Concise Communication

Proceedings of the 4th Annual Integrative Dermatology Symposium, Sacramento, CA

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Keywords: atopic dermatitis, psorisis, rosacea, acne, hidradenitis suppurativa, hyperhidrosis, low dose naltrexone, malessezia

Journal of Integrative Dermatology

The 4th Integrative Dermatology Symposium was held in Sacramento, California, over three days, on October 22 to October 24, 2021. The goal of the 4th annual Integrative Dermatology Symposium was to promote a dialogue between practitioners from various disciplines such as dermatologists, naturopathic doctors, and various other alternative medical practitioners to advance the field of integrative dermatology. Speakers provided evidence-based ways to supplement standard practices with an integrative approach to enhance patient care and patient satisfaction. Integrative dermatology is a burgeoning field that can benefit patients who have failed standard treatments or those who desire to complement conventional therapy. The following are the proceedings from the conference.

INTRODUCTION

The Integrative Dermatology Symposium was held in Sacramento, California, over three days, on October 22 to October 24, 2021. The goal of the fourth annual Integrative Dermatology Symposium was to promote a dialogue between practitioners from various disciplines such as dermatologists, naturopathic doctors, and various other alternative medical practitioners to advance the field of integrative dermatology. Speakers provided evidence-based modalities to supplement standard practices with an integrative approach to enhance patient care and patient satisfaction. Integrative dermatology is a burgeoning field that can benefit patients who have failed standard treatments or those who desire to complement conventional therapy. The following are the proceedings from the conference.

DAY 1
OCTOBER 22, 2021

INCREASED INTESTINAL PERMEABILITY IN DERMATOLOGICAL DISEASE AND METABOLIC SYNDROME: A PLANT-BASED APPROACH

AKIL PALANISAMY, MD

Dr. Akil Palanisamy highlighted the connection between leaky gut syndrome, inflammatory skin, and metabolic diseases. The primary food source for our gut microbes is fiber, but the evolution of the human diet due to the changing landscape of agriculture has caused declining fiber intake. Alterations in our diets and increased sanitation have led to decreasing gut microbiome diversity. This is a major concern, as the hallmark of a healthy microbiome is diversity. This dysbiosis of microbes can lead to increased intestinal permeability, which can trigger a cycle of chronic inflammation. Increased intestinal permeability, also known as leaky gut syndrome, is associated with endotoxemia, septicemia, systemic inflammation, insulin resistance, and other metabolic diseases. To address gut permeability, Dr. Palanisamy recommends the "5R Protocol", commonly used in functional medicine, which includes restoring, removing, replacing, re-inoculating, and repairing the gut micro-

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biome. A stool microbiome test can detect any microbial overgrowths or deficiencies that can be addressed in a customized manner. He recommends a plant-based Paleovedic diet because a diverse plant intake will increase the gut microbiome diversity. He suggests incorporating more natural prebiotics and probiotics with fiber, fermented foods, and resistant starches. Bone broth, ghee, and fermented foods can help repair the gut lining. Since the liver is vital for detoxification and enzyme production, the Paleovedic approach also focuses on supporting the liver function by incorporating various Ayurvedic herbs, such as turmeric, bhringraj, and bhumyamalaki, and cooked cruciferous vegetables.

CARDIOMETABOLIC COMORBIDITIES IN INFLAMMATORY SKIN CONDITIONS

EMMA NORTON, ND

Dr. Emma Norton called attention to the important connection between cardiometabolic diseases and inflammatory skin conditions. Because chronic inflammation plays a key role in cardiometabolic diseases and atherosclerosis, specifically via Th1-mediated cytokines, patients with chronic inflammatory skin conditions like psoriasis, atopic dermatitis, rosacea, and hidradenitis suppurativa are at higher risk of cardiometabolic comorbidities. She emphasized heart attack prevention by evaluating each patient's risk through more specific cardiometabolic testing such as the number and size of LDL and HDL particles, triglyceride to HDL ratio, and Lipoprotein A, among others. Specifically, Dr. Norton mentioned that it is important to pay attention to trends over time as the damages to the endothelium are consequences of chronic inflammation, insulin resistance, and cumulative damage. Preventing cardiometabolic diseases also involves a holistic consideration of lifestyle choices, including diet, exercise, stress, sleep, and social relationships.

