BIODERMA CONGRESS REPORTS

# AAD 2025

Reports written by Dr Ben Esdaile (Consultant Dermatologist, UK) and Dr Kim Blakely (Dermatologist, Canada).

## Cutaneous manifestations of Gastrointestinal Inflammatory Disorders

Reports written by Dr Ben Esdaile (Consultant Dermatologist, UK)

Speaker: Alexandra Coromilas (USA)

I started my AAD experience by attending the early morning session on Cutaneous Manifestations of Gastrointestinal Disease by Alexandra Coromilas from New York.

She discussed **how to recognise and diagnose cutaneous manifestations of GI inflammatory disorders.** Initially she reminded us about the presentation of dermatitis herpetiformis (DH) as a manifestation of Coeliac disease. She showed examples of crusted papules and erosions occurring in more unusual places including the face and the rarer presentation of purpura. She reminded us to check for atrophic glossitis and showed us some improvement of DH with JAK inhibitors for refractory disease after traditional first line therapies fail.

The main part of the talk discussed inflammatory bowel disease, with the rising prevalence worldwide with up to 40% presenting with cutaneous signs. She broke down specific, reactive and associated manifestations. For specific manifestations they can be contiguous or discontiguous with the GI tract. Oral conditions include gingival hyperplasia, mucosal cobblestoning and ulceration/erosions as well as orofacial granulomatosis (OFG) with orofacial

oedema. Up to 30% of children presenting with OFG may have IBD. Perianal manifestations include perianal fistulae, abscesses, fissures and skin tags. The treatment of choice for fistulising disease are the TNF-alpha inhibitors.

Discontiguous or metastatic Crohn's disease is not directly connected to the GI tract and can be genital or extragenital. The pathogenesis is not fully understood but may be related to antigen deposition in the skin or granulomatous perivasculitis. Genital Crohn's disease often presents with oedema and linear erosions/ulcerations (the Knife Cut Sign) and eventually results in lymphatic damage and permanent skin changes. Extragenital Crohn's disease can be very challenging to diagnose and is often delayed. The treatment is multifaceted with topical and systemic therapy with high rates of secondary failure. She then went through her treatment algorithm with the use of TNF inhibitors as well as other biologics and combination inhibition with agents such as methotrexate, azathioprine and JAKi.

In terms of extra-intestinal manifestations of IBD she reminded us that IBD is a systemic disease and covered pyoderma gangrenosum (PG) including challenging peristomal PG with good responses to intralesional steroid injections. She gave us a useful clinical tip to dilute the steroid with lidocaine for better tolerance. 80% of peristomal PG is associated with IBD with a mean onset of 23 months after ostomy placement. She also discussed some rarer presentations including Pyodermatitis Pyostomatitis Vegetans, Epidermolysis Bullosa Aquisita and Linear IgA in association with IBD. Finally, she reminded us of the alarm symptoms to look out for including failure to reach milestones in children, unintentional weight loss, nocturnal bowel movements, blood in stool and change in bowel frequency.

# The Gut Microbiome 101 for Dermatologist

Reports written by Dr Ben Esdaile (Consultant Dermatologist, UK)

Speakers: Jean McGee (USA), Sonal Choudhary (USA), Hok Bing Thio (Netherlands), Xialong Alan Zhou (USA), Cecilia Larocca (USA)

The early morning session on Day 2 started with Jean McGee from Boston who discussed how to conduct microbiome studies from sample collection to DNA extraction and sequencing. She then showed techniques on how to look for diversity in the microbiome composition.

Sonal Choudhary from Pennsylvania discussed the microbiome and inflammation. She showed the difference between a healthy gut and a dysbiotic gut. She explained how stress, unhealthy diet, excessive alcohol consumption and antibiotics (all part of the exposome) can disrupt the gut microbiome and compromise the intestinal barrier. She showed that gut dysbiosis is common in inflammatory skin diseases including atopic dermatitis, psoriasis, lupus and autoimmune conditions. She discussed biotics for therapy and explained the promising therapeutic options of probiotics, prebiotics, synbiotics and postbiotics. Omega-3 fatty acids make anti-inflammatory eicosanoids and can be helpful in the treatment of acne, atopic dermatitis and psoriasis. Finally, she discussed dairy and high sugar diets should be avoided in patients with acne. Patients with Hidradenitis suppurativa should consider a yeast free diet and a Mediterranean diet, limit coffee intake and reduce obesity.

Hok Bing Thio from the Netherlands discussed the gut microbiome and the impact of the environment and infectious diseases. He showed how the gut microbiome is different depending on your local environment and diet. He also showed that a gut microbiome with butyrate-producing bacteria can reduce hospital admission with infections.

Xialong Alan Zhou from Chicago discussed the role of the microbiome in oncology and in particular skin cancer. He showed how the gut microbiome can affect the results of chemotherapy and immunotherapy. He showed that melanoma patients tend to have lower gut microbiome diversity with some pro-oncogenic species (Fusobacterium). The gut microbiome in SCC and BCC is not yet fully understood. Cutaneous T-cell Lymphoma (CTCL) is intimately tied to the microbiome and anti-staph antibiotics tend to reduce clinical severity.

Cecilia Larocca from Boston finished the session and discussed the role of the gut microbiome in the response to treatment for cancers. She showed how the gut microbiome has many systemic effects on our immune system and appears to modulate the efficacy of immunotherapy. Antibiotics appear to possibly have a negative response on the efficacy of immunotherapy whereas a good high fibre diet appears to improve outcomes.

# Updates in Hair Disorders

Reports written by Dr Ben Esdaile (Consultant Dermatologist, UK)

Chair: Jerry Shapiro (USA)

Speakers: Natasha Mesinkovska (USA), Kristen Lo Sicco (USA), Leopoldo Santos (Brazil), Elise Olsen (USA), Lidia Rudnicka (Poland), Nino Lortkipanidze (Georgia), Crystal Aguh (USA), Leonard Sperling (USA), Maryanne Senna (USA), Antonella Tosti (USA), Sergio Vano-Galvan (Spain), Mario Lacouture (USA)

## Dangers of Hair Relaxers

The session was started by **Jerry Shapiro** from New York who discussed the **recent concerns around the safety of chemical hair relaxers**. Some of the problems can be localised reactions on the face and scalp as well as the release of asthma-associated chemicals. A recent paper discussed kidney injury from the metabolism of glycolic acid with the formation of calcium oxalates resulting in acute renal injury. He also discussed endocrine disrupting chemicals and the potential of hormonally-induced cancers in particular breast, ovarian and uterine cancers as well as possible effects on fertility.

## JAK inhibitors for alopecia areata update: Efficacy

**Natasha Mesinkovska** from California discussed **JAK inhibitors (JAKi) for alopecia areata**. She started her talk discussing the potential improved survival in patients with alopecia areata. She detailed her extremely positive experience with the JAKi with Baricitinib, Ritlecitinib and Deuroxolitinib. She reiterated that treatment needs to be consistent and long term. She discussed monitoring including FBC, Liver function tests and lipid profiles. She also discussed the contraindication if malignancy, significant cardiac history or previous venous thromboembolism.

## Boxed warnings for JAK inhibitors: Safety

**Kristen Lo Sicco** from New York talked about **the boxed warning for JAKi in regards to safety**. With Baricitinib the most common side effects reported in the trials were URTI and hyperlipidaemia on blood works. Lifestyle modification is worth addressing to reduce this. The issue with lipids is not seen with Ritlecitinib as no JAK 2 inhibition. The boxed warnings for JAKi has

increased risk of MACE (major adverse cardiovascular events), serious infections, neoplasm and death. She discussed a meta-analysis of AA patients treated with JAKi that showed no significant risk of these events. The rheumatology cohort had higher rates of the severe adverse events and appear to be different from the AA population. Currently there is no evidence for increased risk of breast cancer in AA group.

## Hair Surgery Update

**Leopoldo Santos** from Brazil reiterated the importance of combining transplantation with oral therapy. He discussed the dangers of transplantation on the black market and explained the vital planning in performing hair transplantation to choose the correct and safe donor sites as well as designing a natural looking hairline. He demonstrated the second step of extraction of the hairs with follicular unit excision (FUE) with new robotic technologies and then the final step of implantation.

## Update on female pattern hair loss

**Elise Olsen** from North Carolina gave **an update on female pattern hair loss**. This can occur with an early and late onset. It is generally viewed as non-scarring, but the end stage is permanent. In terms of therapeutics, she discussed low dose oral minoxidil (1.25mg) in women aiming for 2.5mg if tolerated. Spironolactone can be useful by itself or as an additive for the oedema with oral minoxidil at 25 mg daily and is safe to use in both ER positive and negative breast cancer patients. Bicalutamide is another option but can be hepatotoxic. She went through the evidence and side effect profiles of finasteride and dutasteride. Supportive treatments for FPHL include ketoconazole (even as a shampoo) that appears to improve hair growth likely via an antiandrogen and antifungal effect. There is some weak evidence for improvement with low level laser therapy, PRP, microneedling and non-ablative lasers.

## Dermoscopy Update in the evaluation and treatment of hair loss

**Lidia Rudnicka** from Poland gave tips on how to differentiate AGA from other hair loss disorders. She highlighted the dermoscopic features of AGA with miniaturisation of the hair shafts resulting in hair shaft thickness

heterogenicity, multiple units with one hair and the peripilar sign (perifollicular hyperpigmentation).

## Diagnostic Challenges

**Nino Lortkipanidze** from Georgia showed a number of cases showing **the diagnostic challenges of hair loss**. She showed how trichoscopy can help in differentiating similar looking patches of hair loss to distinguish between trichotillomania, alopecia areata and other causes of patchy types of hair loss.

## Central Centrifugal Cicatricial Alopecia Update

**Crystal Aguh** from Baltimore gave **an update in Central Centrifugal Cicatricial Alopecia (CCCA)**. Inflammation can be variable and is often subtle. She describes CCCA as a fibroproliferative disorders and advised us to consider drugs that treat inflammation as well as fibrosis. She showed potential benefits of topical metformin, and she is now combining 10% metformin with a potent topical steroid. She discussed systemic therapies including JAK inhibitors. She concluded by raising the possibility that the mild inflammation of FPHL may be the trigger to spur scarring in susceptible individuals.

## Aiding the dermatopathologist to deliver a more accurate meaningful report

**Leonard Sperling** from Maryland talked about **getting a more meaningful and useful biopsy report**. He discussed choosing the correct site and the importance of good clinical information and the consideration of the addition of a clinical image. For non-cicatricial alopecias aim for the most involved site but for cicatricial alopecias aim for almost the opposite to get early involvement.

## Lichen Planopilaris/Frontal Fibrosing Alopecia update

**Maryanne Senna** from Massachusetts gave **an update on Frontal Fibrosing Alopecia (FFA)** and discussed the fact that the scalp does not show contact dermatitis in the same way as other parts of the body. Patients with FFA and LPP have more likely positive patch tests in their study with the most common allergens being fragrance and in particular linalool. She advises her

patients with FFA and LLP to avoid fragrance and chemical sunscreen until there is further evidence. She also described good results in their group with the use of JAKi for some of their patients with FFA and LPP.

## What Happens with Senescence of Hair

**Antonella Tosti** from Miami gave a talk on **hair senescence**. She talked about extrinsic versus intrinsic aging of hair. She discussed extrinsic factors including actinic and chemical damage. Intrinsic aging of the hair results in thinning of the hair shaft diameter and a reduction of hair density. This however is likely not to be noticeable without the co-existence of androgenic alopecia. She discussed some new novel senolytic drugs that may help reduce this process.

## Mesotherapy and the Pipeline for Androgenetic Alopecia: PRP, Dutasteride, Botox

**Sergio Vano-Galvan** from Spain gave **an update on mesotherapy for androgenetic alopecia**. He stated that this is less effective than oral therapies but has the advantage of low or no risk of systemic adverse effects. He discussed the use of mesotherapy with anti-androgens with dutasteride and bicalutamide which is useful for patients who don't want to take oral anti-androgens. Finally, he discussed mesotherapy with PRP (platelet-rich plasma) and Botulinum toxin with mixed results.

## Alopecia in cancer patients and survivors

The final talk of the session was by **Mario Lacouture** from New York on **alopecia in cancer patients and survivors**. He discussed chemotherapy-induced alopecia and the use of scalp cooling devices on wet hair. He then discussed a subtype where the hair never fully regrows (Permanent/Persistent /Late Chemotherapy induced alopecia) and its associated impact on the patient. He discussed a multidisciplinary approach including the possible role of oral minoxidil.

# Hair Loss from Trichoscopy to Therapy

Reports written by Dr Ben Esdaile (Consultant Dermatologist, UK)

Speakers: Bianca Maria Piraccini (Italy), Jerry Shapiro (USA), Kristen Lo Sicco (USA), Amy McMichael (USA), Antonella Tosti (USA), Lidia Rudnicka (Poland), Daniel Melo (Brazil), Rodrigo Pirmez (Brazil), Maryanne Senna (USA), Daniel Asz-Sigali (Mexico)

## Androgenetic alopecia. How to avoid misdiagnosis ?

The session started with **Bianca Maria Piraccini** from Italy who discussed **how to avoid misdiagnosis in androgenetic alopecia (AGA).** She highlighted the important signs in trichoscopy with reduced hair thickness, reduced numbers of hairs and peripilar halos. In patients with chronic scalp itch there may associated seborrhoeic dermatitis (white-yellow scale). Sometimes Fibrosing alopecia can appear in an androgenetic distribution. Trichoscopy shows loss of follicular ostia and perifollicular scale. She also showed examples of telogen effluvium (short re-growing hairs). Sometime Alopecia Areata incognita may also be associated with AGA and trichoscopy can show yellow dots and pig-tail hairs.

