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Updates and Pearls from the Society of Pediatric Dermatology Meeting

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The 49th annual Society of Pediatric Dermatology (SPD) meeting was a tremendous success, attracting over 650 attendees, the highest number ever recorded. The 3-day conference featured a wide range of new developments and tips and tricks from experts in the field.

Artificial Intelligence (AI)

Dr. Albert Yan delivered an enlightening talk about AI in dermatology. He highlighted an example of ChatGPT writing a letter of medical necessity for ustekinumab, complete with citations from large trials demonstrating its benefit. On further interrogation, it was revealed that these references were fabricated "to illustrate what an ideal reference should be".

Dr. Yan also compared 5 different generative AI systems. He highlighted those with excellent performance in advanced search capabilities (ChatGPT-4o and Gemini Pro), evaluating published references and summarizing articles (Perplexity), generating images (Gemini Pro) and voice interactions (ChatGPT-4o). While Copilot works well for advanced search capabilities, both Copilot and Claude were outperformed by other systems in all other domains. He recommended a New England Journal of Medicine (NEJM) podcast on AI for those interested in learning more.

Skin Findings of Systemic Disease and Neonatal Presentations

Dr. Lisa Weibel described many cases where skin findings were crucial for diagnosis. In one instance, dystrophic nails in a 3-year-old led to radiographs of the knees, which confirmed absent patellas and resulted in a diagnosis of Nail Patella Syndrome, an autosomal dominant condition associated with potential glaucoma and impaired renal function. Another patient presented at the age of 5 years with missing lunulas on the fingers and pachydermia. Further examination revealed atrophic pitted scars, radial furrowing of the lips, and pain on sun exposure. Subsequent tests confirmed erythropoietic protoporphyria, a condition typically presenting in childhood.

Other cases included dermatitis herpetiformis that presented with acral petechiae, Langerhans cell histiocytosis with purpuric nail streaks, along with pigmented facial skin tags indicating basal cell carcinomas in a child with Gorlin's syndrome, and superficial erosions in a neonate with congenital syphilis.

In her neonatal talk, Dr. Wiebel discussed a patient with large congenital mastocytomas refractory to conventional treatments that included antihistamines and topical steroids, who was then treated with omalizumab. Janis Chang also reported success with this off-label treatment in one of the Cases of the Year.

Quick Hits

This year, we introduced daily Quick Tips to feature practical medical, surgical, and professional advice.

Dr. Denise Metry provided an overview of the new criteria for LUMBAR syndrome (Lower body hemangioma-urogenital anomalies-myelopathy-bony deformities-anorectal and arterial malformations-renal anomalies), and also discussed her general approach. Diagnosis requires a segmental hemangioma of any size in the lumbosacral, sacrococcygeal or pelvic region along with an abnormality of another organ system e.g., (urogenital, spinal cord, bony, anorectal, arterial, or renal).[1] If the hemangioma is located midline in the posterior aspect, she recommends imaging the spine and ordering an ultrasound of the kidneys and pelvis. For anterior hemangiomas, she advises only a renal and pelvic ultrasound. Finally, if the hemangioma affects the leg, she suggests an ultrasound with Doppler.

Dr Tony Mancini discussed a case involving nasal cartilage ulceration in an infant, which was ultimately diagnosed as a sign of child abuse. A new "red flag" for us to keep in mind, given similar cases reported in the literature.[2]

Involving Child Protective Services

Dr. Romy Cho from the Hospital for Sick Children (SickKids) bravely tackled the question of when to involve child protective services in pediatric dermatology. She referenced a recent review that provides approaches for managing children with suspected abuse.[3] For anogenital warts, there are ongoing challenges in differentiating sexual from non-sexual transmission, given that the virus can lay dormant for many years. The current review advises against the subtyping of human papillomavirus (HPV) or the old age cut-off of 5 years as determinants of abuse likelihood.

She discussed important considerations when evaluating dermatological photos, emphasizing the importance of timely and thorough documentation. She recommended describing any limitations of the photographs, assuming they depict the patient in question, providing a clear differential of the possible diagnoses, and stipulating when or if an in-person assessment is necessary.

Hormonal Treatments

Dr. Andrea Zaenglin reviewed systemic hormonal treatments in adolescents. To screen for polycystic ovarian syndrome (PCOS), the ideal time is 2-3 years post menarche. Screening includes total and free testosterone and dehydroepiandrosterone sulfate (DHEAS) levels. Notably, diagnosis in adolescents is based on the concomitant presence of clinical and/or biochemical hyperandrogenism with persistent oligomenorrhea. An ultrasound of the ovaries is not included in the diagnostic criteria, as multi-cystic ovaries are common in adolescents.[4] In likely cases of PCOS, subsequent investigations include fasting glucose and lipid profiles.

