated by using the

following outcome parameters : the duration of edema, erythema and crusting; the degree of hyperpigmentation, hypopigmentation and scar formation; subjective effective rate was evaluated by patients and physicians. Results: 22 of 25 participants completed the study, and were followed up for 6-12 months. After three to five treatments, evaluation by patients showed that the total effective rate was 90.91%. Evaluation by two physicians showed that the total effective rate was 86.36%. Treatment was well tolerated by all participants. The total duration of side effects was  $6.7 \pm 1.7$  days of edema,  $8.1 \pm 2.3$  days of erythema,  $6.5 \pm 1.8$  days of crusting, respectively. No hyperpigmentation, depigmentation, and worsening of scarring were observed by the conclusion of the follow-up period. Conclusion: These results provide initial evidence for the safety and effectiveness of PCRT as a well-tolerated modality for the treatment of acne scars. PCRT is an ideal treatment for facial acne scars with minimal side effect.

**Photodynamic therapy for rosacea in Chinese patients.** Fan L, Yin R, Lan T, Hamblin MR. Photodiagnosis Photodyn Ther. 2018 Aug 14. pii: S1572-1000(18)30190-X. doi: 10.1016/j.pdpdt.2018.08.005. [Epub ahead of print] <https://www.ncbi.nlm.nih.gov/pubmed/30118905>

Background: Rosacea is a common chronic cutaneous disorder which is characterized by flushing, erythema, papulopustules and telangiectasia. The pathogenesis of the disease is still unknown. A multifaceted approach is necessary to control the disease because of its tendency to relapse. New more effective treatment options are desirable to achieve a complete remission. Aminolevulinic acid-photodynamic therapy (ALA-PDT) is a well-established treatment for non-melanoma skin cancer and precancerous lesions. ALA- PDT can also be used for inflammatory disease, including acne vulgaris. However, little is known about the efficacy and safety of ALA-PDT for rosacea in Chinese patients with Fitzpatrick skin types III and IV. Objectives: To investigate the efficacy and safety of ALA-PDT in the treatment of rosacea classified as erythematotelangiectatic type or papulopustular type. Methods: Twenty rosacea patients with either erythematotelangiectatic or papulopustular types were enrolled. 5% 5-Aminolevulinic acid in an oil-in-water emulsion was applied to the lesions under occlusion with plastic film for 2 h, and the lesions were irradiated with 100 mW/cm<sup>2</sup>, 80-90 J/cm<sup>2</sup>, LED red light (635 ± 15 nm) over 15 minutes in each session with four sessions at 10-day intervals. Objective measures (severity of flushing, erythema and telangiectasia, number of inflammatory lesions, VISIA Red Complexion Analysis images), subjective symptoms (including itching, prickling, burning, etc.) were recorded at baseline and at 4, 12 and 24 weeks after the last treatment. Adverse effects were recorded at each treatment and follow-up visit. Results: During the follow-up period, all patients showed gradual objective clinical improvement compared with baseline (P < 0.01). Clinical inflammatory lesions disappeared completely in all patients after 24 weeks. Subjective symptoms, including flushing, itching, prickling, burning et al, had vanished and did not show any relapse during the follow-up period. The main side effects of ALA-PDT were pain, erythema, swelling and post- inflammatory hyperpigmentation. All side-effects were transient and tolerated by all the patients. No patients were dissatisfied with the therapeutic outcome. Conclusions: ALA-PDT is an effective and safe approach for the treatment of rosacea of erythematotelangiectatic or papulopustular types, to control clinical manifestations and reduce subjective symptoms.