## Low dose oral minoxidil. What's new?

**Jerry Shapiro** from New York gave a talk about **what is new in low dose oral minoxodil (LDOM) in the treatment of AGA**. He discussed the 'dread shed' of a temporary increase in hair shedding on initiating low dose oral minoxodil and the fact that concomitant use of topical minoxodil does not seem to help. He showed studies that showed oral minoxodil appears to worsen hangovers and advised us to tell patients to refrain from LDOM on days of high alcohol intake.

## Finasteride, dutasteride and spironolactone in androgenetic alopecia. What's new?

**Kristen Lo Sicco** from New York discussed **anti-androgen therapies in AGA**. She covered theoretical cancer concerns with the use of 5-Alpha Reductase inhibitors (5ARIs) and showed studies that showed no evidence of increased cancer risks in large studies for both women and men but there were some limitations in the studies. In males she showed studies with low risks of

erectile dysfunction. The sexual and psychiatric adverse effects remain controversial. There appears to be no evidence of increased cancer risk with Spironolactone.

## Traction alopecia. From trichoscopy to therapeutic options

**Amy McMichael** from North Carolina gave a talk on **Traction Alopecia**. She explained that this is high risk in those who use chemical relaxants and hair traction behaviours. Early treatment is essential as it can become scarring. She showed the importance of trichoscopy for looking at follicular drop out in late stages and it can be used to show active hair casts and inflammation to patients in earlier stages. In terms of treatments, she advises to decrease friction and traction behaviours, consider topical steroids/ IL steroids as well as the potential of topical and oral minoxodil.

## Discoid lupus erythematosus. From trichoscopy to therapy

**Antonella Tosti** from Miami gave a talk on **the use of trichoscopy in the diagnosis of Discoid lupus**. She showed trichoscopic images showing loss of follicular openings, enlarged tortuous vessels and peripilar cast as well as keratotic plugs. The vessels are an important diagnostic clue in both pigmented and non-pigmented skin. The tortuous vessels are often larger than the hairs. In the pigmented scalp there is a loss of the pigmented network and a loss of pinpoint white dots and patches of dark brown staining at the borders. Finally, she advised if you see red dots treat aggressively as the hair can regrow.

## Lichen planopilaris. From trichoscopy to therapy

**Lidia Rudnicka** from Poland gave a talk on **lichen planopilaris**. She highlighted that 60% complain of itch, burning and pain. The trichoscopic features to look out for are perifollicular scaling, loss of hair follicles, hair casts and tubular scaling, milky red areas and lonely hairs. In terms of treatment she discussed treatment options including ciclosporin, methotrexate, MMF, prednisolone and HCQ. She also showed some case reports of success with the JAK inhibitors.

## Dissecting cellulitis (DC) and folliculitis decalvans (FD). From trichoscopy to therapy

**Daniel Melo** from Brazil showed FD presenting with follicular pustules, crusting and tufted hairs. In terms of trichoscopy he showed the features of erythema, white areas around follicles, yellow crusts and pustules as well as hair tufting. In regards to treatment he suggested lymecycline as first line as well as topical and IL steroids. He discussed other topical therapies including topical dapsone. He discussed the potential of JAKi and surgical options for therapy. In DC he showed the large impact of this disease on patients. Clinically he showed the trichoscopic images of broken hairs, black dots, pustules, thin hairs, follicular plugs, white areas, scale and 3D yellow dots (soap bubble). For the clinical approach he recommended isotretinoin as the first line agent with antibiotics as second line.

## Alopecia areata (AA) from trichoscopy to therapy

**Rodrigo Pirmez** from Brazil highlighted the trichoscopic features including constrictions, broken hairs, black dots, exclamation mark hairs and yellow dots (sebum in ostia). He discussed how to choose the best treatments for AA in terms of their age and disease severity. For mild disease he recommended IL 2.5mg-5mg/ml, topical clobetasol and topical minoxodil. In established severe disease he recommends JAK inhibitors in combination with oral minoxodil. If acute and rapidly progressing he recommended a taping dose of oral steroids prior to JAK inhibitors. Finally, he discussed the challenge in children under the age of 12 with the off-license use of JAKi (tofacitinib).

## How I select a JAK inhibitor for my patient with alopecia areata?

**Maryanne Senna** from Boston discussed **how to choose which JAKi to use for Alopecia Areata** when looking at Baricitinib (4mg daily), Ritlecitinib (50mg daily) and Deuruxolitinib (8mg twice daily). She showed data showing similar efficacies in terms of outcomes. In terms of safety data again there seems to be little difference in rates of black box warnings. In the US she uses Ritlecitinib in adults and children due to insurance and FDA approval. In younger children she tends to use baracitinib or tofacitinib due to the ability

to dose titrate and Tofacitinib also has the advantage of coming in an oral suspension.

## Tinea capitis from trichoscopy to therapy

The final talk in the session was given by **Daniel Asz-Sigali** from Mexico on **Tinea capitis**. He explained that the principal infections are caused by the Microsporum (ectothrix) and Trichophyton (endothrix) species. He showed the non-inflammatory and inflammatory variants. Trichoscopy can be useful showing comma hairs, broken and corkscrew hairs (most often in trichophytic infections) whereas Zig-zag and Morse code hairs are seen in microsporic infections. In terms of treatment the microsporic infections are best treated with either griseofulvin or itraconazole whereas the trichophytic are best treated with terbinafine. Kerions are best treated with itraconazole.

# Nail symposium

**Reports written by Dr Ben Esdaile (Consultant Dermatologist, UK)**

Chair: Adam Rubin (USA)

Speakers: Aditya Gupta (USA), Shari Lipner (USA), Matilde Lorizzo (Switzerland), Kendall Billick (USA), Ralph Daniel (USA), Antonella Tosti (USA), Molly Hinshaw (USA), Nilton Chiacchio (Brazil), Brian Morrison (USA), Michela Starace (Italy), Bianca Piraccini (Italy), Jorge Ocampo-Garza (Mexico); Fatih Goktay (Turkey)

## Addressing Onychomycosis Resistance

**Aditya Gupta** from Toronto started the session with **the growing problem of terbinafine resistance in onychomycosis in the US**. He recommended in cases of complete resistance the use of other agents including Voriconazole or posaconazole. He highlighted the importance of prophylaxis and the successful use of topical efinaconazole 2 x week for 3 years as maintenance. He also discussed the importance to sanitise shoes with ozone and the disinfection of socks to try and prevent reinfection. **Avner Shemer** from New York talked about novel anti-fungals for onychomycosis with a range of cure rates. He discussed novel therapies with fosravuconazole, posaconazole and voriconazole.

## State of the Art Treatment of Nail Unit Lichen Planus

**Shari Lipner** from New York advised us to think of nail lichen planus as a true nail emergency and treat as soon as possible before pterygium formation and nail loss. She reminded us to always think of malignancy if there is a single nail dystrophy. In regard to treatment she discussed intralesional steroid injections and if more extensive to consider systemics such as acitretin and prednisolone. Finally, she discussed novel therapies with both topical and systemic JAK inhibitors and low dose naltrexone (3mg daily).

## State of the Art Treatment of Nail Unit Psoriasis

**Matilde Lorizzo** from Switzerland highlighted the importance of general rules, including avoiding trauma, keeping the nails short and the use a moisturiser/protective lacquers. She discussed options including intralesional steroid injections and the possibility of intralesional methotrexate. She discussed some novel topical compounds including ciclosporin, tofacitinib and Ruxolitinib. Systemic therapies were discussed including acitretin, methotrexate, apremilast, Deucravacitinib and the biologics.

## Diagnostic considerations and management of periungual warts

**Kendall Billick** from Toronto discussed **the challenges of treating periungual warts**. They can mimic SCC and dermoscopy can help with black dots and white halos. He discussed keratolytics and anti-proliferative agents including Bleomycin, intralesional and topical 5-FU +/- Salicylic acid, Immunotherapy with imiquimod 5% 5/7 days per week, Intralesional Vitamin D3 and Virucidal agents. He also discussed some potential treatments for the future with nano-pulse stimulation technology, a combination of digoxin and furosemide in a topical gel as well as Cold atmospheric pressure plasma.

## Non-Surgical Management of Ingrown Toenails

**Ralph Daniel** from Alabama discussed **the non-surgical management of ingrown toenails (onychocryptosis)**. He explained they are essentially a foreign body reaction. He described early management techniques including applying cotton under the nail, 40% urea to the nail plate and a potent topical steroid to the nail edge. He also recommended 1-2 teaspoons of salt to 1 L of water and to soak 3 x day for 7-10 days with steroid to the edge.

## How can we use minoxidil to treat or improve nails?

**Antonella Tosti** from Miami discussed **the use of minoxidil to treat or improve nails**. Minoxidil increases nail growth and can be used in a number of conditions with slow nail growth including yellow nail syndrome and retronychia. The mechanism is not fully understood but it is thought to be through its vasodilatory effect. Minoxidil can be used topically (2 x day) to the proximal nail fold or orally.

## Addressing Malalignment of the Nails in Children and Adults

**Betrand Richert-Baran** from Belgium discussed **the management of malalignment of the nail plate**. In familial pincer nails causing symptoms then chemical cautery can be used. In congenital malalignment there is often a delayed diagnosis, and this can eventually lead to loss of the nail bed and retronychia. In terms of management early diagnosis is essential and advise well-fitting shoes, keeping the nails short and think of taping. In children 50% spontaneously resolve. If no improvement, then surgery could be considered with realignment of the nail matrix.

## Advances in the Diagnosis and Treatment of Nail Unit Squamous Cell Carcinoma

**Molly Hinshaw** from Wisconsin discussed **Squamous Cell Carcinoma of the nail unit** and highlighted that 60-80% are associated with HPV. Treatment of choice is functional surgery (with MOHS) when SCC does not involve bone. She showed different presentations with refractory paronychia (usually lateral), periungual warty lesions, onycholysis, erythronychia, PG-like granulation tissue and oncyhodystrophy.

## Advances in the Diagnosis and Treatment of Nail Unit Melanoma

**Nilton Chiacchio** from Brazil gave a talk about advances in the diagnosis and management of nail unit melanoma. He discussed the importance of a good biopsy technique and the role of the tangential nail matrix shave biopsy. In terms of treatment he discussed the role of functional surgery in acral

melanoma with a Breslow thickness up to 0.8mm and the role of MOHS for acral melanoma in-situ and even in invasive disease.

## Update on Nail Disorders in Skin of Color

**Brian Morrison** from Miami gave **an update on nail disorders in skin of colour (SOC)**. In nail psoriasis nail plate, discolouration is seen commonly whereas erythema and salmon patches are rarely seen. In nail lichen planus in skin of colour 25% had nail fold findings. Longitudinal erythronychia is not easily seen in skin of colour and more thinning of the plate is seen (longitudinal leptonychia). In nail SCC in SOC there were high rates of invasive disease with pigmentation (reactive longitudinal melanonychia) seen in most.

## Recognizing and Treating Self-Induced Nail Disorders

**Michela Starace** from Italy discussed **self-induced nail disorders**. She split the groups up by age with finger sucking and nail biting in infants and children. In adults, nail biting (onychophagia) is often associated with anxiety and can cause reactive pigmentation. In adults she also discussed habit-tic nail deformity and onychotillomania with bizarre features. Treatment includes habit reversal training, topical therapies and sometimes N-acetyl cysteine and fluoxetine.

## How to use Dermoscopy Most Effectively to Diagnose Nail Disorders

**Bianca Piraccini** from Italy then discussed **the use of dermoscopy (onychoscopy) to help diagnose nail disorders**. She discussed the importance of looking at the free margin for clues. She discussed the use of the dermatoscope to help make a diagnosis of subungual haematoma and also help make a diagnosis of melanoma.

## Surgical tips on obtaining optimal nail specimens for nail neoplastic and inflammatory disorders

**Jorge Ocampo-Garza** from Mexico gave some **surgical tips for obtaining adequate biopsies for both neoplastic and inflammatory nail disorders**. The lateral longitudinal biopsy allows the analysis of the whole nail unit and is the biopsy technique of choice for inflammatory nail disorders. For nail matrix

neoplasms visualisation with nail plate avulsion is preferred and a tangential matrix biopsy is useful.

## Artificial Intelligence (AI) and the Diagnosis of Nail Disorders

**Fatih Goktay** from Turkey finished the session with a talk on **Artificial Intelligence and the diagnosis of nail disorders**. He discussed the potential role of AI in the diagnosis of pigmented lesions as well as inflammatory and infective nail disorders. AI may be useful in the rapid calculation of NAPSI scores. His team's study showed improved diagnostic accuracy of onychomycosis with dermoscopic images over clinical images.

# Pearls: Diagnostic and Therapeutic

**Reports written by Dr Ben Esdaile (Consultant Dermatologist, UK)**

Chair: Stephen Stone (USA)

Speakers: Morgan Wilson (USA), Mark Lebwohl (USA), Rebecca Larson (USA), Dirk Elston (USA), Stephen Stone (USA)

The session started with **clinicopathological pearls** from **Morgan Wilson** from Illinois. He showed an interesting case of amyloidosis with congo red positivity highlighted with the use of fluorescence. The case was a result of localised insulin injections and was confirmed by an insulin immunostain. He then showed a case of presumed KA/SCC on the arm that ended up being bacillary angiomatosis with pseudoepithelial hyperplasia in an immunosuppressed patient. He presented a number of further interesting cases with some standouts being a case of granulomatous syphilis with negative immunohistochemistry. The pearl was that immunohistochemistry is only 71% sensitive and so don't forget serological testing at the same time. He also showed a case of myiasis on the forearm with small punctums used as air holes for the larvae. He informed us that multiple larvae coexist and so make sure you get all the larvae with a tip that occlusion of the air holes with petroleum jelly can help bring them to the surface (he also showed a case where the authors had occluded the air holes with bacon with successful results!).