Two main hormonal treatments for adolescents are spironolactone and oral contraceptives. Spironolactone has demonstrated safety and efficacy for adolescent acne, usually at doses from 25 mg to 200 mg. Many clinicians will prefer to wait until after menses are established to start this treatment to avoid interference with the detection of menstrual abnormalities; however, Dr. Zaenglin referenced a systemic review that found no hormonal disruption from spironolactone use.[5]

For those prescribing combined oral contraceptives, estrogen doses of 20 µg or lower could have negative effects on bone health. Compromised bone density is most likely to occur within the first 3 years post menarche. Combinations of 30 ug of ethinyl estradiol are available with drospirenone, norethindrone, and norgestrel e.g., (Yasmin). These combinations are associated with a 45-60% decrease in inflammatory and comedonal acne at approximately 6 months, similar to systemic antibiotics. As a reminder, a quick screen for contraindications can be accomplished with 5 questions:[6]

1. Do you or your family members have a history of blood clots?
2. Do you have high blood pressure?
3. Do you have migraines with aura?
4. Do you have lupus, liver or heart disease?
5. Do you take medications for seizures or HIV?

The Debates: Beta-blockers, Food-triggered Eczema, and Vitiligo

Dr. Elena Pope and Dr Sarah Chamlin debated the superiority of nadolol versus propranolol for the treatment of infantile hemangiomas. Both medications have demonstrated significant benefits in treating infantile hemangiomas and are well tolerated. Some key differences include the CNS distribution coefficient (0.066 for nadolol, 20.2 for propranolol) and the half-life [longer for nadolol]). She discussed a randomized controlled trial that demonstrated the non-inferiority of nadolol compared to propranolol.[7] Sleep disturbances are more commonly reported with propranolol, with some cases resolving after a switch to nadolol. Although long-term psychological or learning deficits have been discussed, no publications to date have confirmed these risks with propranolol. Both medications have been associated with reports of infant death, 1 with nadolol and 6 with propranolol.

Dr. Jim Treat and Dr. Kashi Oza debated whether food can trigger eczema. Dr Treat proposed that "foods don't cause flares…scratching causes flares" and suggested that foods may lead to more scratching which could cause flares. Dr. Oza referred to a large double blind randomized controlled study that investigated the impact of food or placebo challenges in patients with atopic dermatitis. The study found that the severity of atopic dermatitis correlated with the positivity rate of food challenges.[8] Notably however, patients with dermatitis as their only symptom were just as likely to react to the placebo as to the challenged food. This suggests that the classic type 1 hypersensitivity symptoms remain the best predictor of a food allergy, although dermatitis may concurrently flare with exposure.

Finally, Dr. Nanette Silverberg and Dr. Leslie Castelo-Soccio discussed aggressive versus conservative approaches to treating pediatric vitiligo. Recent expert recommendations included topical steroids and calcineurin inhibitors as first-line treatment options.[9] Other "less aggressive" options discussed were vitamin D analogues, coal tar, and camouflage. For natural sunlight exposure, Dr. Castelo recommends starting slowly with 5-15 minutes at non-peak hours and building up until the skin colour turns pink (not red), to achieve the desired effect. The proposed reasons for a more aggressive approach include preventing the psychological disability associated with active disease and maintaining the melanocyte reservoir. Other topical treatments discussed include ruxolitinib cream. Systemic off-label options used in pediatrics include minocycline at a dose of 100 mg daily, dexamethasone at a dose of 2-2.5 mg on 2 consecutive days weekly, low-dose methotrexate, and Janus kinase (JAK) inhibitors including tofacitinib.

Topical Absorption in Pediatrics

Dr. Larry Schachner reviewed concerns with topical absorption of medications in the pediatric patient population. Among these, he outlined case reports of toxicity attributed to lidocaine, diphenhydramine, henna and *N,N*-diethyl-*m*-toluamide (DEET) **(Table 1)**. When prescribing a eutectic mixture of local anesthetics (EMLA), he suggested using only the 5 g and not the 30 g tubes.