THE EVIDENCE OF SOY AND ITS COMPONENTS ON WOMEN'S HEALTH

FRANCENE STEINBERG, RD, PHD

Dr. Francene Steinberg discussed the key phytochemicals in soy and their promising clinical evidence for women's health. The main phytochemicals in soy are isoflavones; the active metabolites of isoflavones have selective estrogen receptor agonist properties. Notably, the metabolism of isoflavones is dependent on the gut microbiome, which varies across populations, and tends to be metabolized better in Asian vs. Western populations. Importantly and contrary to popular belief, neither soy foods nor isoflavones warrant classification as endocrine disruptors, and there are few adverse effects of soy consumption. There is clinical evidence for soy and isoflavones in reducing wrinkles, improving endothelial function and cardiovascular disease, and decreasing endometrial cancer risk. High soy intake was also found to be protective against breast cancer, most significantly when consumed during adolescence. Soy isoflavones (40mg/day) or soy metabolite genistein (>18.8mg/day) were found to provide menopausal symptom relief of hot flashes.

APPLYING NUTRITION IN DERMATOLOGY PANEL

DIVYA AICKARA, MD; AKIL PALANISAMY, MD; EMMA NORTON, ND; AND FRANCENE STEINBERG, RD, PHD

In a panel discussion, Drs. Divya Aickara, Akil Palanisamy, Emma Norton and Francene Steinberg reviewed practical tips for integrating nutrition into the treatment of different dermatological conditions.

Psoriasis is associated with skin and gut microbiome dysbiosis, leaky gut syndrome, and endotoxemia, which are all thought to lead to systemic inflammation. Curcumin has anti-inflammatory effects that can be useful in psoriasis treatment. In addition, probiotics that include *Bifidobacterium longum*, *Bifidobacterium lactis*, and *Lactobacillus rhamnosus* were shown to be beneficial for reducing PASI scores. In patients with both psoriasis and elevated anti-gliadin IgA, eliminating gluten from their diets improved psoriasis symptoms.

Given that there is an increased incidence of fatty liver in the psoriasis population, it is important to consider the liver-skin axis and ways to enhance liver detoxification. For this purpose, bhringaraj, gluthatione and milk thistle can be beneficial.

Rosacea has been associated with a higher prevalence of small intestinal bacterial overgrowth (SIBO), although some studies demonstrated conflicting findings. SIBO breath testing may be considered for rosacea patients if they are experiencing gastrointestinal symptoms, as SIBO can often trigger rosacea. Integrative/nutritional treatment of SIBO would include low FODMAP foods and herbs. When possible, a careful investigation into the root cause is warranted, as SIBO can originate from oral microbes, low stomach acid levels, deficient pancreatic enzymes, among others.

Hidradenitis suppurativa is an inflammatory dermatologic condition that may benefit from anti-inflammatory foods and diets. Avoidance of foods containing brewer's yeast led to improvement in disease severity in patients who had anti-*Saccharomyces* antibodies (ASCA) greater than 10 U/ml. Therefore, testing for this antibody may be considered in patients who are willing to make dietary changes. Dairy and high glycemic-index foods have been shown to trigger inflammation and avoidance can be beneficial in hidradenitis.

Acne has increasingly been associated with diet and gut dysbiosis. Diet modifications can improve acne, including low-glycemic index diets, Mediterranean, plant-based paleo, fiber-rich, or dairy-free diets. There is also evidence for the use of probiotics with specific strains like *Lactobacillus rhamnosus GG* in improving acne.

A healthy diet is a key component in improving dermatologic conditions but can be a financial burden or inaccessible for patients. Suggestions for making healthy, nutritious foods accessible for patients include connecting patients

with food banks and dieticians, eating canned vegetables and beans, and buying produce that is in season.

INTEGRATIVE APPROACH TO ATOPIC DERMATITIS

PETER LIO, MD

Dr. Peter Lio described the five pillars of atopic dermatitis (AD) and the integrative multidisciplinary approach to treatment. The five pillars include Barrier, Psyche, Inflammation, Microbiome, and Itch.

"Barrier" refers to the compromised skin barrier in AD. This damaged skin barrier can be protected with topical sunflower oil, which has anti-inflammatory effects via PPAR-α activation and induces natural ceramide production. Sunflower oil was shown to preserve the stratum corneum integrity, improve skin hydration, and decrease erythema. One way to mimic a physical skin barrier is with rice paper masks overnight. Oral L-histidine supplementation had similar potency to mid-potency topical steroids via increased filaggrin formation and skin barrier function. Another oral supplement for improving the dryness and itchiness associated with a damaged barrier is hemp seed oil.