**Mark Lebwohl** from New York discussed a number of his **therapeutic and diagnostic pearls**. He showed a case of using a hedgehog inhibitor to shrink a nodular BCC prior to MOHS surgery with excellent results. He also uses L-carnitine given with vismodegib to reduce the side effects of muscle cramps. He warned about the likely rise in resistant fungi and in particular Trichophyton Indotineae that appears to be coming to the US. He gave some great tips for dealing with difficult historians in terms of patients with a screening question as well as using a thermometer to help quieten talkative patients or their relatives. He went through the recent guidelines in terms of the safety of systemics and the new biologics before surgery and vaccination. For low risk procedures continue all treatments except the JAKi. In terms of vaccination, patients on dupilumab should avoid live vaccines. He also gave some great therapeutic tips including low dose isotretinoin (10mg bd for 5 month) for perioral dermatitis. Another pearl for patients on isotretinoin was the potential prevention of cheilitis with omega-3 fatty acids (1 g day) or evening primrose oil or Zinc 1mg/kg /day. He also recommended high dose Vitamin D for the management of acute radiation dermatitis and sunburn.

**Rebecca Larson** from Illinois gave us some of her **procedural pearls**. In terms of dressing for the hair-bearing scalp she gave a tip using a pony-tail dressing. This is performed in patients who have long hair. She suggested applying topical antibiotic directly to the wound, then a non-adherent dressing and then cotton gauze. After that, a tight pony-tail is created above the wound and left in place for 48 hours. Another useful tip she called Waste Knot, want Knot. She discussed multiple uses for the suture packet including as tray for antibiotic ointment, a joint splint and to use the cardboard for sizing a graft. For better exposure of the ear she suggested the use of skin hooks but to make sure all areas are anaesthetised. For working on the ala she suggested asking your assistant to hold a cotton bud applicator inside the nose to help keep the area stable as well as helping with haemostasis. For keloid steroid injections be careful of subcutaneous injections resulting in fat atrophy. Try injecting into tunnels on withdrawing the needle. In terms of managing sharps she suggested the use a surgical sponge to put all the sharps into or consider the use of a magnet stuck underneath the dressing pack on the tray. She finished by giving some useful skin cancer tips. She suggested adjusting our treatment recommendations based on patient goals and life expectancy. She discussed the role of using intralesional 5-FU ( 0.2-2mls of 5% 5-FU injected weekly or every 3-4 weeks pending on results) in two challenging patients.

Dirk Elston from South Carolina then gave his medical clinical pearls. He talked about the challenge of managing multiple eruptive keratoacanthomas (KAs) on the legs. He discussed the potential role of chemo-wraps with 5-FU with the potential addition of oral methotrexate or acitretin. He warned about the sign of scrotal or vulval dermatitis as a sign of bone marrow problems with 5-FU. He suggested considering oral methotrexate for giant KAs and also to consider intralesional 5 FU or MTX (25mg/cc) for tumours in poor operative candidates. He discussed managing severe pruritus and warned that steroid atrophy causes burning and pruritus. He suggested to try and get them off the topical steroids and suggested a trial of topical local anaesthetic or topical JAKs. In refractory eczema use the petrolatum-based ointments and avoid creams due to irritant and allergic components. He discussed the useful roles of systemics including methotrexate, ciclosporin and Mycophenolate as well as the new biological therapies. With these drug, when treatment fails consider possible pityrosporum in resistance facial eczema (fluoresces yellow green) as well as the potential of an allergic contact dermatitis. In Urticaria, check for dermographism as if present they are not on adequate dose of antihistamines. If fixed, purpuric or burning then suggestive of and urticarial vasculitis and may develop into Lupus. If cold urticaria present think hepatitis, syphilis or mycoplasma.

Finally, the session was rounded off by the Chair Stephen Stone from Illinois who gave use his practical office pearls. He discussed a new therapy now approved for scabies called spinosad topical suspension which has now become first choice. He discussed the toxic erythema of chemotherapy often misdiagnosed as a hypersensitivity responding extremely well to high dose vitamin D 100 000IU repeated in 7 days. He discussed the potential of Silver Nitrate solution 10%/tips to treat granulation tissue for ingrowing toenail granulation tissue as well as aphthous ulcers. He also discussed the potential use of wet tea bags to help with symptomatic relief of the ulcers. He then discussed the use of a new strontium based cream (Dermeleve) for the relief of notalagia paraesthetica and other neuropathic conditions. Finally, he discussed the potential role of naltrexone for the treatment of itch and acantholytic disorders such as Hailey-Hailey disease.

# Therapeutic Hotline

Reports written by Dr Ben Esdaile (Consultant Dermatologist, UK)

Chairs: Seemal R. Desai (USA), Darrell S. Rigel (USA)

Speakers: Mark Lebwohl (USA), Linda Gold (USA), Neal Bhatia (USA), David Cohen (USA), Seemal Desai (USA), Boni Elewski (USA), Kishwer Nehal (USA), Darrel Rigel (USA), Cheryl Burgess (USA), Pearl Grimes (USA), April Armstrong (USA), Ted Rosen (USA), Lawrence Eichenfield (USA)

## What's new this year in Psoriasis

The session was opened by **Mark Lebwohl** from New York who discussed new biosimilars including the ustekinumab biosimilar that has recently become available. He showed spesolimab (an Il-36 blocker) rapidly working for acute general pustular psoriasis. He discussed a new Il-17a blocker/protein inhibitor (Izokibep) that appears very effective but has lots of injection site reactions. He also discussed some new biologics in the pipeline as well as some modified monoclonal antibodies with improved half-lives.

## What's new this year in Acne and Rosacea

**Linda Gold** from Michigan discussed success with triple combination therapy for acne with clindamycin, Benzoyl Peroxide (BPO) and adapalene with a good safety profile. This also simplifies the regimen for younger patients and improves compliance. She also discussed the recent concerns of benzene release from benzoyl peroxide products but this appears to be heat related and does not appear to have any increase rates of cancers and no increase in blood levels in benzene. BPO products should ideally be kept refrigerated. She discussed the potential of an mRNA vaccine and this is in early stages of research. She also discussed the promising results of low dose modified release minocycline with good anti-inflammatory effects in rosacea.

## What's new this year in Topical therapy

**Neal Bhatia** from California discussed a number of new topical therapies. He discussed Roflumilast foam (PDE inhibitor) for seborrhoeic dermatitis with promising results. He showed good results with some novel topical therapies including Tapinarof cream (aryl hyrdrocarbon receptor agonist) and Crisbarole cream (PDE inhibitor) for atopic dermatitis.

He discussed topical Strontium for itch available over the counter. He then discussed Delgocitinib cream (JAKi) for chronic hand eczema and its off-label use for Frontal Fibrosing Alopecia. He showed the good response of Ruxolitinib cream for atopic eczema and also case reports for lichen planus as well as mild-moderate Hidradenitis suppurativa. Finally, he discussed Clascoterone topical solution for Androgenetic alopecia (AGA) and possible acne.

## What's new this year in Contact Dermatitis

**David Cohen** from New York gave us an update on Contact Dermatitis. 4 of the top 10 allergens in the US are fragrances with Nickel being the number one allergen this year. In the paediatric population the top allergens are fragrance, propylene glycol and lanolin. Methylisothiazolinone is still a common allergen and still present in numerous products. This year's allergen of the year was Toluene-2,5- Diamine Sulfate which is a PPD hair dye alternative.

## What's new this year in JAKs

**Seemal Desai** from Dallas discussed what's new in JAK inhibitors. He gave reassurance in terms of their safety and discussed the increased risk of HZV and HSV and to consider age-related vaccination. He discussed baseline routine bloods including TB, hepatitis and possible HIV and also a lipid profile. He showed the FDA approval on a number of JAKi for Alopecia Areata and discussed the new delgocitinib cream for chronic hand eczema with impressive results in the clinical trials. He finished with JAK targeted therapy for vitiligo with Ruxolitinib cream 1.5% and now some likely oral JAKi for vitiligo.

## What's new this year in Hair and Nails

**Boni Elewski** form Alabama started with alopecia areata with the positive results with oral JAKi. She highlighted the fact that if one JAKi is not working switch to another and be patient. She discussed the potential of oral dutasteride as a first line treatment for Frontal Fibrosing Alopecia but not for patients with a history of breast cancer. In terms of nails she discussed the importance of early diagnosis of nail lichen planus and consider it as a nail emergency. She showed new data for abrocitinib working well for nail lichen planus. In nail psoriasis she showed that ixekizumab (il-17) has the best data

for rates of nail clearance. Finally she talked about drug resistant fungal infections with rising rates of terbinafine resistance with T.rubrum with itraconzole being a better choice.

## What's new this year in Derm Surgery

**Kishwer Nehal** from New York discussed the importance of biopsy site identification and have a time out if not sure. In terms of procedures she discussed the management of high risk SCC and discussed the debate between MOHS versus a wider excision.

## What's new this year in Skin Cancer

**Darrel Rigel** from New York discussed what is new in skin cancer. He showed successful results with 1% Tirbanibulin cream for field actinic keratoses. He highlighted a paper showing good outcomes for nodular BCC with a combination of curettage plus cryotherapy with excellent cosmetic results. For melanoma he showed increasing incidence rates around the world. He showed unfortunately death rates for melanoma are increasing in the US. He also showed evidence to suggest some cases of death from MMIS in a small proportion probably due to missed area of focal invasion. He also showed a paper showing better prognosis in acral naevus associated melanoma over de novo acral melanoma.

## What's new this year in Aesthetics

**Cheryl Burgess** from Washington discussed new indications for dermal fillers, new devices and new toxins. In terms of market trends, AI appears on the increase for aesthetics but there are still a number of deficiencies in terms of the data sets. She talked about the concerning problem of prejuvination with the rise of young people trying to use anti-aging products. She discussed some new skin care products including a cocoa powder that appears to have some good benefits in terms of anti-aging and hydration. She discussed the research in biotechnology for skin care rejuvenation with new delivery systems including tiered release vesicles (TRVs) for drug delivery.

## What's new this year in Pigmentary disorders

**Pearl Grimes** from California talked about the new evolving non-hydroquinone agents for melasma. She discussed a new product in the US called Thiamidol with good responses. She discussed a new product called 2-MNG for treatment of post-inflammatory hyperpigmentation particularly in acne. She showed benefits of topical metformin (30%) showing superiority to HCQ in one paper. She showed data from a systematic review of tranexamic acid delivery with the oral being the most effective. She showed a novel treatment with topical isoniazid for melasma with some promising results. In the final aspect of her talk, she discussed vitiligo and showed good responses to topical Ruxolitinib cream and an oral JAKi (Ipadacitinib) with progressive re-pigmentation over one year. She also showed promising results with a combination of narrow band UVB with oral JAKi.

## What's new this year in Atopic Dermatitis

**April Armstrong** from Los Angeles discussed what is new in atopic dermatitis. In the last 12 months she showed multiple new approved medications including tapinarof 1% cream (once daily approved from 2 and above), roflumilast cream 0.15% (once daily for 6 and above) and delgocitinib cream (2% cream twice daily). She highlighted the advantage of a number of once daily preparations of non-steroidal topical therapies.

For chronic hand eczema, Delgocitinib cream (approved in Europe) with excellent responses at 16 weeks. One study showed improved outcomes compared to alitretinoin. Finally, she discussed new biologics in the pipeline including nemolizumab (Il-31R antagonist), lebrikizumab (Il-13 blocker) and new OX-40 ligand blockers.

## What's new this year in Infectious Diseases

**Ted Rosen** from Texas discussed antimicrobial resistance. He let us know about a new fifth generation cephalosporin called Ceftaroline. He discussed the potential problem of HSV resistance and a new drug called Pritelivir that is currently in Phase 3 trials. In regards to HPV infections he discussed great results with 1% Tirbanibulin cream once daily for 5 days (same as actinic keratoses). He mentioned a new treatment for Molluscum on the way called Berdazimer gel 10.3% (daily for 12 weeks) and can be used in the over 1s. He discussed a novel drug called Oteseconazole for drug resistance

onychomycosis and finally Spinosad 0.9% solution once only topical treatment for resistant scabies.

## What's new this year in Peds Derm

**Lawrence Eichenfield** from San Diego finished the session with what is new in paediatric dermatology. He highlighted the new Tapinarof 1% cream with excellent results in eczema.

He discussed topical Ruxolitinib cream with good results in atopic eczema, but this is not yet approved. He reinforced the great results with biologics and JAKi for atopic eczema.

In psoriasis, he discussed the new oral Il-13 receptor antagonist peptide called Icotrokinra with impressive early results. Finally, he discussed the off-label use of both topical and oral minoxodil in mild to moderate alopecia areata.

# Sunlight – Friend or Foe?

**Reports written by Dr Ben Esdaile (Consultant Dermatologist, UK)**

Chair: Henry W. Lim (USA)

Speakers: **Yolanda Gilaberte** (Spain), Henry W. Lim (USA)

The early morning session on Sunday was led by **Henry Lim** from Michigan and **Yolanda Gilaberte** from Spain. The spectrum of sunlight reaching the earth's surface is 51% Infrared, 47% visible light and only 2% ultraviolet light. The photobiological effect of sunlight can be divided by wavelengths with UVB and UVA2 causing erythema and photocarcinogenesis, UVA1 causing tanning, photoageing and photocarcinogenesis and visible light causing erythema and tanning. Visible light (including blue light) has an effect on Opsin-3 receptors in melanocytes particularly in darker skin types and induces a sustained tyrosinase activity with resultant pigmentation.

