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New Medical Research

Targeted clindamycin delivery to pilosebaceous units by chitosan or hyaluronic acid nanoparticles for improved topical treatment of acne vulgaris. Tolentino S, Pereira MN, Cunha-Filho M, et al. Carbohydr Polym. 2021 Feb 1;253:117295. doi: 10.1016/j.carbpol.2020.117295. https://pubmed.ncbi.nlm.nih.gov/33278954/
We developed chitosan or hyaluronic acid nanoparticles to entrap clindamycin and evaluated for the first time the impact of these two polymeric nanosystems on the targeted drug delivery to the pilosebaceous units, considering the sebaceous characteristics of skin affected by acne. Chitosan and hyaluronic acid nanoparticles respectively presented diameters of 362 ± 19 nm and 417 ± 9 nm (PDI < 0.47), entrapped 42 % and 48 % of the clindamycin content (drug loading of 8.8 % and 0.5 %) and had opposite surface charges (+27.7 ± 0.9 mV and -30.2 ± 2.7 mV). Although only the hyaluronic acid nanoparticles showed increased deposition of the drug into the pilosebaceous structures, both nanoparticles revealed enhanced targeted delivery of clindamycin to these structures as compared to commercial formulation (53 ± 20 % and 77 ± 9% of the total drug that penetrated the skin was found on the pilosebaceous units from, respectively, chitosan and hyaluronic acid nanoparticles). Remarkably, the "targeting potential" of the nanoparticles was more pronounced when the skin was pretreated to simulate a sebaceous condition. In conclusion, both polymeric nanocarriers targeted drug delivery to the pilosebaceous structures at different extensions and, in the case of oily skin conditions, such targeting was increased.

Full exome sequencing of 11 families with hidradenitis suppurativa. Theut Riis P, Loft IC, Yazdanyar S, et al. J Eur Acad Dermatol Venereol. 2020 Dec 17. doi: 10.1111/jdv.17095. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/33336462/
Background: Hidradenitis suppurativa (HS) is not a well-studied or easily treated disease. Genetic information is essential for advances in the understanding and treatment of HS. This study aims to examine mutations in the gamma-secretase complex, the Notch signaling pathway and to perform a Mendelian analysis of genetic variants that segregated with disease in a full exome sequencing of 11 families with HS. Method: Whole exome sequencing and Mendelian analysis of 11 families with HS from Denmark. Patients with a clinical diagnosis of active HS and a positive family history of HS, were recruited. Consenting family members were enrolled and examined for HS as well. We included 11 families, with a total of 51 participants, 24 with HS and 27 without. Whole exome sequencing using HiSeq platform as paired-end 2 x 150 bases, was used. Results: We found mutations in the Notch pathway for all families. We found mutations in the PSENEN and APH1B of the gamma-secretase genes. We also report 161 variants of unknown significance that segregated with the disease within these families. Conclusions: We did not find causative mutation for each family in this study, supporting the theory that HS is rarely caused by single-gene mutations. We suggest that future genetic studies should be focused on genome-wide association with thousands of cases, as this technique is better suited for suspected polygenic diseases.

Hidradenitis suppurativa in surgeons' practice - prevalence and treatment approach according to the Hurley stage in Latvia. Balcere A, Upeniece I, Snipe K, et al. Dermatol Ther. 2020 Dec 16;e14687. doi: 10.1111/dth.14687. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/33331018/
Hidradenitis suppurativa (HS) is a chronic, recurrent, debilitating, and frequently misdiagnosed inflammatory skin disease that often requires surgical intervention. To assess the prevalence of HS patients in surgeons' practice and surgeons' approach to treating HS patients, we created a self-administered, Hurley stage-based questionnaire that was distributed during the Latvian Association of Surgeons meeting. Of the total 60 questionnaires distributed, 56 (93%) were collected and 53 (88%) of them were considered valid. Overall, 73.6% of the surgeons confirmed having seen patients with chronic inflamed suppurative lesions in the skin folds during their practice. Median reported number

of HS patients in the surgeons' practice was 3, ranging from 0 to 30. Similarly, 73.6% of surgeons would undertake HS treatment. The proportion of surgeons undertaking treatment was higher if the surgeons had diagnosed HS by themselves but was not affected by personal knowledge of HS. Surgeons chose monotherapy for Hurley stages I, II, and III in 64.2%, 64.2%, and 62.3% of the cases, respectively. The most common therapeutic choice for monotherapy was topical antiseptics (26.4%) or topical antibiotics (20.8%) for Hurley stage I and surgery or systemic antibiotics for Hurley stage II (20.8% or 17.0%, respectively) and Hurley stage III (32.1% or 11.3%, respectively). A wide diversity of treatment approaches in specified clinical scenarios was observed, which indicates the need for local guidelines.
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Objective and long-term evaluation of the efficacy and safety of a 1064-nm picosecond laser with fractionated microlens array for the treatment of atrophic acne scar in Asians. Manuskiatti W, Punyaratabandhu P, Tantrapornpong P, et al. Lasers Surg Med. 2020 Dec 16. doi: 10.1002/lsm.23368. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/33326626/