"Psyche" includes the anxiety that often arises with AD. This can be addressed with massage, which was shown to cause global improvement in erythema, excoriation, pruritus, scaling, and anxiety levels in pediatric AD patients.

"Inflammation" is the major underlying process in AD and is often treated with steroids. However, some non-steroidal anti-inflammatory options include topical vitamin B12, black tea compresses, oral oolong tea intake, and Vitamin D supplementation. Vitamin B12 works by inhibiting nitric oxide synthase to prevent AD flares.

"Microbiome" represents the associated dysbiosis of both skin and gut microbiomes in AD. The compromised skin barrier in AD often leads to *S. aureus* colonization, which can lead to secondary infections and worse outcomes. Topical application of cold-pressed virgin coconut oil could be beneficial for AD due to its antimicrobial properties against *S. aureus* in addition to its anti-inflammatory and emollient abilities.

"Itch" stands for the pruritus that accompanies AD. Some integrative methods to treat itch include acupuncture and cannabidiol (CBD).

When choosing integrative treatment options, it is important to consider the evidence to support its use, safety, and practicality. A written plan that addresses the five pillars can be helpful and empowering for patients.

EVIDENCE-BASED USE OF OILS AND CUSTOMIZING OILS TO YOUR PATIENT

RAJA SIVAMANI, MD, MS, AP

Dr. Raja Sivamani explained different types of plant oils and how to utilize them in dermatology. The difference between essential oils and fixed oils is that essential oils are composed of mostly terpenoids and volatilize quickly, while fixed oils are mostly fatty acids. Essential oils should be diluted in carrier oils before use on the skin, as they are extremely potent. Plant oils also can vary in quality, so virgin and cold-pressed ones are preferred. Plant oils can also be stratified into different groups based on their fatty acid composition, thickness, and heating or cooling abilities. For example, oils high in saturated fatty acids are more occlusive and absorb energy at room temperature, which can have a cooling effect on the skin, and thus be useful for treating pruritus. Tea tree oil, which has antimicrobial properties, was shown to be an effective topical treatment for both tinea pedis and acne vulgaris; it was even shown to produce the same improvement in acne as benzoyl peroxide. Another plant oil with antimicrobial effects, especially against *S. aureus*, is virgin coconut oil, which makes it potentially useful for atopic dermatitis patients who are often colonized by *S. aureus*. Pumpkin seed oil has anti-androgenic effects and can be applied topically to improve acne and androgenic hair loss. Some plant oils, like raspberry seed oil, have antioxidant properties and can provide some sun protection factor (SPF) coverage but must be used concurrently with sunscreen because they do not provide enough SPF alone. Plant oils rich in antioxidants, like almond oil, grapeseed oil, and black currant oil, can protect the skin from free radical damage. Overall, plant oils can be mixed and customized for each patient.

INTEGRATIVE APPROACH TO ATOPIC DERMATITIS PANEL

PETER LIO, MD, MICHELLE JEFFRIES, DO, DAVID EULER, LAP, OLIVIA HSU FRIEDMAN, DACM, LAC

A multidisciplinary panel including Drs. Peter Lio and Michelle Jeffries, David Euler, and Olivia Hsu Friedman, discussed the acupuncture, herbalist, and functional approaches to treating atopic dermatitis. All of these alternative treatment modalities must be individualized to each patient and reassessed at every visit. In acupuncture, treatment plans are made based on the clinical presentation and traditional Chinese medicine (TCM) diagnosis, not necessarily on the conventional diagnosis. Acupuncture can be used to assess response and alleviate side effects from systemic medical treatments. Acupuncture may help filter toxins that the body has accumulated in divergent channels. However, acupuncture may not be a good option in children with AD since their bodies are changing rapidly and needles could stress the children. Instead, acupressure on pressure points is an alternative option that parents can perform for their children. From the TCM and herbalist perspective, patients have symptoms in terms of "heat", "dampness", and others that can be addressed with specific herbs that target those types of symptoms and specific locations on the body. While most people think of AD as a dry disease, there can be an element of "dampness" that should be considered especially depending on the location. Adult-onset AD can be multifactorial with psychosocial involvement, environmental changes, and more. A small but significant thing you can do to provide hope for the patient is to identify areas of healthy skin that can be a reference for the patient.