**Sirtuin6 inhibits c-triggered inflammation through TLR4 abrogation regulated by ROS and TRPV1/CGRP.** Zhang R, Li H, Guo Q, et al. J Cell Biochem. 2018 Aug 13. doi: 10.1002/jcb.27176. [Epub ahead of print] <https://www.ncbi.nlm.nih.gov/pubmed/30105859>

Propionibacterium acnes induces inflammatory and plays a vital role in the formation of comedones through activation of inflammatory cells, keratinocytes, and sebocytes. Sirtuin6 (SIRT6), along with ADP-ribosyltransferase and deacetylase, has been proposed to mediate various biological functions, including inflammation. Nevertheless, no

strong experimental evidence has been provided to support the effect of SIRT6 in treatment of inflammatory situation. Therefore, this study addressed the inhibitory effect of SIRT6 against *P. acnes*-triggered inflammation in human keratinocytes and monocyte cell lines. In our study, proinflammation capacity of *P. acnes* was confirmed by increased levels of various inflammatory modulators, such as interleukin (IL)-1 $\beta$ , IL-6, IL-12, monocyte chemoattractant protein-1, interferon- $\gamma$ , and tumor necrosis factor- $\alpha$ , both in vivo and in vitro. *P. acnes* stimulation also decreased SIRT6 expression, whereas, SIRT6 overexpression successfully suppressed the production of these cytokines in *P. acnes*-infected cells, and therefore controlled inflammation. Furthermore, we found that challenge of *P. acnes* stimulated the expression of toll-like receptor 4 (TLR4) in both cell lines. Nevertheless, SIRT6 overexpression attenuated the expression of TLR4 and consequently inhibited the *P. acnes*-triggered phosphorylation of nuclear transcription factor-kappa B (NF- $\kappa$ B) subunit, p65. Moreover, deactivation of TLR4 signaling pathway by SIRT6 overexpression resulted in significant downregulation of the transient receptor potential vanilloid (TRPV) pathway, cAMP response element-binding protein (CREB)/calcitonin gene-related peptide (CGRP) signaling, and NF- $\kappa$ B-regulated production of reactive oxygen species. These results indicate that SIRT6 serves as a potential therapeutic target to alleviate acne inflammation.

**Acne fulminans associated with lymecycline intake: a case report.** Gualtieri B, Tonini A, Panduri S, et al. Clin Cosmet Investig Dermatol. 2018 Aug 3;11:403-405. doi: 10.2147/CCID.S158925. eCollection 2018. <https://www.ncbi.nlm.nih.gov/pubmed/30122970>

Acne fulminans (AF) is a rare acne variant characterized by sudden onset of painful nodules on the face, chest, and back in the presence of systemic symptoms. Pharmacologic agents such as steroid hormones and isotretinoin are well-known triggers, and several cases have been described. We report a case of AF occurring a few days after lymecycline therapy initiation.

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**Evaluation of the performance of a nature-based sensitive skin regimen in subjects with clinically diagnosed sensitive skin.** Draelos ZD, Levy SB, Lutrario C, Gunt H. J Drugs Dermatol. 2018 Aug 1;17(8):908-913. <https://www.ncbi.nlm.nih.gov/pubmed/30124733>

Background: Unique whole formula nature-based sensitive skin products are formulated to minimize irritation while providing conditioning and soothing benefits to clinically diagnosed sensitive skin. Objective: To evaluate and compare the efficacy and tolerability of a regimen of cleanser containing natural oils, beeswax, and witch hazel, and day & night creams containing natural oils, glycerin, and botanical anti-inflammatories (NR); and a synthetic dermatologist-recommended regimen of cetyl alcohol, sodium lauryl sulphate-containing cleanser and glycerin, polyisobutene-containing lotion (CR) in clinically diagnosed sensitive skin resulting from eczema/atopic dermatitis, rosacea, or cosmetic intolerance. Methods: 120 subjects were randomized to receive either NR or CR, twice daily for 4 weeks in this double-blind study. Blinded investigator-rated and subject-rated overall skin appearance was assessed using a 5-point scale (0=none, 4=severe) at baseline, 2 weeks, and 4 weeks. Noninvasive skin assessments for skin hydration and skin barrier function were made by corneometry and TEWL, respectively. Results: NR resulted in a 34% improvement from baseline in investigator-rated overall skin appearance (P less than 0.001); and CR resulted in a 4% improvement. Similar NR and CR results were found in the other efficacy parameters: tactile and visual smoothness, clarity, and radiance. Both regimens improved barrier function from baseline to week 4 (17%, 15%; NR, CR, P equals NS). NR maintained hydration from baseline to week 4 while CR increased hydration by 21% (P less

than 0.001). No clinically significant tolerability issues were reported in either regimen at week 4. Conclusions: The study demonstrated that NR was effective, well tolerated, and superior to CR in the management of sensitive skin.