Background and objective: Fractional 1064-nm picosecond-domain laser has recently been utilized for the treatment of atrophic acne scars and showed promising results. However, data on the safety and efficacy of this procedure in dark-skinned patients are limited. This prospective, self-controlled study was conducted to objectively evaluate the safety and efficacy of a 1064-nm picosecond laser coupled with a microlens array (MLA) for the treatment of atrophic acne scars on Asian skin. Study design/materials and methods: Twenty-six subjects of Fitzpatrick skin types (FSTs) III and IV with atrophic acne scars were enrolled. All subjects were treated with a 1064-nm picosecond laser (spot size of 8 mm, fluence of 1.0 J/cm2, a repetition rate of 10 Hz) in combination with the MLA handpiece for an average of three passes, for 6 monthly sessions. Objective (measurement of scar volume using three-dimensional (3D) photography and skin roughness analysis using ultraviolet A-light video camera) and subjective (clinical evaluation by two blinded dermatologists) assessments were obtained at baseline and at 1, 3, and 6 months after the final treatment. Results: Statistically significant reduction of the scar volume from baseline at 1, 3, and 6 months after the final treatment were observed by 3D photography and ultraviolet A-light video camera. At the 6-month follow-up, 50% (13 of 26) of the subjects were rated as having at least 50% improvement of the scars. The rate of improvement significantly increased from the 1-month follow-up to the 6-month follow-up (P = 0.013). Similarly, at the 6-month follow-up, the scar volume (P = 0.024) and skin roughness (P = 0.001) also significantly improved, in comparison with the baseline. Mild postinflammatory hyperpigmentation (PIH) was observed to develop in approximately 18% of all the treatment sessions. All cases of PIH were temporary and resolved within 4 weeks on average. Conclusions: The 1064-nm picosecond laser with MLA is a safe therapeutic alternative for the treatment of atrophic acne scars in dark-skinned individuals.

Comparison of fractional micro-plasma radiofrequency and fractional microneedle radiofrequency for the treatment of atrophic acne scars: A pilot randomized split-face clinical study in China. Lan T, Tang L, Xia A, et al. Lasers Surg Med. 2020 Dec 16. doi: 10.1002/lsm.23369. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/33326634/

Background and objective: Both fractional micro-plasma radiofrequency (RF) and fractional microneedle RF are novel devices that can be applied for the treatment of atrophic acne scars, and they have both been proved to be effective. To compare the clinical effectiveness and adverse reactions of fractional micro-plasma RF and fractional microneedle RF for the therapy of facial atrophic acne scars in a randomized split-face study. Study design/materials and methods: Sixty patients with facial atrophic acne scars received three applications at 2-month intervals in a randomized split-face study using fractional micro-plasma RF and fractional microneedle RF on different sides of the face. Three independent dermatologists evaluated the improvement in acne scars using the ECCA grading scale (Echelle

d'Evaluation Clinique des Cicatrices d'Acné) by comparing the digital images and graded the improvement in the acne scars. Patients were asked to provide a self-evaluation of satisfaction for efficacy and safety. Adverse effects were also recorded after each treatment. Results: In total sixty patients completed the entire study. A significant improvement was observed in the appearance of acne scars, and the mean ECCA scores improved significantly after both modalities. The mean decrease in ECCA scores from the baseline was significantly more pronounced in fractional micro-plasma RF as compared with fractional microneedle RF (41.33 ± 20.19 vs 32.17 ± 17.35; P < 0.05). The degree of clinical improvement was also significantly better for fractional micro-plasma RF. Pain, erythema, and swelling were observed in all patients after both treatments. The pain was more intense during micro-plasma RF treatment (P = 0.000), and the duration of pain and erythema were longer than with fractional microneedle RF (P = 0.000). Postinflammatory hyperpigmentation (PIH) was observed in one patient on the fractional micro-plasma RF side while no PIH was observed on the fractional microneedle RF side. No infections or worsening of scarring was observed with either treatment. No subject was dissatisfied with the efficacy of either device. Rolling scars tended to respond better to fractional micro-plasma RF treatment compared with fractional microneedle RF (P = 0.000). Conclusions: Both fractional micro-plasma RF and fractional microneedle RF are effective and safe methods for improving atrophic acne scars. Fractional micro-plasma RF is significantly more effective for atrophic acne scars, especially for rolling scars. However, fractional microneedle RF has fewer side effects plus shorter downtime, and patients are more comfortable after the treatment.

Gold photothermal therapy for refractory papulopustular rosacea: A case series. Park KY, Han HS, Park JW, et al. Photodermatol Photoimmunol Photomed. 2020 Dec 11. doi: 10.1111/phpp.12642. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/33305395/

Rosacea is a common chronic inflammatory cutaneous disease that can severely impair the quality of life. However, despite various treatment options, treatment results are often unsatisfactory, and relapses are common. Thus, new and more effective treatment options are desirable. Photothermal therapy (PTT) is a therapeutic method whereby cancers are ablated by the heat generated from absorbed near-infrared light energy.1 PTT can also be used to treat inflammatory diseases, including acne vulgaris. However, little is known about the efficacy and safety of PTT for treating rosacea. Therefore, we performed a prospective pilot study to evaluate the efficacy and safety of gold nanoshell-mediated PTT for the treatment of refractory papulopustular rosacea (PPR).