DAY 2
OCTOBER 23, 2021

PSORIASIS, A MIND OF ITS OWN

FABRIZIO GALIMBERTI, MD PHD

Dr. Fabrizio Galimberti began the morning series of lectures discussing the major psychological impact psoriasis has on patients. He started out with the common range of psychiatric comorbidities, including anxiety, depression to even suicidality. However, there has not been a direct association between depression and the severity of psoriasis. He stated that in a study of 8 million individuals with psoriasis, 27% had moderate to severe symptoms of psychological distress. Psoriasis patients also have internalized stigma, which has a strong correlation with a low quality of life. Due to the high mental toll psoriasis has on patients, there is an urgent need to improve awareness of the impact that skin conditions can have and the provision of psychological services to address this impact. Unfortunately, patients with anxiety and depression will rate their psoriasis as more severe than the physician, highlighting how negatively psoriasis can affect the patient's perception. Patients with psychiatric comorbidities are also more likely to be unsatisfied with their care. Hence, Dr. Galimberti encouraged clinicians to discuss depression and anxiety with their psoriasis patients and to guide them to obtain help, which can decrease their perceived stigma associated with mental health.

SO MANY PSORIASIS TREATMENTS: BIOLOGICS IN PREGNANCY AND BEYOND

JASON EZRA HAWKES, MD, MS

Dr. Jason Ezra Hawkes spoke about the psoriasis pathway and treatment options in this exciting time of multiple biologic choices. Key takeaways were that the IL-23 and IL-17 axes are central to psoriasis pathogenesis. Unfortunately, the most influential factor that determines biologic choice has become insurance coverage and cost. In terms of speed, TNF-α inhibitors have a slower onset and IL-17 inhibitors have a faster onset, which can be important in counseling patients on expectations. For patients with psoriasis and inflammatory bowel disease, IL-17 inhibitors should be avoided. Biologics approved for pediatric use in psoriasis include ustekinumab, ixekizumab, secukinumab for 6+ years old and etanercept for 4+ years old. Contraindications to TNF-α inhibitors include congestive heart failure and multiple sclerosis. Certolizumab is the clear first line choice during pregnancy, as it lacks the Fc portion. Ustekinumab is a safe alternative to certolizumab in pregnancy.

INTEGRATIVE APPROACH TO PSORIASIS PANEL

JASON EZRA HAWKES, MD, MS, JENNIFER ORNELAS, MD, JULIE GREENBERG, ND

Drs. Jason Ezra Hawkes, Jennifer Ornelas and Julie Greenberg discussed various integrative approaches in treating psoriasis. Dr. Greenberg stated her naturopathic way of treating scalp psoriasis is by using a combination of zinc pyrithione shampoo and rosemary essential oil. She also mentioned from her naturopathic viewpoint that she would want to make sure *Malassezia* was not exacerbating the scalp psoriasis. Dr. Ornelas noted that it is very important to delve into the psychosocial aspects of pediatric dermatology since skin conditions can take a serious toll on children's mental health. She also went on to say how a simple streptococcal infection may induce psoriasis in children. Some children may have clearance with light medication but then as adults may develop psoriasis once again. In terms of diet, it was mentioned that a Mediterranean diet has the most evidence for psoriasis.

OVERVIEW OF WHAT'S NEW IN ACNE

JONETTE KERI, MD, PHD

Dr. Jonette Keri reviewed recent discoveries in the management of acne, starting out with a new topical antiandrogen clascoterone, which is approved for ages 12 and up. She then reviewed diet and acne. On the one hand, plant products and spices enriched with natural anti-inflammatory substances that can help improve acne include green tea, berries, and curcumin. Eating more fruits, vegetables, and healthy fatty acids including omega 3-fatty acids such as docosahexaenoic acid and eicosapentaenoic acid have shown benefit for acne as well. On the other hand, hyperglycemic carbohydrates, milk and dairy products, and saturated and *trans*-fats should be avoided in acne. Further, she recommended ways consume a low glycemic load diet in an inexpensive way, calling it "Integrative Dermatology on the Cheap". To reduce consumption of sweetened drinks, patients can drink water and make unsweetened tea from tea bags. Non-starchy vegetables and fruits can be purchased in season, which may be more affordable. Healthy proteins such as beans, fish, and skinned chicken can be purchased when on sale and frozen to consume at a later time. Limiting processed grains is important; white bread, white pasta, and white rice can be replaced with wheat bread, steel cut oats, and natural granola – which are available as low-cost options. In terms of supplements, myoinositol can be used to ameliorate the metabolic profile of patients with PCOS, thereby improving hirsutism and acne. At 2g twice daily, myoinositol can be an inexpensive option for hormonal acne and hirsutism. Recent basic science evidence regarding probiotics supplementation in acne was also presented. After 12 weeks of consuming probiotics containing *Lactobacillus rhamnosus* SP1, lesional skin biopsy specimens had reduced insulin-like growth factor (IGF-1) and increased FOXO1. This was accompanied by clinical acne improvement of 28.4 in adjusted odds ratio as rated by physicians. These findings correlate nicely with previous clinical evidence showing that probiotic supplementation alone can lead to acne improvement, as well as work synergistically with oral antibiotics. Dr. Keri completed her session by introducing the exciting prospects of acne vaccines targeting virulence factors of *Cutibacterium acnes*, which indeed could be a field-changing innovation.