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**Treatment of rosacea using acupuncture for improving the local skin microcirculation: A case report.** Gao Y, Lin W, Zhou S, et al. *Medicine (Baltimore)*. 2018 Aug;97(34):e11931. doi: 10.1097/MD.00000000000011931. <https://www.ncbi.nlm.nih.gov/pubmed/30142810>

Rationale: Rosacea is an irritating disease that affects patients' health and life quality. The current treatments for rosacea have limited efficacy and are generally not satisfying most patients. This report presents a patient diagnosed with rosacea who was treated with acupuncture to a satisfactory effect. Laser Doppler was used to measure the local blood perfusion of the nose before, during, and after acupuncture treatment. The Dermatology Life Quality Index (DLQI) was used to measure the impact of rosacea on the quality of the patient's life. Patient concerns: A 52-year-old woman had been diagnosed with rosacea 18 months before this study. She had tried medical treatments in other hospitals with metronidazole cream, antifungal drugs, and steroidal ointments, but the effect was poor and limited. Diagnoses: In this study, the diagnosis of rosacea (stage I, subtype Erythematotelangiectatic) was made by a dermatologist according to physical examination). Interventions: The patient's treatment included a half-hour of acupuncture 3 times per week. Outcomes: The patient experienced significant improvements in the region around the nose after 3 sessions of acupuncture treatment within the first week and reported that there was no relapse for 6 months after acupuncture treatment. The perfusion of blood flow was redistributed during and after acupuncture treatment according to laser Doppler measurements. The patient's DLQI score substantially improved. The patient was generally satisfied with the acupuncture treatment. Lessons: The results suggested that acupuncture might be an alternative therapy for facial localized rosacea. As well, acupuncture may be effective in treating rosacea through redistributing micro-circulation of blood at the localized area of effect. The overall costs of the rosacea treatment may be reduced, provided that this therapy is demonstrated to be effective in future controlled studies.

**Visualization of drug distribution of a topical minocycline gel in human facial skin.** Jeong S, Hermsmeier M, Osseiran S, et al. *Biomed Opt Express*. 2018 Jun 27;9(7):3434-3448. doi: 10.1364/BOE.9.003434. eCollection 2018 Jul 1. <https://www.ncbi.nlm.nih.gov/pubmed/?term=visualization+of+drug+distribution+of+a+topical+minocycline+gel+in+human+facial+skin>

Acne vulgaris is a common chronic skin disease in young adults caused by infection of the pilosebaceous unit, resulting in pimples and possibly permanent scarring on the skin. Minocycline, a common antibiotic, has been widely utilized as a systemic antimicrobial treatment for acne via oral administration. Recently, a topical minocycline gel (BPX-01) was developed to directly deliver minocycline through the epidermis and into the pilosebaceous unit to achieve localized treatment with lower doses of drug. As the effectiveness of the drug is directly related to its successful delivery, there is a need to evaluate the pharmacokinetics at the cellular level within tissue. Advantageously, minocycline is naturally fluorescent and can be directly visualized using microscopy-based approaches. Due to high endogenous autofluorescence, however, imaging of weakly emitting fluorescent molecules such as minocycline in skin tissue can be challenging. Here, we demonstrate a method for the selective visualization of minocycline within human skin tissue by utilizing two-photon excitation fluorescence (TPEF) microscopy and fluorescence lifetime imaging microscopy (FLIM). To demonstrate the feasibility of this approach, ex vivo human facial

skin samples treated with various concentrations of BPX-01 were investigated. From the TPEF analysis, we were able to visualize relatively high levels of drug uptake within facial skin. However, minocycline fluorescence could be overwhelmed by endogenous fluorescence that complicates TPEF quantitative analysis, making FLIM more advantageous for visualizing drug uptake. Importantly, we found a unique signature of minocycline uptake via FLIM analysis that enabled the successful differentiation of the drug and enabled the extraction of drug local distribution from the endogenous fluorescence using a non-Euclidean phasor analysis method. Based on these results, we believe that the drug local distribution visualization method using TPEF and FLIM with phasor analysis can play an important role in studying the pharmacokinetics and pharmacodynamics of a topically applicable drug.