Intense pulsed light treatment for hidradenitis suppurativa: A within-person randomized controlled trial. Andersen PL, Riis PT, Thorlacius L, et al. Eur J Dermatol. 2020 Dec 9. doi: 10.1684/ejd.2020.3920. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/33300880/

Background: Hidradenitis suppurativa (HS) is a chronic inflammatory skin disease of the intertriginous areas. HS affects hair follicles causing perifollicular inflammation, resulting in the formation of nodules and painful abscesses. Intense pulsed light (IPL) uses selective photothermolysis to destroy the hair follicles. Objectives: To evaluate the effect of IPL hair removal as treatment for mild-to-moderate HS. Materials & methods: We conducted a single-blinded, clinical randomized trial with patients with Hurley Stage I-II. Patients with symmetrical disease were randomized to monthly unilateral treatment of the axilla or groin. The contralateral side served as internal control. Concomitant treatment modalities for HS were not permitted throughout the study. Efficacy was assessed using Hidradenitis Suppurativa Clinical Response (HiSCR), modified Sartorius score (MSS) and patient-reported outcomes. Results: A total of 17 patients completed the trial and were included in the analysis. HiSCR was not evaluated in patients without abscesses or inflammatory nodules pre-treatment. Achievement of HiSCR in the intervention side (8/12) was insignificantly different from the control side (4/10), P=0.467. There was, however, a significant reduction in regional MSS in the intervention side with a median score decreasing from 8.5 (IQR: 6.3-13.5) to 4.5 (IQR 1.8-8.0) post-

treatment, P=0.006, and an insignificant score reduction in the control side from 6.0 (IQR: 4.5-8.3) to 5.0 (IQR: 2.5-9.0), post-treatment P=0.492. Conclusion: IPL hair removal resulted in a significant reduction in MSS on the treated area with no significant reduction on the control side. Our study suggests that IPL may be an effective treatment for mild-to-moderate HS.

Evaluation of oral isotretinoin effects on hearing system in patients with acne vulgaris: Reversible or not? Kemeriz F, Kayabaşı S, Cevirgen Cemil B, Hızlı Ö. Dermatol Ther. 2020 Dec 5;e14640. doi: 10.1111/dth.14640. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/33278063/

Systemic isotretinoin is commonly used for severe acne treatment. It has many side effects, one of these is about hearing system, which has rarely been reported, also previous studies reported contradictory results about systemic isotretinoin and its association with hearing system. In this study, we aimed to investigate whether systemic isotretinoin affected on the hearing system or not. The study included 32 acne vulgaris patients (64 ears) who treated with oral isotretinoin 0.5 mg/kg body weight for at least 4 months and audiometric tests including pure-tone, speech, bilateral acoustic reflexes, and tympanometric measurements were performed at baseline, in the first week, in the first month, and third month of treatment, and sixth month after treatment. Audiometric tests were performed for right and left ears separately. A significant difference was found in the pure-tone thresholds (before treatment, first week, first month, third month of treatment, and sixth month after treatment) for the both ears at 8000 Hz (P < .001) and a significant decrease in the sixth month post-treatment pure-tone thresholds compared to pre-treatment thresholds at 8000 Hz. Additionally, a statistically significant increase was observed in serum LDL and triglyceride levels in the third month of treatment and a significant decrease at the sixth month after treatment (P < .001). Systemic isotretinoin caused bilateral hearing threshold changes in acne patients during the therapy but the changes improved after discontinuation. Therefore, our findings may provide safety using for dermatologists about hearing effects of isotretinoin, which is quite effective on severe acne.

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Racial differences in treatment preferences of acne vulgaris: A cross-sectional study. Mehta M, Kundu RV. J Drugs Dermatol. 2020 Dec 1;19(12):802. doi: 10.36849/JDD.2020.5488. https://pubmed.ncbi.nlm.nih.gov/33346515/

Cultural and social constructs may influence a patient's understanding of their acne vulgaris affecting treatment preferences and valuation. Understanding these differences can better equip healthcare professionals when providing treatment recommendations. The objective of this study was to determine how perception, treatment preferences, and treatment valuation of acne vulgaris vary across different races. This was a cross-sectional study run from June 2017 - February 2018. Participants with self-identified acne completed a one-time 31 question online survey distributed through ResearchMatch (national research registry) and campus recruitment. 217 English-speaking participants with self-identified acne who were over 18 years-old attempted the survey, and 3 participants were excluded for failing to complete it. Response rate of this study was 10.5%. Compared to Whites (88%, n=126), East Asians (44%, n=12) (P<0.001) and South Asians (53%, n=16) (P=0.002) were less likely to see a healthcare professional for acne. Compared to Whites (87%, n=125), East Asians (63%, n=17) were less likely to get information from healthcare professionals (P=0.03). East Asians (93%, n=25) used the internet more frequently as a source of information about causes of acne and treatments compared to all other races (P=0.04). Race was not statistically significant as a predictor for willingness to pay (WTP). Whites (27%, n=39) preferred using prescription face washes/creams/gels, while East Asians (41%, n=11), South Asians (60%, n=18), and Blacks (37%, n=7) preferred OTC washes/creams/gels. Differences exist in perception and treatment preferences for acne between races and exploring them may enhance providers' understanding of their patients' preferences. Healthcare organizations and professionals may need to utilize the internet and social media to access non-White populations.