APPROACHING ACNE FROM AN INTEGRATIVE PERSPECTIVE: HERBAL SUPPLEMENTS FOR HORMONAL ACNE

MICHELLE JEFFRIES, DO

Dr. Michelle Jeffries focused her presentation on three anti-androgen herbal supplements that can be considered for acne: diindolylmethane (DIM), saw palmetto, and chaste tree berry. Naturally found in vegetables such as broccoli, cauliflower, cabbage, Brussel sprouts, kale, collards mustard greens, turnips and radishes, DIM plays a role in estrogen balance and is thought to reduce inflammation. Saw palmetto inhibits 5-α reductase 1 and 2, thereby reducing testosterone conversion to dihydrotestosterone (DHT). Therefore, it can be used to treat both hormonal acne as well as androgenetic alopecia. Chaste tree berry, also known as vitex, works by dampening prolactin which calms the skin and the nervous system and also by restoring progesterone. Therefore, chase tree berry may mitigate premenstrual symptoms. Contraindications for all these herbal supplements include pregnancy, lactation, history of hormone-sensitive cancers, liver disease, and hormone replacement or birth control pills. There is no research for pediatric use, so safety cannot be ascertained. Caution is recommended in patients with fibroids, endometriosis, and abnormal uterine bleeding. The side effects for these supplements include gastrointestinal upset, dizziness, headache, irregular menses, and skin rash. Saw palmetto can have antiplatelet effects, so it should be discontinued before surgical procedures. Given its dopaminergic effects, chaste tree berry should be avoided in Parkinson's disease and patients taking antipsychotic medications. It should be noted, however, that research is lacking on the use of these supplements for acne. However, they may be considered for patients seeking non-pharmaceutical options for hormonal acne based on their mechanism of action and anecdotal evidence.

LOW-DOSE NALTREXONE IN DERMATOLOGY

APPLE BODEMER, MD

Dr. Apple Bodemer reviewed the use of low-dose naltrexone in dermatological conditions. The mechanism of action of low-dose naltrexone is not entirely elucidated but may involve its role as an opioid antagonist, binding to opioid receptors but not eliciting a pharmacologic response. Naltrexone most strongly blocks the μ and κ receptors and may also interact with toll-like receptors (TLR), specifically TLR4, TLR7, TLR8, and TLR9, to elicit its anti-inflammatory effects. The half-life of the medication is about 6 hours and low-dose naltrexone (4mg or less) is almost fully eliminated from the body within 24 hours.

Dr. Bodemer mentioned the psychiatric benefits of low-dose naltrexone as well. Naltrexone may help with mood disorders such as anxiety and depression. In addition, the medication may be used to treat thyroid disorders, various neurologic conditions such as neuropathy and chronic fatigue among other illnesses. She then reviewed the current literature on the use of low-dose naltrexone in dermatological diseases. The first was a case series that included 4 patients with refractory lichen planopilaris who were started on 3mg a day of naltrexone. They all experienced a reduction in pruritus, decreased clinical evidence of active disease, and decreased disease progression with benefits seen within the first two months. The medication was also well-tolerated with no adverse events. Another case report was discussed, whereby a patient with recalcitrant psoriasis was treated with 4.5 mg naltrexone daily. Her affected body surface area (BSA) decreased from 10% to <1% over 6 months. There is no monitoring necessary with naltrexone, but screening for thyroid disorders at baseline and asking about risks is important. The side effects of naltrexone are mostly mild and include sleep disturbances, primarily with nighttime dosing, vivid dreams, insomnia, nausea, and changes in bowel movement. The side effects typically disappear within the first 4 to 7 days. If side effects are more severe or prolonged, the dose should be decreased by 50% for 7 days then titrate more slowly.