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## Clinical Reviews

**Effectiveness of photopneumatic technology: a descriptive review of the literature.** Rajabi-Estarabadi A, Choragudi S, Camacho I, et al. *Lasers Med Sci.* 2018 Aug 24. doi: 10.1007/s10103-018-2619-1. [Epub ahead of print]. <https://www.ncbi.nlm.nih.gov/pubmed/30143923>

Usage of photopneumatic technology has recently increased for treatment of different skin conditions such as acne, keratosis pilaris (KP), and rosacea. Photopneumatic devices combine gentle negative pressure with broad band pulsed light simultaneously to attack multiple targets in the skin for better treatment outcomes. In this literature review, we evaluate the efficacy of photopneumatic therapy on treatment of acne, keratosis pilaris (KP), and rosacea.

**Post-bariatric surgery hidradenitis suppurativa: a new patient subset associated with malabsorption and micronutritional deficiencies.** Garcovich S, De Simone C, Giovanardi G, et al. *Clin Exp Dermatol.* 2018 Aug 24. doi: 10.1111/ced.13732. [Epub ahead of print] <https://www.ncbi.nlm.nih.gov/pubmed/30144136>

Background: Bariatric surgery (BS) represents the most effective treatment for morbid obesity and its related complications, potentially ameliorating chronic comorbid inflammatory skin conditions, such as psoriasis and hidradenitis suppurativa (HS). Weight-loss interventions are strongly encouraged in patients with HS, but the resulting effect on the course of the disease has been poorly reported. AIM: To describe the effect of BS-associated weight-loss on the course of HS. Methods: This was a retrospective, descriptive study of a hospital-based patient cohort with HS in order to investigate the relationship between exposure to a BS procedure and the HS disease course. Clinical characteristics and BS-related outcomes were retrospectively analysed by chart review for identified cases. Laboratory parameters for selected micronutrients (levels of vitamin A, D and B12, plus zinc and iron) were re-evaluated at a follow-up visit in each post-BS case. Typical patients with HS from the general cohort served as controls for the comparison of vitamin D and zinc serum levels. Results: Of 178 patients with HS, 12 patients with incident HS who had undergone a BS procedure were identified. A subset of patients (n = 10) developed initial signs and symptoms of cutaneous suppuration after experiencing weight loss related to malabsorptive bariatric procedures. Post-BS patients with HS presented multiple micronutritional deficiencies and insufficient responses to standard, first-line antibiotic treatments. Of the micronutrients we selected for analysis, zinc was found to be at significantly lower serum levels in post-BS patients with HS compared with typical patients with HS. Conclusions: Post-BS HS may represent a new patient subset, requiring customized clinical management.

**Update on acne scar treatment.** Soliman YS, Horowitz R, Hashim PW, et al. *Cutis*. 2018 Jul;102(1):21;25;47;48. <https://www.ncbi.nlm.nih.gov/pubmed/30138491>

Acne vulgaris and postacne scarring are common in the general population. Even after lesions have resolved, scarring can lead to detrimental psychological effects and can negatively impact patients' quality of life. Fortunately, there have been several recent advances in therapeutic options to treat acne scarring. This article discusses these treatments with a focus on microneedling, lasers, chemical peels, and dermal fillers.

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## Patient Counseling/Communication

**Acne treatment: analysis of acne-related social media posts and the impact on patient care.** Urso B, Updyke KM, Domozych R, et al. *Cutis*. 2018 Jul;102(1):41-43. <https://www.ncbi.nlm.nih.gov/pubmed/30138494>

Many patients use social media as a source of medical information on dermatologic diseases. Social media offers accessible methods of communicating with physicians, other patients, and pharmacies. The information gathered through social media posts has the potential to influence patients' views of their conditions and treatment options, though the source often is unknown. This systematic review examined the content and source of social media posts identified using the search terms acne and treatment across all social media platforms available through a commercial social media data aggregating software (Crimson Hexagon) from May 2008 to May 2016. The goal of this study was to identify sources of acne-related social media posts to determine communication trends to gain a better understanding of the potential impact social media may have on patient care.

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