Darker skin types have more protection against photoaging. Melanin in skin of colour can filter 2-5 times more UV than lighter skin types. The epidermis of skin types V and VI has an intrinsic protection of 13.5 compared to 3.3 in lighter skin types. The mechanism of photoaging is induced by both UVB and UVA. UVB induces matrix metalloproteinases resulting in collagen degradation whereas UVA has a direct effect on dermal fibroblasts. Visible

light can also induce metalloproteinase in skin types IV – VI. UVA, visible light and infrared can all penetrate through glass, so it is important to remind our patients. In terms of photocarcinogenisis, UV is both immunosuppressive and carcinogenic.

There is good evidence that the regular use of sunscreen significantly reduces both Non-Melanoma Skin cancers and melanoma. We now know that visible light and UVA1 have a role in conditions aggravated by sun exposure such as post-inflammatory hyperpigmentation and melasma, especially in darker skin types. The currently available chemical UV filters are not sufficient to protect the skin from the effects of visible light. The physical tinted sunscreens (eg. iron oxide) are needed to protect against visible light and longwave UVA but these are poorly matched against darker skin types. There is now a shift towards more personalised sunscreens targeted for specific skin types and needs including the skin microbiome. Skin types 1/2 will need higher UVB protection and less visible light protection compared to a person with skin type VI who will need the opposite with lower UVB protection but high visible light protection. Although the deleterious side of effects of sun exposure are well known, there are some beneficial effects especially with exercise and outdoor activities. Photoprotection needs to be balanced and personalised.

# Where do we stand? The Pathogenesis and Treatment of Melasma

Reports written by Dr Ben Esdaile (Consultant Dermatologist, UK)

Chair: Pearl Grimes (USA)

Speakers: Pearl Grimes (USA), Thierry Passeron (France), Nada Elbuluk (USA), Seemal Desai (USA), Rashmi Sarkar (India), Arielle Kauver (USA)

## The Epidemiology and Pathogenesis of Melasma: The Winding Road of Discovery

The session was introduced by **Pearl Grimes** from Los Angeles who highlighted the massive burden of the disease and the impact on the quality of life. It is most common in skin types III, IV and V. In the epidermis the melanocytes are hypertrophic and pendulous. The driving forces are genetics, ultraviolet light and hormones. She talked about the huge complex

number of players in the pathogenesis involving ultraviolet and visible light, increased vascularity, inflammation, mast cells, fibroblasts and oxidative stress.

## The New Science of Photoprotection

**Thierry Passeron** from France discussed photoprotection in melasma. He explained that melasma is a photoaging disorder. He explained the importance of protection against UVA, UVB and visible light. The darker the skin the more vulnerable to pigmentation from visible light (mostly high energy blue light). In terms of protection the best protection is a physical block with iron oxides, but these are not well tolerated in all skin types.

## Therapies: New Paradigms

**Pearl Grimes** then gave some real-world cases to demonstrate the challenges of treating melasma with a huge arsenal of treatment modalities with good responses to oral tranexamic acid and cases highlighting the importance of treating the vascular component.

## The Landscape of Topical Therapies

**Nada Elbuluk** from Los Angeles gave a lecture on the topical agents and talked about the gold standards including hydroquinone (HCQ), retinoids and steroids in triple combination. She highlighted azelaic acid which inhibits tyrosinase, acts as an anti-inflammatory and combines well with Kojic acid. Tranexamic acid has multiple mechanisms of action but blocks plasmin production and improves erythema with oral being more effective than topicals. She discussed the potential role of flutamide as anti-androgen but this needs more investigation. Cysteamine also seems effective but can be irritating and smells and is a good option when not using HCQ. Thiamidol is the most potent inhibitor of human tyrosinase and is highly effective. For compounding products, the addition of niacinamide and ascorbic acid may be beneficial. New agents with limited data include topical gluthathione and metformin as well as a number of botanicals. Most treatments for melasma are combinations now and she also discussed ways of improving drug delivery.

## Oral Therapies for Melasma

**Seemal Desai** from Dallas lectured us on oral agents for melasma. He first recommended oral antioxidants including polypodium leucotomos orally (3 x daily for 12 weeks). In the middle east oral Methimazole (initially used for thyroid disease) is showing promising results. Oral glutathione has low bioavailability but some promising results (600mg daily for 4-6 months). There are concerns about the safety of intravenous glutathione.

Oral tranexamic acid works as an anti-inflammatory by reducing prostaglandins and arachidonic acid. He discussed the potential of oral metformin as this was noticed in diabetics who described improvements in their melasma. Finally, he now recommends the addition of oral antihistamines (eg. ketotifen – H2R blockers or fexofenadine) as an adjuvant therapy.

## Chemical Peeling, Microneedling, and PRP Best Practices

**Rashmi Sarkar** from India then lectured on physical therapies including chemical peels, lasers and microneedling with or without PRP. She showed the evidence behind superficial chemical peels as well as newer chemical peels including combination peels. She then discussed microneedling resulting in the production of new elastin and collagen. This can be used as monotherapy or in drug delivery with either PRP or Tranexamic acid.

## Lasers and Energy Based Devices

**Arielle Kauver** from New York completed the session with the use of Lasers and Light sources for treating melasma. She discussed the importance of combination therapy. For dermal melanin, she uses pigment-specific lasers (NS and PS) and Vascular lasers for erythema. She feels the best laser for the pigment in melasma is the Nd:YAG laser and the pulsed dye laser for vascular components, often in combination.

# ATOPIC DERMATITIS

**Reports written by Dr Kim Blakely (Dermatologist, Canada)**

Chair: Amy S. Paller (USA), Aaron Mark Drucker (Canada)

Speakers: Lisa A Beck (USA), Lawrence F Eichenfield (USA), Emma Guttman (USA), Tissa R. Hata (USA), Eric Lawrence Simpson (USA)

## Introduction

Atopic dermatitis (AD) is a complex, systemic disease involving epidermal barrier dysfunction, immune dysregulation, and microbial imbalance, all of which contribute to its chronic nature.

## The Epidermal Barrier and its Role

Barrier impairment is central to AD pathogenesis, with lipid abnormalities detectable as early as eight weeks of age, reinforcing the importance of early intervention. Systemic therapies show varying effects on barrier function:

- Dupilumab enhances skin integrity, improves TEWL, normalises sweat function, and reduces *Staphylococcus aureus* colonisation.
- Tralokinumab improves TEWL and *stratum corneum* hydration as early as four weeks.
- Upadacitinib improves disease severity alongside TEWL restoration.
- Cyclosporin, while effective for AD, does not repair barrier function.

## Immune System Shifts in AD: What is New?

AD manifests across a spectrum of clinical phenotypes, all sharing robust Th2 activation, with IL-13 emerging as the dominant cytokine. These findings support the concept that barrier disruption drives Th2 dysfunction and predicts AD risk in infants. Notably, pediatric-onset AD differs from adult-onset AD, the latter showing more Th1-skewed inflammation and associations with cardiovascular markers, reinforcing its systemic nature.

Emerging targeted therapies addressing immune modulation include:

- Fezakinumab (IL-22 inhibitor): Beneficial in severe AD with high baseline IL-22 but may worsen disease in patients with low IL-22 levels.
- Temtokibart (IL-22R antagonist, LEO Pharma): Potentially more effective in patients with epidermal hyperplasia (notably Fitzpatrick VI skin).
- Nemolizumab: Demonstrates greater efficacy in patients with severe baseline pruritus.
- OX40/OX40L Pathway: Emerging as a key target in AD modulation.

## The Microbiome and Atopic Dermatitis

AD skin also exhibits reduced antimicrobial peptide expression, contributing to dysbiosis. Beyond *S. aureus*, commensal bacteria produce bacteriocins that may be protective. A promising therapeutic avenue involves inhibiting the *S. aureus* Agr quorum sensing system to mitigate AD severity.

Emerging microbiome-targeted interventions include:

- Enhancing CoNS AM+: Exploring ways to boost beneficial coagulase-negative staphylococci (CoNS) with quorum sensing inhibition properties.
- Omiganan (Topical Antimicrobial Peptide): Restores microbial balance but does not improve clinical symptoms.
- Lactobacillus johnsonii: Increases antimicrobial peptide production; BID for 3 weeks significantly reduced *S. aureus*.
- Niclosamide: Exhibits potent antibacterial activity in vitro; BID for 7 days significantly reduced S. aureus, but longer studies are needed.
- Nitromonas eutropha (Bacterial Spray): A study in 540 participants showed statistically significant itch improvement over 4 weeks, though its impact on *S. aureus* was not assessed.

### Key Takeaways

- AD involves barrier dysfunction, immune dysregulation, and microbial imbalance, making it a systemic disease rather than a purely dermatologic condition.
- Targeted immune therapies offer personalised treatment approaches based on specific inflammatory pathways.
- Microbiome-targeted interventions represent a promising, evolving field in AD management.

## Topical Therapy

### Topical Steroid Withdrawal & Meta-Analysis Challenges

- Topical Steroid Withdrawal (TSW) remains an evolving phenomenon, with ongoing efforts to better define its clinical presentation, including the "Red Sleeve" pattern.
- A recent Cochrane Review on topical treatments in AD faced limitations due to challenges in comparing studies from different eras, inconsistent outcome measures, and potential biases in older trials.
- Findings from network meta-analyses remain complex, highlighting the need for more standardised research methodologies.

## The Shift Towards Non-Steroidal Therapies

- Non-steroidal options are increasingly changing AD treatment paradigms, but their role in clinical practice—whether as monotherapy or in combination with topical corticosteroids—remains a key discussion.
- Available options now include:
  - TCIs (Topical Calcineurin Inhibitors)
  - PDE-4 Inhibitors (now with expanded indications)
  - Aryl Hydrocarbon Receptor Agonists (not available in Canada)
  - JAK Inhibitors (Topical & Systemic), including new developments for chronic hand eczema

## Efficacy of Standard Topical Corticosteroids vs. Newer Topicals

- A clinical trial comparing Triamcinolone 0.1% cream (BID for 4 weeks) highlighted that conventional topical steroids may not perform as well under rigorous trial conditions as commonly perceived:
  - Only 25% achieved clear/almost clear skin
  - 15% reached EASI-90 (90% improvement in severity)
  - 33% had a significant (4-point) reduction in itch
- This underscores the stringent nature of modern AD outcome measures and the need to reassess real-world expectations of steroid efficacy.

## Topical Ruxolitinib (JAK Inhibitor) Performance

- In clinical trials, topical ruxolitinib demonstrated superior efficacy compared to triamcinolone in:
  - Achieving clearer skin
  - Higher EASI-75 and EASI-90 responses
  - Greater itch reduction
- Now approved for patients 12 years and older, ruxolitinib represents a potent non-steroidal alternative with sustained benefits seen in long-term extension studies.

## Key Takeaways

- Non-steroidal AD treatments continue to expand, potentially shifting treatment approaches based on availability and patient response.
- Traditional topical steroids, while effective, may not perform as well under stringent trial conditions as expected.
- The approval and ongoing research into JAK inhibitors, PDE-4 inhibitors, and other emerging agents signal a new era in AD management.

# Systemic therapy for Adults-What's here/What's coming?

Systemic therapy for AD has evolved significantly, yet patients often experience therapeutic inertia, with repeated steroid use rather than effective long-term solutions. The key takeaway is to move beyond continuous steroid escalation and actively treat the patient with the growing arsenal of targeted therapies available.

## Approach to Systemic Therapy Selection

Patients with moderate-to-severe AD require a structured approach to selecting systemic therapy. A useful strategy is categorizing treatment options by class and discussing their pros and cons, allowing patients to make informed decisions. These options include:

- Biologics (e.g., dupilumab, lebrikizumab, tralokinumab): Offer long-term disease control, minimal lab monitoring, and effectiveness across AD severity. However, conjunctivitis is a notable side effect, and biologics may not provide rapid relief in severe flares.
- JAK Inhibitors (e.g., upadacitinib, abrocitinib): Provide rapid symptom relief, making them effective for bridging therapy in severe cases. However, they require lab monitoring and carry potential risks.
- Traditional Immunosuppressants (e.g., cyclosporine, methotrexate): Cost-effective but less targeted, with potential systemic side effects.
- Phototherapy: A non-systemic alternative with a well-established safety profile but logistical challenges for patients.

## Managing Biologic Therapy in AD

Biologics such as dupilumab, lebrikizumab, and tralokinumab target type 2 inflammation and improve skin barrier function. Their benefits include:

- No need for lab monitoring
- Effective even without concurrent topical therapy
- Long-term disease control with extended dosing intervals (Q3-Q4 weeks)
- Reduction in skin infections and S. aureus colonization

However, challenges include:

- Conjunctivitis, common across all biologics
- Facial dermatitis, which may be linked to topical steroid withdrawal rather than the biologics themselves
- Inflammatory arthritis, a rare but emerging concern

Real-world data suggest that dupilumab has the highest efficacy per network meta-analysis and the broadest global use, with over a million patients treated across multiple indications.

### Bridging Therapy for Severe Flares

For patients presenting with acute erythroderma or frequent steroid rebound, biologics alone may not provide immediate relief. These cases often require a bridging strategy using JAK inhibitors, cyclosporine, or short-term systemic steroids before transitioning to long-term biologic therapy.