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Metformin as adjunctive therapy for pediatric patients with hidradenitis suppurativa. Moussa C, Wadowski L, Price H, et al. J Drugs Dermatol. 2020 Dec 1;19(12):1231-1234. doi: 10.36849/JDD.2020.5447. https://pubmed.ncbi.nlm.nih.gov/33346525/

Background: Hidradenitis suppurativa (HS) is a chronic inflammatory disorder seen in adolescents and adults characterized by abscesses, sinus tracts and scarring, typically affecting intertriginous skin. Treatments often provide suboptimal control of the disease, and there are limited reports of therapies utilized in the pediatric population. There are no published guidelines or consensus for the treatment of pediatric HS. Purpose: To evaluate the clinical efficacy and safety of metformin as adjunctive treatment in adolescent patients with HS who have not responded to standard therapies at a single institution. Results: Retrospective chart review identified 16 pediatric patients treated with metformin as adjunctive therapy for HS. Baseline scores were Hurley 1 in eleven (69%) and Hurley 2 in five (31%) patients. Follow-up visit data showed six (67%) patients were Hurley 1 and three (33%) patients were Hurley 2; five patients showed improvement on metformin with decreased frequency of flares, and five patients had no improvement. Six patients were lost to follow up or data was not available. Two patients discontinued metformin therapy due to side effects, including gastrointestinal distress and mood changes; the third patient discontinued due to lack of improvement. Two patients had mildly elevated liver transaminases prior to metformin initiation which improved while on metformin therapy. Discussion: For some pediatric patients, metformin as an adjunctive therapy may help improve control of HS with minimal side effects. Adequately designed and controlled studies are needed to further evaluate the role of metformin, and efficacy, tolerability and safety in the pediatric HS patients.

Development of a hidradenitis suppurativa patient decision aid. McBride O, McLean D, Samardzic T, et al. Dermatol Online J. 2020 Nov 15;26(11):13030/qt18p1n8tt. https://pubmed.ncbi.nlm.nih.gov/33342169/

Background: Patient decision aids (PDAs) are tools that facilitate informed shared decision-making between patients and health care providers. To address a previously identified need in treatment decision-making in hidradenitis suppurativa (HS), we developed an HS-PDA. Methods: Development of the HS-PDA was based on International Patient Decision Aids Standards. Evidence was derived from the North American Clinical Management Guidelines for HS. Results: Content from guidelines was transformed into patient-friendly language and reviewed by three physicians and two patient representatives. Feedback on HS-PDA content, presentation and practicality was obtained from 7 HS patients and 5 physicians. Revisions were made following thematic analysis. All patients felt the content on treatment options contained the right amount of information and 5 found it helpful to see these options contextualized to their values. Each stated they would use the HS-PDA during treatment decision-making. Three and four physicians respectively indicated the content was accurate and language was patient-friendly. Limitations: Small sample sizes may limit generalizability. Conclusion: This HS-PDA was developed in accordance with international standards based on current HS guidelines with input from patients and physicians. It is available online without cost.

Open-label extension study evaluating long-term safety and efficacy of fmx103 1.5% minocycline topical foam for the treatment of moderate-to-severe papulopustular rosacea. Stein Gold L, Del Rosso JQ, Kircik L, et al. J Clin Aesthet Dermatol. 2020 Nov;13(11):44-49. Epub 2020 Nov 1. https://pubmed.ncbi.nlm.nih.gov/33282103/

Background: Efficacy and safety of FMX103 1.5% for papulopustular rosacea were previously demonstrated in two 12-week, Phase 3 studies. Objective: We sought to evaluate the safety and efficacy of FMX103 1.5% foam for up to 52 weeks of treatment. Methods: Following the completion of two 12-week, double-blind, vehicle-controlled, Phase 3 studies, subjects were invited to enter a 40-week open-label extension study in which all subjects applied FMX103 1.5% once daily. Efficacy endpoints were the reduction in inflammatory lesions and the rate of IGA treatment success from the double-blind baseline. Safety assessments included adverse events, vital signs, laboratory tests, and facial tolerability signs and symptoms. Results: The favorable safety profile of FMX103 1.5% observed in the double-blind

studies was maintained over extended treatment lasting up to one year. There were no serious treatment-related adverse events. Long-term treatment with FMX103 1.5% was associated with a greater than 82-percent reduction in inflammatory lesions from baseline and with over 79 percent of subjects achieving treatment success. At the end of the open-label treatment period, over 82 percent of subjects indicated they were overall "satisfied" or "very satisfied" with FMX103 1.5%. All facial local tolerability symptoms improved through Week 52. Limitations: Due to the nature of the open-label study, lacking a vehicle-treated control, no statistical comparisons can be made. Conclusion: FMX103 1.5% demonstrated a favorable safety and tolerability profile for up to 52 weeks. Long-term efficacy was demonstrated by progressive reductions in inflammatory lesions and increasing IGA treatment success, suggesting that FMX103 1.5% may be a suitable option for the treatment for papulopustular rosacea.
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Clinical Reviews