THE EVIDENCE FOR FOOD AND AESTHETICS

VIVIEN FAM, RD, PHD

Dr. Vivien Fam explained the ways in which diets have shown to influence skin aging. She mentioned that studies show a common pattern in that plant-based foods promote skin health. Studies have shown that wrinkle severity and wrinkle depth decreased after 8 and 14 weeks of almond intake. Interestingly, consuming 85 grams of almonds decreased wrinkles, while a higher amount of 250 grams increased wrinkles. In addition, a mango study discovered similar results. When participants consumed 85 grams of mangos 4 times a week for 16 weeks, they experienced a decrease in deep wrinkle severity. However, the group that consumed greater amounts of mangos (250 grams 4 times a week) experienced an increase in wrinkle severity, perhaps due to a higher glycemic index.[1] Further research is necessary to understand these differences.

THE BENEFITS OF MODERATE SUN EXPOSURE

KATHERINE VARMAN, MD

The last lecture of the day was presented by Dr. Katherine Varman who discussed the benefits of sun exposure. Dermatologists are well-versed on the dangers of sun exposure as it relates to increased skin cancer risk. However, one must understand and be able to discuss the benefits of moderate sun exposure and the potential pitfalls of insufficient sun exposure. Sunlight at sub-erythemal dose is thought to be anti-inflammatory, not only on the skin but also systemically. Dr. Varman highlighted that insufficient sun exposure may be associated with increased inflammatory conditions, autoimmune diseases, COVID mortality, all-cause mortality, metabolic abnormality, mood disorders, poor cardiovascular outcomes, and certain types of cancer risk. Importantly, these benefits of sun exposure are not just mediated by vitamin D, as supplementation did

not improve cardiovascular disease, all-cause mortality, or cancer in large randomized studies. Instead, vitamin D is a marker of adequate sun exposure. Dr. Varman reported that serum vitamin D level of 40-50ng/ml without supplementation is a marker of adequate sun exposure. This may be achieved with midday exposure in casual clothing for 5-30 minutes with 30% of total skin exposure, 3 times a week. Specific ultraviolet exposure calculations by location and month may be obtained on the following website: https://fastrt.nilu.no/VitD_quartMEDandMED_v2.html. Photoprotective supplements that can increase the minimal erythemal dose, confer anti-inflammatory effects, and help mitigate skin cancer risk include nicotinamide, polypodium leucotomos, carotenoids, and omega-3 fatty acids. Green tea extracts, pomegranate, and n-acetyl cysteine may have similar effects but further evidence is needed. All in all, Dr. Varman called on clinicians to encourage moderate sun exposure, especially for skin types IV, V, and VI, while incorporating photoprotective measures and supplements for high-risk individuals.

DAY 3
OCTOBER 24, 2021

PROCEDURE-BASED APPROACHES TO HAIR LOSS

RAJA SIVAMANI, MD, MS, AP

Dr. Sivamani described procedure-based approaches to treat hair loss. Platelet-rich plasma (PRP) injections involve the delivery of highly concentrated growth factors, such as PDGF, TGF-β, and EGF, directly to hair follicles which stimulates entry into the anagen phase of the hair growth cycle. Studies examining the efficacy of PRP injections for the treatment of androgenetic alopecia (AGA) have demonstrated improvements in the mean number of hairs, hair diameter, and hair density. With regards to preparation, Dr. Sivamani encouraged paying special attention to the centrifugation frequency, as studies have demonstrated that double-spin centrifugation improved hair growth in males with AGA, compared to single-spin centrifugation. He also referenced adding activators like calcium gluconate to the preparation, which are crucial for the release of growth factors contained in granules to the hair follicle.

With regards to microneedling and its application for AGA, Dr. Sivamani discussed a split-scalp study that demonstrated that combining microneedling (1.5 mm dermaroller weekly) with topical minoxidil 5% twice daily performed better than minoxidil alone to promote hair growth in individuals with mild to moderate AGA. Since a fine-needle roller is used to create controlled skin injury and trigger skin cell proliferation, he emphasized the importance of considering the depth of the roller used in this procedure by referencing a study that reported increased hair growth with the use of a needle with a depth of 0.6 mm compared to a needle with a depth of 1.2 mm. Superficially ablative laser therapy with Er:YAG lasers and low-level laser therapy or photobiomodulation were touted to bring about modest improvements in AGA, with slow regrowth. Dr. Sivamani also recommended an herb bhringaraj (*Eclipta alba*) supplementation orally (500 mg twice daily or 1000mg daily) or topically in the form of a scalp massage paired with pumpkin seed oil, sesame, or amalaki oil. Finally, Dr. Sivamani suggested a combination approach to be the most effective in treating hair loss.