Scarring Alopecia

An approach to managing scarring alopecia in pediatric patients was discussed by Dr. Marissa Joseph. She highlighted several conditions, including central centrifugal cicatricial alopecia (CCCA), discoid lupus, lichen planopilaris and late presentations of traction, trichotillomania, and tinea. Scarring alopecia in

Medication	Potential adverse effect	Suggested limits
EMLA	• Lidocaine toxicity • Methemoglobinemia • Seizures	• 0-3 months: 1 g maximum total dose • 3-12 months: >5 kg: 2 g maximum total dose • >1-6 years: 10 g total> 100 cm^2/>4 hours • 7-12 years: 20 g/ 200 cm^2/>4 hours
DEET	• Encephalopathy	• 6 months -<2 years: 10% once daily • 2-12 years: maximum total dose 10%, up to TID • >12 years: 30%
Diphenhydramine	• Hemorrhage (thymus, heart, lungs), cerebral edema	• >2 years: 1-2% topically TID-QID
Henna tattoo	• Hemolysis in patients with G6PD deficiency	• Avoid in patients with G6PD deficiency

Table 1. Select Topical Medications with Potential Toxicity in Pediatric Populations; *adapted from presentation by Dr. Larry Schachner at SPD, 2024*
Abbreviations: EMLA: eutectic mixture of local anesthetics, 2.5% lidocaine and prilocaine; **DEET:** *N,N*-diethyl-*m*-toluamide; **G6PD:** glucose-6-phosphate dehydrogenase; **QID:** 4 times a day; **TID:** 3 times a day

Medication	Indication	Precautions/ Comments
Clascoterone 1% cream (Androgen receptor inhibitor)	FDA/HC: 12 years +, BID: acne vulgaris (IGA success of 19-21% vs 7-9% placebo at week 12)	• Headache (1.3%) *Reversible biochemical HPA suppression in 9% with 4-6x dose x 2 weeks
Ruxolitinib 1.5% cream (JAK1/2 inhibitor, downregulates IL-4/13/31)	FDA: 12 years +, BID for atopic dermatitis (IGA success of 51-54% at week 8 vs 8-15% placebo)	• Nasopharyngitis (3%) • Bronchitis, Ear infection, Urticaria, Folliculitis, Diarrhea, All in 1%)
Ruxolitinib 1.5% cream (JAK1/2 inhibitor, downregulates IL-4/13/31)	FDA: 12 years +, BID for non-segmental vitiligo (facial VASI75 30% at 24 weeks vs 8-13% placebo)	• Application site acne (6%) • Pruritus (5%)
Roflumilast 0.3% cream (PDE4 inhibitor)	FDA/HC: 12 years +, once daily for plaque psoriasis including intertriginous areas (IGA success in 37-42% at week 8 vs 6-7% vehicle)	• Diarrhea (3.1%) • Headache (2.4%) • Insomnia (1.4%) • Nausea (1.2%)
Roflumilast 0.3% foam (PDE4 inhibitor)	FDA: 9 years + once daily for seborrheic dermatitis (IGA success in 73-80% at week 8 vs 41-58% vehicle)	• Nasopharyngitis (1.5%) • Nausea (1.3%), and Headache (1.1%)
Roflumilast 0.15% cream (PDE4 inhibitor)	FDA: 6 years +, once daily for atopic dermatitis (IGA success in 29-32% at week 4 vs 12-15% placebo)	• Headache (2.9%) • Nausea (1.9%) • Application site pain (1.5%), • Diarrhea (1.5%) • Vomiting (1.5%)
Berdazimer 10.3% gel (Nitric oxide releaser)	FDA: 1 year +, once daily x 12 weeks for molluscum (complete clearance 37% vs placebo 20% at 12 weeks)	Local irritation, itch, pain, dermatitis
Birch Triterpenes 10% gel (Filsuvez)	FDA: 6 months +: q 1-4 days, Junctional or dystrophic EB	Localized reaction, SCC reported in 4 adults
Beremagene geperpavec (HSV1 vector based Collagen 7)	FDA: 6months + weekly, for EB with collagen 7 mutation	Needs application by qualified health care personnel
Ritlecitinib (JAK3/TEC inhibitor)	FDA/HC: 12 years + Severe alopecia areata, 50 mg daily (SALT ≤20 in 23% at week 24 vs 2% placebo)	• Nasopharyngitis (10%) • Headache (9%) • Acne (9%) • Nausea (9%) • Upper respiratory infection (6%)
Lebrikizumab (IL-13 inhibitor)	HC: 12years +40kg: 500mg weeks 0,2 then 250mg q2weeks until week16 then 250mg q4weeks (roughly 33% with IGA of 0 or 1 at 16 weeks)	• Nasopharyngitis (7.9%), • Conjunctivitis (5.8%) • Injection site reactions (4.5%)
Spesolimab (IL-36 receptor inhibitor)	FDA: 12 years + pustular psoriasis 1 dose IV +/- repeat 1 week later then q 4weeks subcutaneous (pustulation score 0 at week 1 in 54% vs 6% placebo)	• Fast onset Pyrexia (6%) • Urinary tract infection (3%), • Arthritis (3%), • Drug-induced liver injury (3%)