Spironolactone in adolescent acne vulgaris. Dhurat R, Shukla D, Lim RK, et al. Dermatol Ther. 2020 Dec 16;e14680. doi: 10.1111/dth.14680. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/33326148/
Acne vulgaris (AV) is the most common skin condition affecting adolescents, most likely due to elevated androgen levels during puberty. Androgens stimulate and enlarge the sebaceous glands and keratinocytes, resulting in increased production of sebum and abnormal hyperproliferation of keratinocytes which lead to the formation of acne lesions. Current standard of care for AV includes topical therapies for mild cases and antibiotics or oral retinoids for severe cases. In recent years, spironolactone, an aldosterone antagonist and diuretic, has been applied to the treatment of AV due to its anti-androgen effects. Spironolactone is currently recommended in women who use oral contraceptives, are refractory to or contraindicated for standard treatment, show clinical signs of hyperandrogenism, or present with late-onset or persistent-recurrent AV past the teenage years. It is not prescribed to adolescents due to potential side effects; however, current data studying adults indicate that most side effects are mild, and that potential associations with hyperkalemia and increased risk of cancer are not sufficiently supported. Hence, we believe that spironolactone may be a safe and effective therapy for adolescent AV.
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Isotretinoin in acne treatment during the coronavirus disease 2019 (COVID-19): A retrospective analysis of adherence to therapy and side effects. Donnarumma M, Nocerino M, Lauro W, et al. Dermatol Ther. 2020 Dec 15;e14677. doi: 10.1111/dth.14677. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/33320409/
We read with great interest the letter by Abdelmaksoud et al.1 and we completely agree with authors that till further studies on the pathogenesis of COVID□19 infection, isotretinoin should be utilized at low dose with proper care of the nasal mucosa. Isotretinoin is an oral retinoid approved for the management of severe cases of acne vulgaris, and recently utilized for mild to moderate acne. COVID-19, is a respiratory disease caused by the SARS-CoV-2 virus and it was stated a pandemic on 11 March 2020. Advanced age is recognized as a risk factor for a severe infection, however those of any age may suffer from severe disease from COVID-19. According to the British Association of Dermatologists isotretinoin could theoretically increase the risk of COVID-19 viral load because of its drying effect on the mucous membranes. Most isotretinoin side effects are skin related and associated with xerosis. Dry nasal membrane was also observed in two-thirds of patients. Isotretinoin treatment modifies nasal mucociliary clearance considerably, reduces normal and regenerated mucosal thickness, triggering severe inflammation. Angiotensin-converting enzyme 2 (ACE2) is the host receptor for SARS-CoV-2 entrance. As reported by Abdelmaksoud ACE2 receptor expression was found in the basal layer of the epithelium in nasal mucosa. Disruption of nasal mucosa, uncovering the basal layer, perhaps could increase nasal mucosa invasion by coronavirus. However, data are still

sparse and controversial. Sinha et al evaluated the ACE2 expression levels in control and drug-treated groups for the top significant drugs (vorinostat, panobinostat, and isotretinoin) among the 672 clinically approved drugs. According to their data the top ACE2 downregulator is isotretinoin. In the wake of these evidences, we retrospectively reviewed 34 patients in treatment with isotretinoin from March to August 2020 in our outpatient clinic in Naples (11 males and 23 females; median age 22.5 years, range 18-38; medium duration of isotretinoin treatment 5 months, range 2-8 months; medium dosage 22,7mg/die). Female patients didn't present any sign of hyper-androgenism. 16/34 patients (47%) reported nasal dryness. Overall, 4 of the 34 patients (11,7%) reported cough, rhinorrhea, of them only 2 patients (5,8%) reported a temperature not over 37.5 and up to 2 days. No patients reported to had been diagnosed with COVID-19. 6/34 patients (17,6%) declared to have suspended the therapy prematurely: 1/6 because of side effects related to the drug and 5/6 because of the fear of an increased risk of being infected by COVID-19. In particular, 1/5 started the therapy in the month of December, 2/5 in February and 2/5 in March and interrupted the therapy in March 1/5 (20%), April 3/5 (60%) and May 1/5 (20%). We observed that 14,7% of patients prematurely interrupted the therapy in the months of Italian lockdown (March to May 2020) because of the fear of COVID-19. The lockdown period in fact has been characterized by a drastic reduction in the number of accesses in dermatological departments and different measures, such as the implementation of teledermatology, have been applied in order to limit coronavirus infection spread. Moreover, it is likely that there is an inclination of the patients to overestimate the incidence and severity of side effects of oral isotretinoin. According to our survey 47% of the patients reported nasal dryness. In the light of this data, we believe that a nasal moisturizer should be recommended during the treatment. Our sample is mostly composed of non-hyperandrogenic females. This data could justify that patients do not report serious signs of disease. In fact, according to Cadegiani et al the frequency of several common clinical symptoms of COVID-19 is significantly more pronounced in males and hyperandrogenic females than their non-hyperandrogenic counterparts. Finally, although the correlation between isotretinoin and the pathogenesis of COVID-19 infection is not clear, we believe is essential to start with low dose of isotretinoin associated to proper care of the nasal mucosa for isotretinoin patients to reduce side effects, and to improve adherence to therapy. We believe that the absence of correct information about the treatment and the possible side effects may discourage patients, leading them to poor adherence. An adequate communication about the correct use of the medication and its possible correlation to COVID-19 infection could be a good strategy to improve the adherence to the treatment. The limit of our survey is that it is based on patients' statements. However further studies on larger samples are needed to assess the possible effect of isotretinoin on SARSCoV-2 infection.