### Future Directions

Research continues to refine treatment strategies, with newer biologics (e.g., OX40 inhibitors) and microbiome-targeted therapies emerging. The evolving landscape of AD management emphasises individualized treatment plans, early intervention, and addressing systemic inflammation to optimise patient outcomes.

# ATOPIC DERMATITIS IN ADULTS: NOT JUST BIG KIDS

**Reports written by Dr Kim Blakely (Dermatologist, Canada)**

Speaker: Jonathan I. Slverberg (USA)

### Pediatric vs. Adult-Onset Atopic Dermatitis (AD): Clinical Trajectories, Disparities, and Pathogenesis

The course of atopic dermatitis (AD) varies significantly between pediatric and adult populations. The age of onset and severity are important factors in determining disease persistence and treatment strategies.

### Pediatric AD Trajectories

Recent studies have highlighted the variability in disease progression among children:

- 80% of children achieve a period of disease clearance by 8 years old, but a subset continues to experience persistent disease.
- Factors influencing persistence include severity at the onset and the duration of persistent disease. Children who have had AD for many years are less likely to experience disease remission.

- Early onset transient disease is the most common, especially in younger children, while a significant number of patients have early persistent disease that lasts into adulthood.
- Interestingly, 13% of adolescents and 18% of adults report late-onset disease.

## Differences Between Childhood and Adult-Onset Disease:

Epidemiological studies show notable differences between childhood-onset and adult-onset AD:

- Childhood-onset is associated with asthma, higher IgE levels, and specific genetic mutations (e.g., filaggrin mutations).
- Adult-onset disease is more common in females, those with a history of smoking, and is often linked to lower socioeconomic status during childhood.
- The severity of AD tends to increase in adulthood, with a higher proportion of adults experiencing moderate-to-severe disease.

## Socioeconomic and Racial Disparities:

AD prevalence and severity differ across racial and socioeconomic groups:

- Black children have a markedly higher prevalence of AD than their white counterparts, and their disease tends to be more severe and persistent.
- Black and Hispanic children are also more likely to have lower household incomes, be uninsured or underinsured, and experience worse overall health.
- Interestingly, these disparities are not observed in adulthood, despite healthcare access being more readily available for children than for adults. This raises questions about the influence of environmental and genetic factors versus healthcare access.

## Healthcare Utilisation:

- Black children and adults with AD have more ambulatory visits, urgent care visits, and hospitalizations for their condition, which may suggest that these patients have more uncontrolled disease.
- Studies on the mediating effects of income or insurance on disease outcomes have not fully explained these disparities, suggesting that factors beyond healthcare access may be involved.

## Pathogenesis: Genetics and Immunology:

There's growing evidence that AD in children and adults may have distinct genetic and immunological mechanisms:

- The genetic landscape of AD differs between children and adults, and therapies that work in adults may not necessarily be effective for children.
- Differences in immune responses and genetic mutations may influence how the disease manifests in different age groups.

There is a lot of complexity to diagnosing and treating atopic dermatitis (AD) in different patient populations, particularly adult and elderly patients:

1. Adult-Onset Atopic Dermatitis:
    - Adult-onset cases of AD are less likely to affect the face, conjunctiva, or specific body sites (e.g., hand, eyelid, nipple involvement).
    - These cases may have less severe flexural disease but can evolve over time to include more widespread involvement, such as hand eczema and facial dermatitis.
    - The disease can progress unpredictably, with some cases remaining mild, while others worsen over time without clear identifiable triggers.

2. Study Findings:
    - A study of adult-onset AD cases found that they had lower rates of flexural disease and less involvement in certain areas compared to children with AD. However, they showed higher rates of non-flexural eczema.

3. Challenges in Diagnosing AD in Elderly Patients:
    - Elderly patients with AD often present with confusing clinical features, such as lesions that resemble both atopic dermatitis and psoriasis. A biopsy in these cases may not provide definitive answers.
    - Elderly patients with AD may experience complications like bruising, poor skin healing, and fluid retention, which complicates the treatment process.
    - The elderly also face a greater risk of complications from aggressive treatments, such as immunosuppressants, which must be carefully considered due to safety risks.

4. Managing Severe AD in Elderly Patients:
    - The transcript describes a challenging case of an elderly patient with long-term AD who was treated with various therapies, including mycophenolate, which can cause complications like congestive heart failure (CHF).

- Managing AD in elderly patients requires caution, as treatments may have more significant risks, and their skin has diminished elasticity, leading to issues like bruising and delayed wound healing.

5. Emerging Issues in Treatment:
- The speaker stresses the difficulty in managing AD with targeted biologics and the trial-and-error nature of prescribing treatments. There is a significant gap in understanding how these treatments perform in older adults, where safety concerns are heightened.

In conclusion, diagnosing and managing atopic dermatitis, especially in adults and elderly patients, involves navigating complex and evolving symptoms, and treatments must be tailored carefully to avoid adverse outcomes.

Finally, the session discusses food allergies in adult patients with atopic dermatitis (AD). While food allergies can be a trigger for flare-ups in some patients, it is much less common in adults compared to children. The example shared involves a patient with a reaction to sweet potatoes, which flared up initially but was reintroduced successfully after a period of waiting. The speaker advises caution and suggests that food allergy testing can sometimes be a last resort (a "Hail Mary" approach) for difficult cases, but it is not always fruitful or reliable in adult AD patients. The key takeaway is that food allergies as a trigger for AD are much less common in adults than in children.

# FACE-OFF: EVIDENCE-BASED DEBATES ON TODAY'S HOTTEST INJECTABLE CONTROVERSIES

Reports written by Dr Kim Blakely (Dermatologist, Canada)

Chair: Vince Bertucci (Canada), Melanie Palm (USA)

Speakers: Shino Bay Aguilera (USA), Jeanette Black (USA), Jordy A. Comstock (USA), Diann Davis (USA), Doris J. Day (USA), Rebecca L. Fitzgerald (USA), Jeremy Green (USA), Andrei Metelitsa (Canada), Michael Somenek (USA), Allison Sutton (Canada), Janelle Marie Vega (USA).

## Face Off: Are Filles Obsolete?

### Key Arguments Against Fillers (Dr. Shino Bay)

- Transhumanism & Loss of Natural Aesthetics: Overuse of fillers leads to unnatural, synthetic appearances, and some celebrities have become unrecognizable.
- Skin Quality & Cell Communication Issues: Fillers may disrupt fibroblast function, impair cell-to-cell communication, and affect skin's natural regenerative capacity.
- Histological Concerns: Evidence suggests fillers may negatively impact collagen organization over time.
- Fillers Are Not Always Reversible: Despite being marketed as temporary, they often persist longer than expected, sometimes leading to complications.
- Immune Reactions & Long-Term Effects: As filler use increases, so do complications, including immune responses and granulomas.

### Key Arguments for Fillers (Dr. Somenek)

- Longstanding History & Safety Data: Fillers have been used for decades, with a low adverse event rate (<0.2%).
- Instant & Versatile Rejuvenation: Unlike surgery, fillers provide immediate results with minimal downtime.
- Evolving Innovation: New fillers, such as hybrid formulas and regenerative options, continue to improve.
- Hyaluronic Acid's Hydrating Properties: HA fillers support skin hydration, which can enhance skin quality.
- Reversibility: HA fillers can be dissolved with hyaluronidase if needed.

- Social Influence & Demand: People desire non-invasive anti-aging solutions, and fillers remain highly popular.

### Counterarguments & Debate Points

- Dr. Somenek challenged Dr. Bay's claim that fillers disrupt fibroblasts, asking for concrete evidence.
- Dr. Bay referenced lab studies indicating HA disrupts cellular communication but admitted that more clinical data is needed.
- Concerns arose about filler permanence and complications from mixing different filler types.
- Both agreed that regenerative medicine is an exciting field that may influence how fillers are used in the future.

Final Takeaways: While fillers are here to stay, their use should be balanced with an understanding of potential long-term effects. More research is needed to bridge clinical observations with histological findings, and the integration of regenerative medicine may shift the future of aesthetic treatments.

## Face Off: Lip Injection Techniques

Dr. Jeanette Black and Dr. Jeanelle Marie Vega debated the advantages and disadvantages of needle vs. cannula techniques for lip augmentation, discussing their personal experiences, patient outcomes, and scientific findings.

### Key Arguments Against Cannulas (Dr. Jeanette Black)

- Expectation: Less bruising
    - Reality: Still experienced bruising, especially near the insertion site.
- Expectation: Less swelling
    - Reality: Sometimes more swelling was noticed compared to using a needle.
- Expectation: Less pain
    - Reality: More discomfort, particularly with horizontal injections due to tissue resistance.
- Expectation: Faster treatment

    - Reality: Treatment was slower, requiring breaks for patient discomfort and switching to a needle for fine adjustments.
- Expectation: Fewer vascular occlusions
    - Reality: While there's a lower risk of occlusions, safety concerns remain.

## Challenges with Cannula Use in Lips

- The 27G cannula had a similar arterial penetration risk as a needle.
- The 25G cannula (safer option) was too imprecise for lip augmentation.
- A 2019 study revealed that smaller cannulas (27G) require the same force as a needle to penetrate an artery, challenging safety assumptions.
- A recent cadaver study by Dr. Kovács confirmed vertically oriented septations in the lips, which affect filler placement.
- Cannulas risk violating compartment boundaries, leading to filler migration and an unnatural appearance.

## Key arguments for cannulas (Dr. Janelle Marie Vega)

Needle vs. Cannula

- Needle:
    - Rigid and sharp
    - Requires multiple punctures
    - Higher risk of bruising and swelling
    - Greater precision for fine adjustments
- Cannula:
    - Flexible with a blunt tip
    - Requires only one or two insertion points
    - Lower risk of vascular trauma and bruising
    - Smoother, more even filler distribution

## Advantages of Cannula-Based Lip Filler

- Patient Comfort: Many patients find a cannula less painful than repeated needle punctures.
- Less Bruising & Swelling: The blunt tip navigates around vessels, minimizing trauma.
- Lower Risk of Vascular Occlusion:
    - Survey of 370 dermatologists:
        - Needle occlusion rate: 1 per 6,400 injections
        - Cannula occlusion rate: 1 per 40,882 injections

        - Conclusion: Cannulas are significantly safer.
- More Predictable Filler Placement:
    - Less swelling during injection results in better visualization of the final result.
    - Less tissue trauma leads to fewer complications and better healing.

### Best Candidates for Cannula Use

Patients with previous lip surgery (e.g., implants, reconstructions).

- Patients with a history of vascular occlusion.
- Older patients prone to bruising and delayed healing.

### Cannula Injection Technique

- Entry point: 1-2 mm lateral to the oral commissure.
- Direction: Insert cannula superficially, advancing towards the cupid's bow.
- Filler deposition: Retrograde linear threads for precise volumization and projection.
- Key Goal: Enhance the lips without distorting their natural shape.

### Final Takeaways: Which Technique is Better?

- Both methods are effective and depend on injector skill, patient anatomy, and treatment goals.
- Dr. Black prefers needles for fine control, precision, and compartment-specific shaping.
- Dr. Vega prefers cannulas for patient comfort, safety, and even filler distribution.
- More research is needed to determine long-term differences in skin quality and aesthetic outcomes between the two techniques.

## Temple Approaches: What Reigns Supreme?

Dr. Jody Comstock and Dr. Jeremy Green discuss their temple filler techniques, comparing superficial vs. deep injections in terms of safety, effectiveness, and aesthetic outcomes.

## Dr. Jody Comstock's Perspective: The Superficial "Temple C-Lift" Approach

Why Start with the Temples?

- Temple injections influence the entire face, enhancing brow shape, cheek projection, jawline contour, and nasolabial folds.
- Provides both direct and indirect lifting effects, reducing the need for additional fillers.
- Particularly beneficial for patients over 40 who experience age-related superficial and deep fat loss in the temples.

Preferred Technique: Superficial Filler for a Natural Lift

- Uses a 27G cannula to avoid deep blood vessels.
- Targets the subcutaneous fat pads for effective volume restoration.
- Prefers soft, low-density fillers (e.g., RHA2, Redensity) to prevent unnatural bulging or heaviness.
- Injects slowly and gently to create a subtle, natural lift.
- Avoids deeper planes to minimize risk of nerve damage, discomfort, and vascular complications.

Patient Outcomes with Superficial Temple Filler

- Young patients benefit from a subtle slimming effect and facial contouring.
- Aging patients achieve a refreshed, lifted look without requiring under-eye filler.
- Post-surgical patients gain stabilized upper facial support for a balanced, harmonious appearance.

Key Benefits of Superficial Temple Filler

- Safer than deep injections by avoiding major arteries and nerves.
- Requires less filler to achieve noticeable results.
- Enhances multiple facial areas simultaneously, reducing the need for additional treatments.
- Stimulates collagen production for long-term skin improvement.

## Dr. Jeremy Green's Perspective: The Deep Injection Approach

Why He Stopped Using the Traditional "One Up, One Over" Deep Injection Method

- Requires excessive filler (1-2mL per side) to fill the deep temple hollow before achieving visible lift.

- Filler migrates superficially, increasing the risk of vascular complications.
- Results take longer to appear because the skin surface does not lift immediately.
- Higher risk of vascular complications due to proximity to deep arteries.

His Modified Deep Injection Technique

- Moves the injection site more lateral (1cm above the "one up, one over" location).
- Injects at a shallower depth, closer to the skin surface.
- Uses a half-inch needle for precise placement while staying away from deep arteries.
- Achieves faster skin lift with less filler, reducing the amount of product needed.