Table 2. Select New Medications in Pediatric Dermatology[20]
Abbreviations: BID: twice a day; **EB:** epidermolysis bullosa; **Facial VASI75:** Facial Vitiligo Area Scoring Index 75% Improvement; **FDA:** US Food and Drug Administration; **HC:** Health Canada; **IGA:** Investigator Global Assessment; **IL:** interleukin; **IV:** intravenous; **JAK:** Janus kinase; **PDE4: phosphodiesterase 4**; **SCC,** SALT, Severity of Alopecia Tool; **TEC:** tyrosine kinase expressed hepatocellular carcinoma

the vertex in adolescents with a family history of CCCA should prompt consideration of this diagnosis. Using a dermatoscope to identify a peripilar white/grey halo (representing characteristic fibrosis) in these patients can help increase the diagnostic yield of a biopsy.[10] The progressive nature of CCCA underscores the benefit of early recognition and treatment, involving high potency corticosteroids, a 3-month course of doxycycline (in the inflammatory phase), and anti-seborrheic shampoos.

New and Repurposed Medications

The expansion of pharmacologic options was highlighted in several talks. Medications recently approved in the United States are listed in **Table 2**. Although only a subset is currently approved by Health Canada, others have been submitted for approval.

Dr. Julie Schaffer provided an excellent overview of molecular pathways and targeted therapies. She highlighted selumetinib, a mitogen-activated protein kinase/extracellular signal-related kinase (MEK) inhibitor approved for plexiform neurofibromas in children 2 years and older. A study has shown that selumetinib use was associated with significant fading of café au lait macules in 3 out of 4 patients with concurrent plexiform neurofibromas.[11] Along with its benefits, prevalent dermatologic toxicities were reviewed including xerosis (more common in pre-pubertal children), paronychia, and acneiform rashes (older patients with skin phototypes 2 and 3).[12] Trametinib, another MEK inhibitor, was successfully used topically twice daily in an infant with Schimmelpenning-Feuerstein-Mims syndrome, with a reduction in the thickness and pruritis of epidermal and sebaceous nevi.[13]

Challenges with Biologics

In a panel session, Dr. Steven Humphreys presented a new consensus guideline outlining the safety of live vaccine administration to patients receiving dupilumab. The consensus concludes that it is appropriate to consider administering live vaccines without dupilumab interruption with shared decision making, given the lack of evidence for adverse effects.[14]

For patients with a suboptimal response to dupilumab, we were encouraged to consider poor adherence, interval weight gain, and complicating factors (secondary allergic contact dermatitis, psoriasis skewing, and the formation of anti-drug antibodies). Increasing the dose of dupilumab (from 200 mg to 300 mg) may be preferable to decreasing the interval for patients who are apprehensive of needles.

With respect to discontinuing therapy, Dr Siegfried presented data on pediatric patients who have achieved clinical remission (Investigator Global Assessment [IGA] 0/1 for 12 weeks) and thereafter discontinued dupilumab. In the 6–11-year group, 60.3% of 73 patients maintained an IGA 0/1 12 weeks after discontinuation. In the 12–18-year group, 43.3% of 30 patients maintained an IGA 0/1 12 weeks after discontinuation.

Other speakers highlighted coincidental benefits of dupilumab, such as the elimination of diffuse filiform warts in a young girl, and the clearance of actinic prurigo in a 7-year-old girl.[15,16] Conversely, case reports of demodex folliculitis and crusted scabies developing after starting dupilumab were also presented.[17,18] Comments from the audience highlighted that the community is observing more cases of demodex and scabies in children, and these skin conditions should be considered when starting and monitoring patients receiving dupilumab.

Pediatric Dermatology Research Alliance (PeDRA)

Reviewing PeDRA activities, Dr. Lara-Corrales discussed new consensus recommendations for the use of methotrexate in pediatric patients.[19] Some key points include the lack of necessity for test doses, a maximum dose of 1 mg/kg/week (or 25 mg), the lack of contraindication for live vaccines, the safety of inactivated vaccines, and recommendations to hold methotrexate if liver enzymes are ≥ 3 times the upper limit of normal for 2 consecutive months and during systemic infections. In pediatric populations, the onset of effect for atopic dermatitis, psoriasis, and lichen planus is 8-12 weeks, versus 12-16 weeks for alopecia areata and morphea. Finally, folic acid supplementation is recommended at a dose of 1 mg/day on non-methotrexate days, unlike the conventional 5 mg dose for adults.

Other presentations included medical errors by Donald Redelmeier, misinformation by Timothy Caulfield, and the traditional Cases of the Year. For those interested, recordings will be available for purchase in August 2024. Also, the 15th World Congress in Pediatric Dermatology will take place in Buenos Aires from April 11-15, 2025, and the 50th annual SPD conference will be held in Seattle from July 23-26, 2025.

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