ALOPECIA AREATA: TREATMENT UPDATES

PARADI MIRMIRANI, MD

Alopecia areata (AA) is an autoimmune disorder that may be visualized under the dermatoscope by the presence of exclamation point hairs and confirmed by peribulbar lymphocytic inflammation in a scalp biopsy. For limited or patchy AA, Dr. Paradi Mirmirani first educated patients regarding the nature of the condition and provided lifestyle recommendations. Her toolbox also consisted of intralesional and topical corticosteroids, oral or topical minoxidil, and topical janus kinase (JAK) inhibitors such as ruxolitinib and tofacitinib. With regards to intralesional injections, Dr. Mirmirani typically injects 2.5 to 5mg/ml concentration of triamcinolone acetonide 1 cm apart, being vigilant about covering the edges of the alopecic patches. Scalp hair loss of more than 50% is indicative of moderate to severe AA. However, Dr. Mirmirani noted that this definition is not all-encompassing. Severe psychosocial impact, inadequate response to prior treatments, significant eyebrow or eyelash hair loss may bump the patient's diagnosis into this category. Her moderate-severe AA therapeutic ladder involves topical immunotherapy (diphenylcyclopropenone or squaric acid), anthralin short contact (0.5% or 1%), intralesional triamcinolone acetonide injections, oral or topical minoxidil, topical corticosteroids, oral corticosteroids (prednisone 0.5-1 mg/kg for 4-6 weeks or dexamethasone 5 mg twice weekly tapered to 1mg for 5 months), clinical trials and off label JAK inhibitors.

Selective JAK inhibitors (JAK 1,2,3) are becoming potent systemic therapeutic agents for AA, including tofacitinib, ruxolitinib, baricitinib, and upadacitinib. She shared successful cases using these agents but also reported that often therapeutic effects can be lost when the medication is discontinued. The FDA blackbox warnings include serious heart-related events, cancer, blood clots, and death, but these events were seen in studies involving rheumatoid arthritis patients older than 50 years of age with risk factors for heart disease. While these potential adverse effects should be discussed, alopecia areata patients are typically healthy and young, so the risks may be theoretically lower. However, JAK inhibitors should be avoided in those with clotting history and those on oral contraceptives. If patients are unresponsive to treatments, one should consider the diagnosis of atrichia with papules, which is due to human hairless gene mutations or Vitamin D receptor mutations. In these patients, hair morphogenesis is normal, but they lose hair at a young age and never regrow hair. Lastly, Dr. Mirmirani prioritizes addressing the psychosocial aspects and encourages providers to enroll patients in clinical trials, connecting them with support groups, and direct-

ing them to resources such as the National Alopecia Areata Foundation.

INTEGRATIVE APPROACH TO HAIR HEALTH PANEL

JULIE GREENBERG, ND, JENNIFER ORNELAS, MD, PARADI MIRMIRANI, MD

Drs. Julie Greenberg, Jennifer Ornelas and Paradi Mirmirani gathered to share unique clinical insights during the Integrative Approach to Hair Health Panel, which was moderated by Dr. Bodemer. When discussing the first case of telogen effluvium, Dr. Greenberg suggested that while dermatoscope examinations, scalp biopsies, and requesting labs are among the first tasks, validating the patient's feelings should be the first order of business. Dr. Mirmirani also discussed the merits of setting expectations and keeping the patients well-educated about the treatment plan during this time. In the next case study examining central centrifugal cicatricial alopecia, Dr. Ornelas asserted that she educates her patients about hairstyling practices, but avoids giving instructions or creating restrictions, especially if the patient's hair loss affects their psychosocial well-being.

In addition to encouraging healthy diet and lifestyle changes, Dr. Mirmirani also recommended the administration of an antihistamine to the treatment plan in light of new study findings. In the final case study examining trichotillomania, all practitioners stressed the importance of gathering a thorough medical history i.e inquiring about recent life changes as well as investigating behavioral patterns in depth. Dr. Mirmirani asked physicians to consider if the disorder may have been triggered by an underlying presence of alopecia areata which later progressed to trichotillomania. Dr. Ornelas followed suit with this form of out of the box thinking and asked physicians to consider adding a mental health specialist to the team, ruling out an underlying autism spectrum disorder, and coming up with creative ways to "keep the hands busy" and away from the area of hair loss.