## Finding Common Ground: The Bilayered Temple Injection Approach

How the Bilayered Approach Works

1. Deep Injection (Periosteal Plane)
   - Uses high G′ (firm) filler like Restylane Contour.
   - Restores deep volume loss and provides structural support.
   - Requires approximately 0.4mL per side.

2. Superficial Injection (Subcutaneous Plane)
   - Uses softer fillers like Redensity or RHA2.
   - Blends contour, enhances skin hydration, and fine-tunes brow and cheek lift.
   - Requires approximately 0.1-0.2mL per side.

Why This Hybrid Approach Works

- Deep injection creates structural support, while superficial filler refines the contour.
- Uses less filler overall, making treatments more cost-effective.
- Minimizes safety risks by avoiding major blood vessels and nerves.
- Enhances long-term facial harmony by lifting the brows, cheeks, and jawline simultaneously.

### Final Takeaways: Which Temple Filler Approach is Best?

- Dr. Comstock prefers a purely superficial approach, as it is safer, more natural-looking, and requires less filler.
- Dr. Green believes deep injections are necessary to restore structure in patients with severe volume loss.
- Both agree that a bilayered technique—starting with deep injections and finishing with superficial filler—produces optimal results.
- Ultimately, the best approach depends on patient anatomy, aesthetic goals, and injector expertise.

## Skin Boosters vs Lasers/Devices for Skin Quality: What's Best?

Key Benefits of Laser Therapy

- Customizable treatment settings (depth, density, heat levels).
- Stimulates collagen and elastin production for long-term skin improvement.
- Can address multiple concerns, including fine lines, wrinkles, hyperpigmentation, and skin laxity.
- Results can last for years with proper maintenance.

Types of Laser Treatments

1. Fractionated Erbium (1927, 1550 nm)
   - Improves fine lines, skin luminosity, and mild lifting.
   - Less downtime compared to fully ablative lasers.

2. Fractionated CO2 Laser
   - More effective for severe photoaging, fine lines, and wrinkles.
   - Requires more downtime but offers significant improvements.

3. Fully Ablative CO2 Laser
   - Best for deep wrinkles and severe sun damage.
   - Requires significant downtime but provides dramatic results.

### Considerations & Challenges

- Higher intensity lasers require longer recovery periods.
- Risk of hyperpigmentation, scarring, and prolonged redness.
- Darker skin tones require careful settings to avoid complications.
- Patients must follow strict aftercare for optimal results.

## Combination Approaches

- Pairing IPL with Laser Therapy: IPL can be used before fractionated erbium laser for erythema and acne scars.
- Ultrasound Therapy: Can be combined with lasers for enhanced skin tightening and rejuvenation.

## Key Benefits of Microdroplet HA

- Provides deep hydration by binding water and improving skin elasticity.
- Enhances skin radiance, glow, and smoothness.
- Reduces fine lines, including stubborn perioral and cheek lines.
- Helps improve acne scars and persistent redness.
- Some patients with chronic eczema patches experience long-term relief.

## How Microdroplet HA Works

- Tiny injections (0.05 cc) placed in a grid-like pattern across the skin.
- Attracts and retains moisture to improve hydration and firmness.
- Increases aquaporin-3 expression, boosting the skin's natural moisture levels.
- Stimulates fibroblasts to enhance collagen production and extracellular matrix integrity.

## Available Products

1. SkinVive (Juvéderm)
   - 12 mg/ml HA
   - Typically repeated every 6–9 months (commonly twice per year).

2. Restylane Skin Boosters (Restylane Vital & Vital Light)
   - 12–20 mg/ml HA
   - Initial treatment: 3 sessions, 1 month apart → Maintenance every 6–12 months.

## Key Differences Between Laser Therapy and Microdroplet HA

Laser Therapy

- Stimulates collagen and elastin through controlled skin injury.
- Best for deep wrinkles, skin laxity, and severe photoaging.
- Requires 1 or multiple sessions depending on intensity.
- Moderate to high downtime, depending on the laser type.
- Some lasers are not suitable for darker skin tones.
- Results can last years with maintenance.
- Risk of hyperpigmentation, redness, and scarring.

## Microdroplet HA

- Hydrates, smooths fine lines, and boosts radiance.
- Best for subtle skin enhancement and hydration.
- Requires 3 sessions initially, then maintenance every 6–12 months.
- Minimal to no downtime.
- Safe for all skin types.
- Results last 6–12 months.
- Minimal risks, occasional swelling or bruising.

## Key Takeaways:

- Laser therapy is ideal for dramatic, long-term skin rejuvenation, especially for deep wrinkles, photoaging, and skin laxity.
- Microdroplet HA is excellent for hydration, fine line improvement, and a radiant glow, making it perfect for preventative care and subtle skin refinement.
- Combination Approach: Many patients benefit from both treatments—lasers for deep resurfacing, followed by HA for sustained hydration and collagen support.

Both treatments are powerful tools for improving skin quality, and the choice depends on patient goals, downtime tolerance, and specific skin concerns.

# WHEN TO PUT DOWN THE SCALPEL: NON-SURGICAL THERAPIES FOR SKIN CANCER

Reports written by Dr Kim Blakely (Dermatologist, Canada)

Chair: Rebecca I Hartman (USA)

Speaker: Emily S Ruiz (USA)

## Systemic Therapies for Keratinocyte Carcinoma

This session focused on systemic treatment options for patients with multiple or advanced keratinocyte carcinomas, specifically addressing acitretin, capecitabine, and hedgehog inhibitors (HHIs). It also briefly touches on improving outcomes for advanced resectable cutaneous squamous cell carcinomas (cSCCs) with neoadjuvant and adjuvant therapies.

### Main Themes and Important Ideas:

- Acitretin:
  - Mechanism: A vitamin A derivative with anti-proliferative properties that regulates growth factors and proto-oncogenes.
  - Efficacy: Demonstrates a significant reduction in the incidence of both basal cell carcinoma (BCC) and squamous cell carcinoma (SCC) in high-risk patients. "73% reduction in BCC (mean: 0.1 per patient per year)" and "54% reduction in SCC (mean 0.57 per patient per year)."
  - Breakeven Point: Provides guidance on when the use of acitretin might be beneficial based on the number of KCs treated annually with different modalities (MMS, excision, ED&C). For example, "Breakeven point for use of acitretin occurs when patients develop: 11 KCs per year that are treated with MMS."
  - Patient Selection: Recommended for patients with "3-5 KC a year," a "History of a high-stage cSCC," "Diffuse actinic damage," "Field cancerization," or "Reactive squamous atypia (AKA eruptive keratoacanthomas)."
  - Dosage and Monitoring: Outlines a titration schedule for acitretin, starting at 10mg every other day and aiming for a goal dose of 20mg daily. Emphasizes the need for regular lab monitoring, including "CBC, LFTs (ALT and AST), lipids (TGs)," with hypertriglyceridemia being the most common abnormality.

    - Side Effects and Caveats: Highlights potential side effects such as "Teratogenicity," "Xerosis," and "Hyperlipidemia," as well as caveats regarding insurance coverage and the need for indefinite treatment.
- Capecitabine:
    - Mechanism: An oral chemotherapeutic agent and prodrug of fluorouracil that blocks DNA synthesis.
    - Utility: Considered useful in patients with "multiple low-risk skin cancers and field cancerization." Shows a "68% reduction in mean SCCs/month at 12 months" in limited published data (primarily in transplant recipients - RTRs).
    - Dosing and Monitoring: Describes a cyclical dosing schedule (e.g., 21-day cycle with drug holidays) and the need for regular laboratory monitoring, including "CBC, CMP prior to starting treatment and then day 1 of each cycle," as well as considering dihydropyrimidine dehydrogenase (DPD) deficiency.
    - Patient Selection: Consider in patients with "Diffuse actinic damage in multiple regions," "Recalcitrant or severe actinic damage," significant actinic damage with intolerance to topicals, a "High burden of SCCIS," or "Multiple CSCC formers."
    - Contraindications and Side Effects: Lists medical contraindications such as "Severe CKD," "DPD deficiency," and "Pregnancy/lactation," and potential side effects like "Fatigue, gout, hand foot syndrome, GI disturbance, renal impairment."
    - Caveats: Notes that the response may not be as significant as with topical field treatments, improvement can occur after discontinuation, multiple courses are often needed, and it is "Not covered by insurance."
    - Frequently Asked Questions: Clarifies that capecitabine can be given with acitretin and nicotinamide, surgery should not be avoided altogether, it is generally not covered by insurance, it doesn't work as well as topical therapy, and patients do not typically need to be referred to a medical oncologist for its management in this context.

Improving Outcomes in Advanced Resectable cSCCs: Briefly discusses the potential role of "Neoadjuvant" and "Adjuvant" therapies in conjunction with surgery. The role of adjuvant immunotherapy in high-risk cSCC post-surgery and ART is also mentioned, referencing "C-POST Eligibility Criteria" based on nodal disease, in-transit metastases, T4 lesions, perineural invasion, and recurrent disease with risk factors.

- Hedgehog Inhibitors (HHIs):

- Approved Use: Primarily for basal cell carcinoma. "Vismodegib and sonidegib are approved for local BCC," and "Vismodegib is approved for metastatic BCC."
- Clinical Scenarios: Useful in "Basal cell nevus syndrome," "Locally advanced/unresectable BCC," "Metastatic BCC," and as "Neoadjuvant" therapy for large tumors or for patients with "Multiple BCCs."
- Efficacy: Presents objective response rates (ORR), complete response (CR), partial response (PR), and median duration of response (DOR) for vismodegib and sonidegib in metastatic and locally advanced BCC. For example, vismodegib showed an ORR of 30% in metastatic BCC and 43% in locally advanced BCC.
- Toxicity: Lists common adverse events associated with vismodegib and sonidegib, such as "Muscle spasms," "Alopecia," and "Dysgeusia."
- When to Use/Not Use: Recommends HHIs for unresectable locally advanced or metastatic BCC and neoadjuvant treatment of large tumors, but not typically for multiple small primary BCCs.
- Community Platform: Briefly mentions a platform for clinicians to access research, discuss challenges, recruit for trials, and engage with peers.

## Prevention and Active Surveillance for Keratinocyte Carcinoma

This presentation focused on evidence-based strategies for preventing keratinocyte carcinomas and discusses the risks and benefits of active surveillance as a management approach for certain KCs.

### Main Themes and Important Ideas:

- Topical Prevention:
  - 5-Fluorouracil (5-FU): A study showed a "75% relative risk reduction in SCC at 1 year" with BID application to the face for 4 weeks in patients with a history of KCs, but this effect was not significant at 4 years.
  - 5-FU + Calcipotriol: A combination regimen applied BID for 4 days demonstrated a "76% relative risk reduction in face and scalp SCC at 3 years" in patients with actinic keratoses (AKs). Patients reported it as equally effective as 5-FU monotherapy but with more

severe reactions of shorter duration, and "87% preferred the combination to monotherapy."
    - Fractionated Laser Resurfacing (FLR) and Nonablative Fractional Laser (NAFL): RCTs suggest potential for these modalities in reducing actinic damage and potentially the risk of KCs on the face and extremities.

- Oral Prevention:
    - Nicotinamide: An RCT showed a reduction in KCs in patients with a history of multiple KCs ("RCT of 386 patients with a history of 2 KCs in past 5 years 1:1 to nicotinamide 500mg BID vs. placebo"). However, a study in organ transplant recipients (OTRs) found "No difference in KC at 12 months," possibly due to being underpowered or measuring the wrong outcome (a "24% reduction invasive SCC" was noted). Recent data suggests no elevated risk of major adverse cardiovascular events (MACE).

- Active Surveillance:
    - Considerations: Active surveillance may be appropriate based on "Patient factors" (immunocompetent, older age/limited life expectancy, patient goals) and "Tumor factors" (basal cell carcinoma without aggressive features, primary tumor, asymptomatic, small size [< 1 cm], low-risk location).
    - Monitoring frequency is typically "q3 months then continue q6 months."

- Biopsy Considerations:
    - If biopsy is desired for confirmation, "Complete shave saucerization or punch removal with 1- to 2-mm margins" can be considered.
    - Recurrence rates after such biopsies were reported as "3.4% BCCs recurred over a mean follow-up of 4.25 years" and "4.9% SCCs recurred over a mean follow-up of 3.75 years," with head and neck and larger lesions being more likely to recur, especially SCCs in OTRs.

- Rationale: Justification for active surveillance includes the "BCC mortality extremely low," evidence that "¼ to ½ of partially biopsied KCs regress," and observational studies showing that a significant proportion of clinically suspicious BCCs in elderly patients may only slowly increase in size or remain asymptomatic.

- Public Opinion: A survey indicated that many patients have concerns about active surveillance, including worries about "Tumor growth (51%)," "Metastasis (49%)," and "Affecting overall health (30%)."

### Key Takeaways:

- Topical chemoprevention with compounded 5-FU/calcipotriol BID x 4 days on the face for those with numerous AKs and history of SCCs.
- Consideration of fractionated laser therapies as well.
- Oral chemoprevention with nicotinamide for those with multiple KC history.
- Active surveillance for those with limited life expectancy who can follow-up clinically and have small, asymptomatic basal cell carcinoma in low-risk locations.
- Consider shave saucerization if in low-risk location and need to confirm diagnosis or requires intervention.