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Mandibular sterile osteitis as a manifestation of SAPHO syndrome: A literature review. Klein C, Lipsker D. J Eur Acad Dermatol Venereol. 2020 Dec 17. doi: 10.1111/jdv.17089. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/33331027/

SAPHO syndrome (« synovitis, acne, pustulosis, hyperostosis, osteitis ») is characterised by cutaneous and osteoarticular manifestations. The latter include osteitis, synovitis and hyperostosis. They most frequently involve the anterior chest wall and the sacroiliac joints. Mandible is involved in 10% of cases and this is clinically manifested by swelling, pain or trismus. We have recently seen 2 patients who had so far undiagnosed episodes of recurrent swelling of the mandible leading to repeat bone biopsies. The presence of dermatologic findings allowed diagnosing SAPHO syndrome and providing efficient treatment.

SMS support group in the management of acne: A useful tool to increase adherence to treatment. Ruggiero A, Marasca C, Ocampo-Garza SS, et al. Dermatol Ther. 2020 Dec 10;e14663. doi: 10.1111/dth.14663. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/33301224/

Acne vulgaris is a chronic inflammatory skin disorder involving hair follicles and sebaceous glands usually requiring long-term treatments and follow-up visits. However, patients' adherence to treatment is one of the main problems affecting the final outcome. We read with great interest the article written by Salamzadeh et al reporting a very low rate of treatment adherence among patients with acne vulgaris. In particular, they reported that only 30 out of 200 patients (15%) were adherent to their treatments, showing that food exacerbations and severity of the disease were significantly associated with the overall medication adherence (P = .03). Treatment adherence remains an important issue in the management of acne. In a recent investigative study, we evaluated the importance of supporting patients by prescribing an adequate therapy, and follow-up them during treatment. A support group via SMS was created in order to implement patients' adherence to treatment. A total of 160 patients affected by acne were randomly divided into two groups: the SMS group and a control group. All patients of the SMS group received two messages twice a day for 12 weeks. All patients received the same text message about acne medication, while the control group did not receive any message. Our results showed that only the SMS group, receiving a daily medical support, increased therapeutic adherence with a better improvement of all disease parameters. During the ongoing COVID-19 pandemic period, we have greatly implemented the SMS support group service, with high satisfaction levels among both patients and physicians. The text messages included reminder messages (i.e., “Remember to apply your creams and cleanser” and “Follow well and daily our therapeutic indications to obtain your goal!”), messages to reassure patients about frequent reported treatment discontinuation causes, such as mild adverse events (i.e., “If you have itch, you can apply a lenitive cream,” “If you have redness, don't worry: this is an effect of therapy” and “If the redness is source of anxiety, contact us”) or initial unsatisfactory clinical outcomes (i.e., “In the first days you will see few improvements, but don't worry and continue therapy!”), as well as motivational messages (i.e., “Continue your therapy, don't give up!”) and messages suggesting how to improve treatment outcomes and reduce adverse events (i.e., “Avoid excessive sun exposure if you are applying retinoid or after peeling,” “Remove your makeup and cleanse your skin well,” “Remember to not abuse topical retinoids, you may have excessive dryness,” “Remember to apply the topical antibiotic only on the pustules,” “Apply only oil-free makeup to avoid worsening your acne” and “If you are on isotretinoin regimen, remember to always use contraceptive pill”). To ensure easy access to the providers, patients could contact a dedicated email address, asking questions, exposing doubts or, if needed, requiring a teleconsultation. To guarantee patients' confidentiality, the messages were the same for all patients, not leading any access to personal information or patients' identification. A total of 345 patients have been supported by this service in the period between March 2020 and September 2020 showing a high rate of treatment adherence also during the emergency pandemic period. Indeed, at the last follow-up visit, only 5.2% (n = 18) declared to have interrupted their treatment. In particular, 2% (n = 7) reported adverse events (erythema and dry skin during topical retinoic cream treatment), while 1.7% (n = 6) reported to feel unsatisfied of treatment outcomes and 1.5% (n = 5) declared that they have interrupted treatments due to economic complains. Our clinical experience showed that support group protocols may represent an effective tool to implement patients' adherence to treatment thus improving the outcome of the disease. This service results useful especially in patients needing constant support to continue their own therapy, such as acne patients, thus reducing the risk of discontinuation and consequently the risk of negative clinical impact related to the non-adherence to the treatments. Acne medication adherence decreases over time; however, around the time of follow-up visits, medication adherence increases. Hence, support groups may represent a useful tool in the earlier phases of acne's therapy in order to educate patients better managing their disease. However, more studies are needed to confirm our data, with standardized trials dedicated to patients suffering from acne and evaluating the real impact that SMS group may have on treatment discontinuation rate.