Dr. Greenberg expanded on Dr. Ornelas' recommendations and noted that she routinely asks patients to put bandages on their fingers to increase awareness about behaviors that may have been contributing to or exacerbating hair loss.

YEASTY BEASTY! MALASSEZIA IN SKIN DISEASE & AN INTEGRATIVE APPROACH TO TREATMENT

JULIE GREENBERG, ND

Dr. Greenberg, introduced *Malassezia* as the dominant fungal genus that is found in the skin mycobiome of humans. She discussed the immunological paradox of this lipophilic yeast–it is known to activate inflammatory responses in healthy individuals, but also evade or suppress the immune responses targeted against it. With regards to skin health, *Malassezia* is known to modify the skin sebum lipid profile by secreting lipases that releases free fatty acids and arachidonic acid that lead to skin irritation and inflammation. *Malassezia* also produces toxic metabolites and generates reactive oxygen species that cause oxidative stress to local tissues. Dr. Greenberg proposed that there is strong evidence for *Malassezia-*associated seborrheic dermatitis, pityriasis versicolor, and pityrosporum folliculitis; moderate-strong evidence for *Malassezia*-associated seborrheic capitis; moderate evidence for *Malassezia*-associated seborrheic anterior blepharitis and meibomian gland; and weak evidence for *Malassezia*-associated pityriasis alba. The relationship between *Malassezia* and atopic dermatitis, dupilumab dermatitis, and psoriasis is secondary, but these cases warrant further investigation. Dr. Greenberg ended the discussion with an integrative recommendation for the treatment of skin diseases associated with *Malassezia* with the topical application of the following essential oils: rosemary, lemongrass, myrtle, and tea tree essential oil. To prevent contact sensitization, essential oils should always be diluted in carrier oils.

AN INTEGRATIVE APPROACH TO HYPERHIDROSIS

KAREN STOLMAN, MD

Dr. Karen Stolman discussed hyperhidrosis, an autosomal dominant condition with incomplete penetrance that is marked by excessive sweating. This condition affects 4.8% of the U.S. population and is highly prevalent among young adults 18 to 39 years. She addressed the importance of ruling out secondary causes of hyperhidrosis, namely malignancy, infection, autoimmune connective tissue disease, pheochromocytoma, and medications including antidepressants, NSAIDs, asthma inhalers, tamoxifen, ropinirole, and leuprolide. Starting with conventional treatments for primary focal hyperhidrosis, topical aluminum chloride antiperspirants were discussed, along with concerns of skin irritation and toxic effects in the aquatic environment. While concerns of aluminum absorption had been raised, there are insufficient evidence of significant systemic absorption and most aluminum is metabolized in the kidney in healthy individuals. Dr. Stolman's oral anticholinergic of choice is glycopyrrolate, and she uses oxybutinin with caution, as it may cross the blood-brain barrier and worsen dementia in the elderly. Propranolol is used for anxiety- and stress-induced sweating. Alpha adrenergic agonist clonidine can also be used, particularly for sweating from menopause and antidepressants. Destructive modalities should be used with caution not to damage surrounding tissues and nerves. The use of neuromodulator is effective but may require step therapy before insurance approval. Integrative approaches for hyperhidrosis included clothing modifications with incorporation of breathable fabrics, axillary hair removal, topical antiperspirants that also act against odor such as those formulated with calcium, magnesium, zinc hydroxyapatite, and clay mineral mixture, and iontophoresis for palms and soles. She also recommended oral supplementation with sage leaf capsule (1000mg twice daily), acupuncture, hypnosis, biofeedback, and relaxation techniques. Other supplements Dr. Stolman recommended include chamomile, valerian root, and St. John's wart. With regards to acupuncture, she discussed a study that demonstrated

significant improvement in spontaneous polyhidrosis with acupuncture, compared to conventional oral estazolam administration. Dr. Stolman concluded the lecture by asserting that integrative dermatology must be inclusive for all and suggested that physicians pay attention to skin of color for instances of underreporting and the pediatric population, as early onset of hyperhidrosis may have significant psychosocial impact.

CONCLUSION

The Integrative Dermatology Symposium helps to grow the field of integrative dermatology and exposes its attendees to the benefits of supplementing their practice with an integrative approach.

Since integrative dermatology is still a growing field that has the potential to impact patients greatly, more double-blind controlled studies incorporating various herbs, supplements and other traditional medicine are needed to continue to build the evidence to maximize benefits to patient care and increase safety.

Submitted: November 21, 2021 PDT. Accepted: March 24, 2022 PDT. Published: May 09, 2022 PDT.

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