## SUNLIGHT: FRIEND OR FOE?

**Reports written by Dr Kim Blakely (Dermatologist, Canada)**

Chair: Henry W. Lim (USA)

Speaker: F. Yolanda Gilaberte (Spain)

- This presentation explored the dual nature of sunlight, acknowledging its benefits while focusing extensively on its detrimental effects on the skin.
- It delved into the photobiologic effects of different wavelengths of sunlight (UVB, UVA1, UVA2, and Visible Light), their impact on pigmentation, photoaging, and photocarcinogenesis, with consideration for different skin phototypes.
- The presentation also touches upon systemic effects, personalized photoprotection strategies including the role of sunscreens (highlighting limitations of chemical filters against visible light), tinted sunscreens, and emerging concepts like the exposome and skin microbiome in the context of sun exposure.

### Photobiologic Effects of Sunlight:

- UVB (SPT I-III): Primarily responsible for erythema (sunburn) and photocarcinogenesis.

- UVA1 (SPT IV-VI): Primarily associated with tanning, photoaging, and photocarcinogenesis.
- Visible Light (All Skin Types): Can induce erythema in all skin types and tanning in SPT IV-VI.
- Synergistic Effect with UVA1: Visible light and UVA1 have a synergistic effect on pigmentation. They reference a study showing "Synergistic effect of VL and UVA1 on pigmentation" (Kohli, I, et al, I. Br J Dermatol 2018).
- Blue Light (a component of Visible Light): Opsin-3 (OPN3) is identified as the "key sensor in melanocytes" for blue light.
- Blue light + Opsin-3 leads to the formation of a tyrosinase/tyrosinase-related protein complex, mainly in melanocytes from dark-skinned individuals, inducing sustained tyrosinase activity.
- Visible Light and Melanogenesis: Studies on human skin histoculture (SPT I, II, III) showed that blue and green light (but not UV at 311 nm) stimulated melanogenesis even in SPT I. Importantly, "Melanogenesis induced by VL: NOT associated with DNA damage or apoptosis," unlike UV-induced melanogenesis.
- Longwave UVA1: One study (Marionnet C, et al., JEADV 2023) indicated that "UVA1 showed an additive effect with High Energy Visible (HEV) light, with a significant contribution coming from the longest UVA1 rays (370–400 nm)."

## Differences Between Dark and Light Skin:

- Individuals with SPTs IV to VI have "larger, more melanized melanosomes, distributed individually within the keratinocytes rather than in aggregates."
- "Melanin in SOC can filter 2 to 5 times more UV vs melanin in light skinned individuals."
- The epidermis of darker skin types (SPTs V to VI) has a significantly higher intrinsic sun protection factor (SPF) of 13.4 compared to 3.3 in light phototypes.

## Photoaging:

- UVB: Induces matrix metalloproteinases (MMPs), which degrade the extracellular matrix, contributing to photoaging. As stated, "UVB: Induction of matrix metalloproteinases → affects extracellular matrix" (Krutmann, J, et al.).

- UVA (UVA1): Has a direct effect on dermal fibroblasts, leading to mutations of mitochondrial DNA (mtDNA), particularly the common deletion mutation induced by reactive oxygen species. This results in the "senescence of fibroblasts."
- Visible Light: Irradiation with visible light in darker skin types (SPT IV-VI) increased MMP1 (collagenase) and MMP9 (gelatinase), indicating collagen degradation (Kohli, I, et al., Br J Dermatol 2018).
- Transmission through Glass: UVA + visible light + infrared are transmitted through glass, highlighting a source of chronic exposure, as illustrated by the case of a truck driver with unilateral photoaging.

## Photocarcinogenesis and Photoimmunology:

- UV is immunosuppressive → photocarcinogenesis (Kripke, ML., Towes, GB.). This highlights the mechanism by which UV radiation can impair the skin's immune surveillance, increasing the risk of skin cancer.

## Photoprotection:

- Includes various measures like shade, sunscreens, clothing, hats, and sunglasses.
- Sunscreens and Skin Cancer: A long-term study showed that regular use of sunscreens resulted in:
  - SCC incidence rates: decreased significantly by 38%
  - BCC incidence rates: decreased by 25%, but not significantly
  - Decreased development of melanoma (Green, A., et al.).
- Limitations of Chemical Filters: Currently available organic (chemical) UV filters are not sufficient to protect the skin from the effect of visible light.
- Protection Against VL and Longwave UVA1: Tinted sunscreens (iron oxides): Recommended for better protection against visible light and longwave UVA1.
- New Filters: Mentions emerging filters like Mexoryl 400, TriAsorB, and BDBP.
- Personalized Photoprotection: The need for balanced and personalized advice is emphasized, considering both the deleterious and beneficial effects of sun exposure.

## Exposome and Microbiome:

- Exposome: Defined as “the sum total of all environmental exposures an individual experiences throughout their lifetime” encompassing external (e.g., air pollution, diet) and internal (e.g., inflammation) factors.
- Microbiome: Defined as "the collection of all microbes that naturally live on and inside human bodies."
- Sun Exposure and Microbiome: Current sun protection methods generally "overlook microbiome considerations." There is a suggestion that "Tailored sun protection products that prioritize both skin and microbiome health may offer enhanced defense against solar radiation-induced skin conditions" (Gilaberte, Y, et al., Photochem Photobiol 2025).
- Skin Interactome: Highlights the complex interactions between the exposome, genome, and microbiome.

## Clinical Implications:

- Visible light and UVA1 play a role in conditions aggravated by sun exposure, such as post-inflammatory hyperpigmentation and melasma, especially in dark-skinned individuals.
- VL + UVA1 can induce erythema even in light-skinned individuals.

## Key Takeaways:

- The talk provided a comprehensive overview of the complex interactions between sunlight and the skin.
- It underscores that while sunlight has some benefits, its detrimental effects, particularly from UVA, UVB, and increasingly visible light, on pigmentation, aging, and skin cancer are significant.
- The need for effective and personalized photoprotection strategies is crucial, especially considering the limitations of traditional sunscreens against visible light and the emerging importance of the exposome and skin microbiome in skin health.
- The emphasis on tinted sunscreens and new filter technologies reflects the ongoing efforts to provide broader protection against the full spectrum of solar radiation.

# ITCH

Reports written by Dr Kim Blakely (Dermatologist, Canada)

Chair: Sarina Elmariah (USA)

Speakers: Shawn Kwatra (USA), Martin Metz (Germany), Gil Yosipovitch (USA)

## Introduction

This session focused on the complex nature of chronic itch (pruritus) and its management, with a focus on dermatologic perspectives.

Historical Context of Itch Research: The talk opens with a brief history, mentioning the discovery of histamine in 1935 and the later understanding of opioids and proteases. The 70s and 90s were pivotal. The recent surge of research into itch emphasizes how different biological systems—nerves, immune cells, and epithelial tissue—interact to influence itch.

## The Dermatologist's Playbook for Chronic Itch

### Case Presentations and Discussions:

- Case 1 (23-year-old female): A patient presenting with generalized itching, initially misdiagnosed as scabies or a fungal infection. The case explores the importance of ruling out hematologic abnormalities and the potential link between chronic itch and underlying conditions like malignancies. Laboratory tests, including blood counts and liver function tests, were used to help diagnose the cause of itch.
- Case 2 (68-year-old male): A patient with severe itch and burning pain associated with a rash. Despite multiple treatments, his condition persisted, leading to a biopsy revealing subtle eczema-like dermatitis. This case highlights the challenges in diagnosing the underlying causes of itching, including the possibility of cutaneous T-cell lymphoma or a systemic inflammatory condition.
- Case 3 (81-year-old male): A patient with localized, paroxysmal itching in the feet, likely due to small fiber neuropathy. The case emphasizes the complexity of neuropathic itch, which is difficult to treat and lacks approved therapies. The patient's MRI revealed nerve root compression at L4 and L5, potentially explaining the localized itching. Neuropathic itch often overlaps with dermatologic conditions, leading to diagnostic confusion.

### Therapeutic Approaches:

- The speaker stresses the need for more focused research on neuropathic itch, which remains underserved in terms of treatment options.
- Treatment for localized and generalized itch includes topical therapies such as menthol, capsaicin, and lidocaine, as well as systemic treatments like low-dose naltrexone. However, results are often variable, and patients may fail multiple therapies.
- The speaker also introduces new device-based therapies, such as the use of TENS units (Transcutaneous Electrical Nerve Stimulation), which have shown promising results in some patients for localized pruritus.

### Research and Emerging Therapies:

The talk emphasizes the importance of better diagnostics and precision medicine. For example, the speaker's team studied the immune system of itch patients and found increased levels of cytokines like IL-13 and IL-17. This led to a dual therapy approach that resulted in significant improvement in one patient's condition. The speaker also discusses research into device-based treatments for chronic itch, particularly for localized cases.

Conclusion: There is a call to action for more collaboration and research into chronic itch, particularly in terms of neuropathic itch, which is often overlooked in clinical practice. The speaker highlights that despite various treatments, many patients with chronic itch still struggle to find effective relief, underscoring the need for innovation in both diagnostics and therapies.

## What's Best and What's Next for systemic itch and CPUO

The following speaker discussed the connection between chronic liver disease, metabolic dysfunction, and itching (pruritus), especially in the context of fatty liver disease and liver fibrosis. The focus is on emerging drug treatments and mechanisms for managing chronic pruritus, which is a common symptom in liver disease patients.

### Fatty Liver Disease and Age:

The prevalence of metabolic dysfunction and fatty liver disease increases with age. Clinical trials on new drugs for these conditions have highlighted

the significant association between age and pruritus (itching), with a relative risk of 1.69. This suggests that age-related changes may contribute to pruritus in liver disease patients.

## Pathophysiology of Pruritus:

The speaker mentions various mechanisms behind pruritus, including endogenous opioid imbalance, increased activity of the enzyme autotoxin, and the role of bilirubin in the skin. The activation of certain receptors, such as G-coupled protein receptors, has been identified as a key cause of itching.

## Therapeutic Targets:

The speaker highlights promising therapeutic targets, such as the Peroxisome Proliferator-Activated Receptor (PPAR) and specific drugs like benzofibrate, which activate PPAR and have shown positive effects in reducing pruritus by up to 50% in clinical trials. The development of drugs targeting specific receptors like MRGPRX2 is also mentioned, though further research is needed.

## Pharmacological Interventions:

The use of various treatments, including PPAR agonists, benzodiazepines, and opioid antagonists like naltrexone, is discussed. However, the speaker notes challenges in administration and side effects. Drugs targeting the opioid system are promising for chronic pruritus, particularly in conditions like chronic kidney disease (CKD) and liver disease.

## Elderly Patients and Unexplained Pruritus:

A notable portion of elderly patients experience pruritus of unknown origin, which may be linked to immune system changes (immunosenescence). The speaker mentions treatments like JAK-STAT inhibitors, which show potential in treating chronic pruritus.

## Future Directions:

The speaker calls for more research into drugs targeting MRGPRX2 and other receptors involved in pruritus. They suggest the potential for biologics and

other therapies to be effective for various forms of chronic pruritus, especially in patients with liver disease.

In conclusion, the speaker emphasized the need for targeted therapies for chronic pruritus, especially in the context of liver disease and aging, and encourages further research into drug development for better patient outcomes.

## Updates in the management of itch in urticarial disorders

The following session focused on management of chronic urticaria (CU) and its associated symptom, itch, which significantly impacts patients' quality of life. Here are the key points:

### Importance of Itch in Chronic Urticaria:

Itch is the most bothersome symptom for patients with chronic spontaneous urticaria (CSU) and chronic inducible urticaria (CIU). It affects both the physical and emotional well-being of patients, leading to significant distress, including a higher incidence of suicidal ideation, as well as cardiovascular and metabolic issues.

### Disease Characteristics:

CSU, characterized by recurrent hives and severe itching, often persists for more than a year, with itch lasting for hours, even though hives themselves may only last around 20 minutes. Patients' quality of life is highly impacted by itch, and they often struggle to avoid triggers, particularly in cases of inducible urticaria.

### Treatment Strategies:

- Traditional treatments for CSU involve antihistamines, but there's a focus on managing the symptom of itch, which remains persistent for many patients. Newer treatment guidelines, expected soon, emphasize assessing patient control of the condition and using tools like the Urticaria Control Test (UCT).
- A stepwise approach to treatment involves antihistamines, possibly followed by biologics for refractory cases.

### Emerging Therapies:

The transcript highlights new treatments being developed, such as targeting BTK (Bruton's Tyrosine Kinase) inhibitors. These therapies aim to interfere

with the signaling pathways involved in CSU, particularly targeting IgE receptors and autoantibodies in autoimmune forms of the disease

### Patient Care:

Effective management of CSU goes beyond simply controlling hives, with a strong emphasis on reducing itch and improving quality of life. The goal is complete symptom resolution, where patients experience no signs or symptoms of urticaria. New treatment options, including biologics like omalizumab and BTK inhibitors, show promise in achieving this.

### Key Findings:

Research suggests a significant impact of CSU on mortality, especially with frequent use of oral steroids. Increased risks of death from suicide and cardiovascular diseases have been identified, underlining the need for better management and treatment of the condition.

### Conclusion:

Itch remains the dominant symptom in chronic urticaria, and effective management is essential to improving patients' quality of life. New therapies are emerging, offering hope for better control and possibly even a cure for CSU.

The overarching message is the importance of a comprehensive, stepwise treatment approach for CSU patients, aiming for full symptom resolution and minimizing the significant impact of chronic itch.

## ACNE AND ROSACEA

**Reports written by Dr Kim Blakely (Dermatologist, Canada)**

Chair: Linda F. Stein Gold (USA)

Speakers: Christopher Bunick (USA), Julie Claire Harper (USA), Jonathan S Weiss (USA).