Anti-acne treatment using nanotechnology based on novel drug delivery system and patents on acne formulations: A review. Singh V, Redhu R, Verma R, et al. Recent Pat Nanotechnol. 2020 Dec 9. doi: 10.2174/1872210514999201209214011.Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/33302844/

Background: Acne is one of the most infectious diseases that is related to human skin. This disease of acne is with higher prevalence in adults. The main causative organism involved in the acne vulgaris is Propiobacterium acne which leads to sebum production and follicular hyper-keratinization. The scientific data shows inflammatory mediators of genetic factors, stress, physiological factor, androgens, hormonal changes all these factors play major part in the pathophysiology of acne. Several drugs are currently available for the treatment of acne like bactericidal, antibiotic and several others which are directly or indirectly involved in the eradication of acne. Results: Nanocarrier systems including liposomes, niosomes, microsponges, nano-emulsion and micro-emulsion, microspheres and solid lipid nanoparticles have emerged as successful treatment for acne. In this article, the authors have laid special emphasis on these nanocarriers and the study of various patents based on novel technologies in this field. The entrapment of anti-acne drug molecule into a particular nanocarrier system has shown to enhance patience compliance and reduction in side-effects. Conclusion: The present review article provides an overview about the mechanism, advantages, drawbacks and various patents associated with the nanocarrier systems involved in the acne treatment. Some state of art patented and novel technologies such as stem cell secretion technology, sol gel technology incorporating microcapsules and ultrasound delivery of nanoparticles for acne treatment are also briefly discussed. The patent study on these nanocarriers was done through worldwide database of United States patent office, European patent office and several other official patent information websites.

Microneedle-mediated transdermal drug delivery for treating diverse skin diseases. Yang D, Chen M, Sun Y, et al. Acta Biomater. 2020 Dec 5;S1742-7061(20)30709-1. doi: 10.1016/j.actbio.2020.12.004. Online ahead of print. https://pubmed.ncbi.nlm.nih.gov/33285323/

Transdermal drug delivery is an attractive route for dermatological disease therapy because it can directly target the lesion site on the skin, reduce adverse reactions associated with systemic administration, and improve patient compliance. However, the stratum corneum, as the main skin barrier, severely limits transdermal drug penetration, with compromised bioavailability. Microneedles (MNs), which are leveraged to markedly improve the penetration of therapeutic agents by piercing the stratum corneum and creating hundreds of reversible microchannels in a minimally invasive manner, have been envisioned as a milestone for effective transdermal drug delivery, especially for superficial disease therapy. Here, the emergence of versatile MNs for the transdermal delivery of various drugs is reviewed, particularly focusing on the application of MNs for the treatment of diverse skin diseases, including superficial tumors, scars, psoriasis, herpes, acne, and alopecia. Additionally, the promises and challenges of the widespread translation of MN-mediated transdermal drug delivery in the dermatology field are summarized.

Optimizing the trial design for a comparative effectiveness study of spironolactone versus oral antibiotics for women with acne: A Delphi consensus panel. Barbieri JS, Margolis DJ. J Drugs Dermatol. 2020 Dec 1;19(12):1238-1239. doi: 10.36849/JDD.2020.5145. https://pubmed.ncbi.nlm.nih.gov/33346508/

For women with acne, their acne often persists into adulthood, with over 50% of women reporting acne between 20-29 years of age and over 35% of women reporting acne between 30-39 years of age. While mild acne can usually be managed with topical medications, moderate to severe acne often requires treatment with systemic medications such as oral antibiotics, spironolactone, and isotretinoin. Although oral antibiotics are the most common systemic medication prescribed for women with moderate to severe acne, spironolactone may represent a safe and effective therapeutic alternative that can decrease our reliance on oral antibiotics for the treatment of acne. However, while spironolactone use is increasing, oral antibiotics are still prescribed 3 to 5 times more often than spironolactone.

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Developments and challenges in dermatology: An update from the Interactive Derma Academy (IDeA) 2019. Luger T, Dirschka T, Eyerich K, et al. J Eur Acad Dermatol Venereol. 2020 Dec;34 Suppl 7:3-18. doi: 10.1111/jdv.17009. https://pubmed.ncbi.nlm.nih.gov/33315305/

The 2019 Interactive Derma Academy (IDeA) meeting was held in Lisbon, Portugal, 10-12 May, bringing together leading dermatology experts from across Europe, the Middle East and Asia. Over three days, the latest developments and challenges in relation to the pathophysiology, diagnosis, evaluation and management of dermatological conditions were presented, with a particular focus on acne, atopic dermatitis (AD) and actinic keratosis (AK). Interesting clinical case studies relating to these key topics were discussed with attendees to establish current evidence-based best practices. Presentations reviewed current treatments, potential therapeutic approaches and key considerations in the management of acne, AK and AD, and discussed the importance of the microbiome in these conditions, as well as the provision of patient education/support. It was highlighted that active treatment is not always required for AK, depending on patient preferences and clinical circumstances. In addition to presentations, two interactive workshops on the diagnosis and treatment of sexually transmitted infections/diseases (STIs/STDs) presenting to the dermatology clinic, and current and future dermocosmetics were conducted. The potential for misdiagnosis of STIs/STDs was discussed, with dermoscopy and/or reflectance confocal microscopy suggested as useful diagnostic techniques. In addition, botulinum toxin was introduced as a potential dermocosmetic, and the possibility of microbiome alteration in the treatment of dermatological conditions emphasized. Furthermore, several challenges in dermatology, including the use of lasers, the complexity of atopic dermatitis, wound care, use of biosimilars and application of non-invasive techniques in skin cancer diagnosis were reviewed. In this supplement, we provide an overview of the presentations and discussions from the fourth successful IDeA meeting, summarizing the key insights shared by dermatologists from across the globe.