This presentation series, with a focus on acne, highlighted new insights into the inflammatory pathways in acne, including the role of virulent C. acnes strains and the IGF-1/FoxO1/mTORC1 pathway. It also reviewed recent approvals and data on topical treatments like the triple fixed-dose combination gel (CAB) and clascoterone cream, as well as updated information on isotretinoin, particularly regarding sexual side effects and wound healing.

Of recent interest, one presentation focused on the findings of a study investigating benzene presence and formation in BPO drug products. The study found varying levels of benzene in commercially available products, with increased formation at elevated temperatures and upon UV light exposure. Despite these findings, multiple studies presented suggest no increased risk of skin malignancies or acute myeloid leukemia associated with BPO use. Recommendations for minimizing potential benzene formation in BPO products was provided

## What's New in Acne?

- Inflammation remains central to acne. Both innate and adaptive immunity play significant roles.
- Innate immunity involves Toll-like receptor-2 (TLR-2) recognizing C. acnes, leading to increased IL-8 and IL-12.
- Adaptive immunity involves Th1 activation (IFN-γ) and Th17 activation (IL-1β, IL-6, TGF-β).
- "Virulent C acnes strains increase IFN- and IL-17 and stimulate a NON-antimicrobial Th-17 response." This suggests a more nuanced understanding of the bacterial role beyond just quantity.
- Sebocytes contribute to inflammation by secreting inflammatory cytokines.
- The IGF-1/FoxO1/mTORC1 pathway is implicated in key acne features: IGF-1 inhibits FoxO1.
- FoxO1 inhibits mTORC1.
- When FoxO1 is inhibited (by IGF-1), mTORC1 is activated.
- mTORC1 mediates sebaceous gland hyperproliferation, lipid synthesis, and hyperkeratinization. This pathway offers potential new targets for future therapies.

## New Topical Acne Treatment

- Triple Fixed-Dose Combination Gel (CAB): Clindamycin 1.2%/Adapalene 0.15%/Benzoyl peroxide 3.1%
  - Two phase 3 double-blind, randomized studies over 12 weeks (N=363) demonstrated efficacy.
  - Indicated for patients > 12 years old and applied once daily (QD).
  - Studies showed significant improvement in inflammatory and non-inflammatory lesion counts compared to vehicle. For example, Stein Gold et al. (JAAD 2023) showed a greater reduction in inflammatory lesion count (ILC) with CAB (75.7% and 80.1%) compared to the vehicle (51.1% and 57.4%).

- Clascoterone Cream 1%: "Clascoterone cream offers topical anti-androgen therapy for female and male acne patients." This is the first topical antiandrogen available.
  - It works at the androgen receptor level with minimal systemic exposure.
  - Hebert et al. (JAMA Derm 2020) conducted 12-week randomized, double-blind, vehicle-controlled studies (N=1440) in moderate to severe acne (ages ≥9 years, approved for ≥12 years). Baseline inflammatory lesion count was ≈42 and non-inflammatory ≈60. Applied twice daily (BID).
  - Another study (Hebert et al., JAMA Dermatol 2020) with N=40 showed that clascoterone 1% cream BID reduced sebum production in patients with mild to moderate acne (IGA 2 and 3) over a 12-week interim of a 52-week study.
  - Stability testing suggests clascoterone is stable when placed on top of other topical acne medications (in vitro on microscope slides).

## Isotretinoin Updates

- Isotretinoin and Sexual Side Effects (Post-Retinoid Sexual Dysfunction - PRSD): Health Canada and the European Medicines Agency have increased warnings regarding erectile dysfunction and decreased libido.
- However, a large study using the TriNetX US Collaborative Network (2003-2023) comparing male acne patients treated with isotretinoin, tetracycline-class antibiotics, or no systemic medication (with matching for confounding variables) found "NO significant differences in risk of: erectile dysfunction sexual dysfunction decreased libido phosphodiesterase-5 inhibitor (PDE5i)" use among the groups. This suggests the perceived association may be complex and require further investigation.
- Isotretinoin and Wound Healing: A prospective, split-face, randomized controlled trial (Spring et al., JAMA Derm 2017, N=21) investigated fractional ablative CO2 laser during isotretinoin treatment versus delayed treatment after isotretinoin completion.
- Evaluations (Taleb et al., Lasers Surg Med 2023) 6-9 months after laser treatment showed that "The GASCS was significantly more improved on the concurrent isotretinoin + fractional ablative CO2 than the side treated with delayed laser therapy (4.7 +/- 2.5 vs 7.7 +/- 2.9; p< 0.001)." This challenges the traditional recommendation to always delay ablative laser treatments until after isotretinoin cessation, at least for fractional CO2 laser.

## Benzoyl Peroxide and Benzene: Where do we stand now?

- Benzene Contamination in BPO Products: A study (Kucera et al., J Invest Dermatol 2024) tested 111 commercially available BPO products and found a "Wide range of benzene concentrations (0.16 ppm to 35.30 ppm)."
- "38 products, contained benzene above the conditionally restricted FDA limit of 2 ppm for benzene for drug products."
- The age of products did not appear to correlate with benzene concentration in the sampled products.
- Factors Influencing Benzene Formation: Silica encapsulation of BPO did not prevent benzene formation at elevated temperatures (50°C), where "high levels of benzene formation" were observed.
    - Encapsulation did prevent formation at cold temperatures (2°C).

- "Substantial benzene formation when exposed to UV light at levels below peak sunlight" was detected in a face model experiment measuring benzene released into the air.
- "Cold (2°C)- no apparent benzene formation" was observed in encapsulated BPO.
- Carcinogenicity Assessment: A report on potential carcinogenicity of BPO showed "No change in the frequency of skin malignancies on the face during the 8-9 years since BPO's introduction" in Swedish Cancer Registry data (1965-1985).
- A study using the Cosmos network (over 2.3 million acne patients) found "NO observe increased odds of AML associated with: 1) BPO use among acne patients or 2) a diagnosis of acne in the general population."
- Another retrospective cohort study utilizing a Collaborative Network (63 healthcare organizations) also concluded that "Findings suggest that BPO exposure in patients with acne is not associated with an increased risk of malignancy."
- Analysis of the National Health and Nutrition Examination Survey data showed "There was no association between benzoyl peroxide exposure and detectable blood benzene levels (OR 1.12; 95% CI 0.46-2.74; p=0.80) or absolute blood benzene levels (coeff -0.008; 95% CI -0.043-0.028; p=0.65)."
- Recommendations to Minimize Benzene Formation:
    - "Keep the product refrigerated"
    - "Renew the medicine every 3 to 6 months"

- "Avoid heated storage."
- "This will not necessarily eliminate all benzene but should slow its decomposition."
- "Consider other treatments (retinoids, clascorterone)."

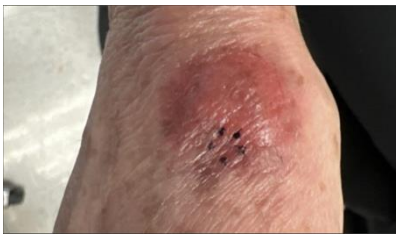
# THERAPEUTIC AND DIAGNOSTIC PEARLS

**Reports written by Dr Kim Blakely (Dermatologist, Canada)**

Speaker: Robert T Brodell (USA)

## Pearls in Medical Dermatology

This session covered a range of diagnostic and therapeutic considerations in dermatology, emphasizing the importance of continuous learning, asking "why," recognizing less common presentations of diseases, and understanding the concept of "immunocompromised districts" in the skin. Dr. Brodell shared several case studies and "pearls" aimed at improving diagnostic accuracy and patient management.



### Fixed Drug Eruption Due to Radiology Contrast Material:

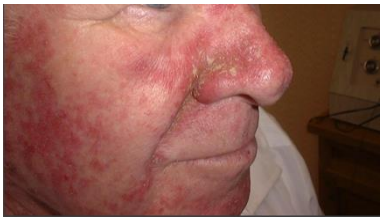
Dr. Brodell presented a case of a 55-year-old woman who developed a recurrent rash at the same site (right wrist/dorsal hand) following CT and MRI with contrast agents (IV Iohexol/OmnipaqueTM and Gadolinium).

- Pathology revealed spongiotic dermatitis.
- The likely cause was identified as a fixed drug eruption due to the radiology contrast material, specifically Iohexol, as the reaction recurred consistently after its administration.
- The solution involved patch testing at the rash site and back, using alternate CT contrast material (iopamidol or ioversol), and considering pre-medication as a secondary option.

Key Takeaway: Even experienced clinicians will encounter undiagnosed conditions. Continuous learning is crucial to expanding diagnostic capabilities. "There are always going to be things you haven't seen...or at least haven't diagnosed!" and "If you stop learning, you start going negative in knowledge base.

## Preventing Unnecessary Inflammation with Topical 5-FU:

A case of a 65-year-old man with actinic keratoses experiencing excessive burning and pain after treatment with topical 5% 5-Fluorouracil (5-FU) cream was discussed.



- The underlying cause was identified as an exacerbation of pre-existing seborrheic dermatitis induced by the 5-FU.
- The theoretical basis lies in the fact that both seborrheic dermatitis and psoriasis involve rapidly proliferating epidermal cells, and 5-FU causes "thymineless death" of such cells, leading to increased inflammation in affected areas.
    - Thymineless death: cells undergoing cell death when they are starved of thymidine triphosphate (dTTP), an essential precursor for DNA replication
- Preliminary findings (n=16) showed that patients with seborrheic dermatitis treated with 5-FU were more likely to experience inflammation in those areas.
- The recommended strategy to prevent this involves pre-treating with topical ketoconazole 2% cream.

Key Takeaways: Pre-treatment can prevent misdiagnosis as allergic contact or irritant dermatitis to 5-FU. This can potentially increase patient compliance with 5-FU treatment. Dr. Brodell emphasized the importance of asking "WHY?" when encountering unexpected reactions. "Force yourself to ask “WHY?”" and "You only see what you know...."

## Recognizing Infectious Eczematoid Dermatitis:

A case of a 6-year-old male with suspected ear cellulitis unresponsive to multiple courses of antibiotics was presented. Bacterial culture grew Staphylococcus aureus.

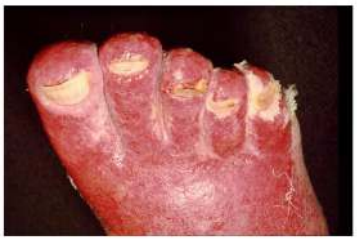
- The correct diagnosis was Infectious Eczematoid Dermatitis, an acute allergic contact dermatitis (Type 4) arising from exposure to purulent discharge from a primary infected site.
- Major criteria for diagnosis include a primary infection with purulent drainage and peripheral spread of the eruption.

- Minor criteria include vesicular and pustular lesions at the periphery with oozing, crusting, and scaling centrally, and a diffuse oozing, crusting, and scaling eruption.
- Treatment involved a significant dose of systemic prednisone (30-60mg or 1mg/kg daily) with rapid improvement, continued systemic antibiotic coverage, and topical otic drops (ciprofloxacin and dexamethasone) for otitis externa.

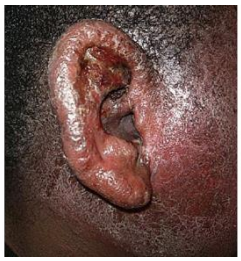
Key Takeaway: Residents and young dermatologists may not be as familiar with "older" diseases. Case reports play a vital role in keeping these diagnoses in mind.

## Preventing Recurrent Lymphangitic Cellulitis Syndrome (Hypersensitivity Cellulitis):

A case of a 32-year-old male with recurrent episodes of rash on the left lower leg and medial thigh, previously diagnosed and treated as cellulitis in the ER, was discussed.



- The diagnosis was Hypersensitivity Cellulitis (Recurrent Lymphangitic Cellulitis Syndrome).
- Key features include a red, blanching, tender, non-confluent rash with shaggy borders, recurrent episodes, unilateral presentation in a leg often with a history of venectomy, fever, malaise, elevated WBC, proximal lymphadenopathy, and often the presence of distal interdigital tinea.
- Theoretical Basis: Venectomy interrupts lymphatics, leading to slower clearance of bacteria/toxins entering through interdigital fissures (often due to tinea). Antibiotics clear the acute infection, but the underlying issue persists. This concept is related to the "immunocompromised district."
- Effectiveness: Treating the underlying tinea pedis leads to the cessation of recurrent episodes.



Key Takeaway: The concept of the "immunocompromised district" is more recognized in Europe than in the US, despite supporting literature. "Dermatology is regional: Europeans believe in the concept of

Immunocompromised District.... Americans never heard of it though there is abundant literature supporting the concept!"

## Warts Associated with Tattoos and the Immunocompromised District:

Dr. Brodell presented the observation of warts occurring predominantly within black tattoo ink.

- Theoretical Basis: Nanoparticles in black tattoo dye may suppress local immunity, creating an "immunocompromised district."
- A series of 5 cases from one private practice suggests this association may be more common than recognized.
- The predominance in tattooed skin and specifically in black and blue ink supports the idea of a local immunocompromised environment.

Key Takeaway: The concept of the "immunocompromised district" can explain the localized occurrence of skin conditions within specific areas like tattoos. "Again.....you only see what you know!"

## Overall Message:

- Dr. Brodell's presentation emphasized the need for dermatologists to remain inquisitive, continuously learn, and consider less common diagnoses and underlying factors contributing to skin conditions.
- The concept of the "immunocompromised district" was highlighted as a crucial framework for understanding localized skin pathologies.