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Comparative efficacy of pharmacological and nonpharmacological interventions for acne vulgaris: A network meta-analysis. Shi Q, Tan L, Chen Z, et al. Front Pharmacol. 2020 Nov 26;11:592075. doi: 10.3389/fphar.2020.592075. eCollection 2020. https://pubmed.ncbi.nlm.nih.gov/33328999/

Acne has several effects on physical symptoms, but the main impacts are on the quality of life, which can be improved by treatment. There are several acne treatments but less evidence comparing their relative efficacy. Thus, we assessed the comparative efficacy of pharmacological and nonpharmacological interventions for acne. We searched PubMed, Embase, and the Cochrane Central Register of Controlled Trials from inception to April 2019, to include randomized controlled trials for acne that compared topical antibiotics (TA), benzoyl peroxide (BPO), topical retinoids (TR), oral antibiotics (OA), lasers, light devices including LED device (LED), photodynamic therapy (PDT), and intense pulsed light, chemical peels (CP), miscellaneous therapies or complementary and alternative medicine (MTCAM), or their combinations. We performed Bayesian network meta-analysis with random effects for all treatments compared with placebo and each other. Mean differences (MDs) of lesions count and risk ratios of adverse events with their 95% credible intervals (CrIs) were calculated, and all interventions were ranked by the Surface Under the Cumulative Ranking (SUCRA) values. Additional frequentist additive network meta-analysis was performed to detect the robustness of results and potential interaction effects. Sensitivity analyses were carried out with different priors, and metaregression was to adjust for nine potential effect modifiers. In the result, seventy-three randomized controlled trials (27,745 patients with mild to moderate acne), comparing 30 grouped intervention categories, were included with low to moderate risk of bias. For adverse effects, OA had more risk in combination treatment with others. For noninflammatory lesions reduction, seventeen interventions had significant differences comparing with placebo and three interventions (TR+BPO: MD = -21.89, 95%CrI [-28.97, -14.76]; TR+BPO+MTCAM: -22.48 [-34.13, -10.70]; TA+BPO+CP: -20.63 [-33.97, -7.13]) were superior to others with 94, 94, and 91% SUCRA values, respectively. For

inflammatory lesions reduction, nineteen interventions were significantly better than placebo, and three interventions (TR+BPO: MD = -12.13, 95%CrI [-18.41, -5.80]; TR+BPO+MTCAM: -13.21 [-.39, -3.04]; LED: -11.30 [-18.34, -4.42]) were superior to others (SUCRA: 81, 81, and 77%, respectively). In summary of noninflammatory and inflammatory lesions results, TR+BPO and TA+BPO were the best options compared to others. The frequentist model showed similar results as above. In summary, current evidence supports the suggestion that TR+BPO and TA+BPO are the best options for mild to moderate acne. LED is another option for inflammatory lesions when drug resistance occurs. All the combinations involved with OA showed more risk of adverse events than others. However, the evidence of this study should be cautiously used due to the limitations.

Ancient friends revisited: Systematic review and case report of pyoderma gangrenosum-associated autoinflammatory syndromes. Saternus R, Schwingel J, Müller CSL, et al. J Transl Autoimmun. 2020 Nov 20;3:100071. doi: 10.1016/j.jtauto.2020.100071. eCollection 2020. https://pubmed.ncbi.nlm.nih.gov/33305249/
In the last decade, new scientific findings significantly improved our understanding of the molecular pathogenesis of autoinflammation and have resulted in the identification and definition of several pyoderma gangrenosum-associated autoinflammatory syndromes (PGAAIS) as new and distinct clinical entities. These different clinical entities include PAPA (pyogenic arthritis, pyoderma gangrenosum and acne conglobata), PASH (pyoderma gangrenosum, acne and suppurative hidradenitis), PAPASH (pyoderma gangrenosum, acne, suppurative hidradenitis and pyogenic arthritis), PsAPASH (pyoderma gangrenosum, acne, suppurative hidradenitis and psoriatic arthritis), PASS (pyoderma gangrenosum, acne conglobata, suppurative hidradenitis, and axial spondyloarthritis) and PAC (pyoderma gangrenosum, acne and ulcerative colitis), which can be distinguished by their clinical presentation and the presence or absence of mutations in several genes, such as the genes encoding proline-serine-threonine phosphatase-interacting protein 1 (PSTPIP1), nicastrin (NCSTN), Mediterranean fever (MEFV) and nucleotide-binding oligomerization domain-containing protein (NOD). In this systematic review, we summarize the present knowledge of this rapidly developing hot topic and provide a guide to enable the easy diagnosis of these syndromes in everyday clinical practice. Moreover, we report a rare case of PASS syndrome demonstrating successful treatment with adalimumab and another case of a previously unreported combination of symptoms, including psoriatic arthritis, pyoderma gangrenosum, suppurative hidradenitis and Crohn's disease (newly coined PsAPSC), as examples. Because of the identification of similar genetic and pathogenic mechanisms of PGAAIS, we think the wide variety of seemingly different syndromes may represent distinct phenotypes of one disease.
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