

# Advances in Dermatology: A Year in Review

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2020 brought the most significant public health crisis many of us will experience in our lifetime. The novel coronavirus took our country and the world by storm, changing every aspect of our lives.

Even in the chaos, health care professionals across the world have united to share experiences and learn about the novel coronavirus together in real time. In a matter of months, scientists developed two mRNA vaccines showing up to 95% efficacy with plans for distribution in the near future.

If your time and mental energy was understandably occupied this year, see below for some of the biggest news affecting our specialty to help keep you up to speed.

## COVID-19 AND DERMATOLOGY

As dermatologists, we've been tasked with helping our patients and the public understand "COVID toes," hand dermatitis, "maskne," and telogen effluvium. Data collection regarding skin findings in COVID-19 continues in the form of a registry organized by the American Academy of Dermatology.

Notably, a spike in pernio/chilblains-like acral lesions led to debate over its relationship to the virus. Laboratory and histologic characteristics in a series of 40 patients suggest a possible relationship with a strong interferon-alpha response to the virus<sup>1</sup>.

At the outset of the pandemic, there was much concern for our patients on immunosuppressive and biologic therapies. Data suggests that outcomes in patients on biologics with COVID-19 are similar to the general population, while those on non-biologic systemic therapies may have higher rates of hospitalization<sup>2,3</sup>.

## ACNE AND ROSACEA

Clascoterone 1% cream (Winlevi®), a topical androgen receptor inhibitor, was approved in August for acne vulgaris in men and women 12 years and older and is expected to become available early next year<sup>4</sup>. Its use in androgenetic alopecia<sup>5</sup> and even hidradenitis suppurativa is under investigation.

Topical minocycline 1.5% foam (Zilxi®) received FDA-approval for adults with inflammatory rosacea, in addition to the 4% foam (Amzeeq®) approved for acne last year.

## PSORIASIS

In July, guselkumab (Tremfya®) became the first IL-23 inhibitor approved for psoriatic arthritis in addition to psoriasis. Another IL-23 inhibitor, mirikizumab, and IL-17A and F inhibitor bimekizumab, continue to succeed in phase 3 trials for psoriasis<sup>6,7</sup>.

Ustekinumab (Stelara®) and ixekizumab (Taltz®) both received expanded indications for children as young as age 6 years with moderate to severe plaque psoriasis.

Topical options are also receiving attention. Roflumilast cream, a phosphodiesterase-4 inhibitor, is in trials for plaque psoriasis<sup>8</sup>, as well as seborrheic dermatitis and atopic dermatitis. Tapinarof, a therapeutic aryl hydrocarbon receptor modulating agent (TAMA), is under investigation for treatment of psoriasis and atopic dermatitis<sup>9</sup>.

## ATOPIC DERMATITIS & PRURITUS

JAK inhibitors are inching closer to approval for atopic dermatitis. Abrocitinib, baricitinib (Olumiant®), and upadacitinib (Rinvoq®), continue to do well in clinical trials<sup>10,11,12</sup>. The pan JAK inhibitor delgocitinib ointment received fast track designation for chronic hand eczema in adults based on success in phase 3 trials<sup>13</sup>.

Inhibition of IL-13 with tralokinumab and IL-31 receptor A with nemolizumab is proving effective for atopic dermatitis<sup>14,15</sup>. Nemolizumab was also shown to be effective in decreasing pruritus and skin lesions in patients with prurigo nodularis in a phase 2 trial<sup>16</sup>.

The expanded indication of dupilumab (Dupixent®) for children six years and up with moderate to severe atopic dermatitis was enthusiastically welcomed in May of this year. Dupilumab was also shown to be effective for adults with bullous pemphigoid in a multicenter case series of 13 patients<sup>17</sup>.

Children as young as three months old with mild to moderate atopic dermatitis gained a topical option with the expanded indication for crisaborole 2% ointment (Eucrisa®) in this age group.

A study by Paller, et al, quelled any safety concerns about cancer risk in topical tacrolimus for atopic dermatitis. There was no increase in cancer incidence in close to 8,000 children who used this medication for ≥ 6 weeks during a 10-year period<sup>18</sup>.

Finally, a phase 3 trial showed that difelikefalin, an agonist of peripheral kappa opioid receptors, decreased pruritus and improved quality of life in hemodialysis patients with uremic pruritus<sup>19</sup>.

## INFECTIOUS DISEASE

The CDC's Advisory Committee on Immunization Practices released updated HPV vaccine recommendations earlier this year<sup>20</sup>. In short, Gardasil-9 is recommended for boys and girls at age 11 or 12, with catch-up vaccination through age 26. Patients aged 27-45 who are unvaccinated should be offered the vaccine if considered at high risk for new infection or if the vaccine would be otherwise beneficial.

Abametapir (Xeglyze®) is a newly approved one-time topical treatment for head lice in children as young as six months old. Previously prescription-only ivermectin 0.5% lotion (Sklice®) is now available over-the-counter for head lice in children six months and older.

## CUTANEOUS ONCOLOGY

Melanoma therapy continues to advance with investigations into sequential and combination treatment with targeted and immunotherapies. Melanoma mortality has been decreasing by about 5% a year since 2014 in US whites<sup>21</sup>, the demographic with the highest incidence of melanoma. Further evaluation of other demographics is needed.

An oral mitogen-activated protein kinase (MEK) inhibitor, selumetinib (Koselugo®), became the first drug approved to treat any form of Neurofibromatosis type 1. Selumetinib is indicated for patients two years and older with symptomatic, inoperable plexiform neurofibromas.

PD-1 inhibitor pembrolizumab (Keytruda®) was approved for recurrent or metastatic cutaneous squamous cell carcinoma not amenable to surgery or radiation.

## COSMETIC DERMATOLOGY

Revance and Teoxane SA introduced three new “resilient hyaluronic acid” (RHA) fillers to the US market this year. Revance continues trials for daxibotulinumtoxinA with expected FDA-approval in the future.

Galderma also successfully launched Restylane® Kysse for lip augmentation and correction of upper perioral rhytides. Juvederm®’s Voluma™ XC received an expanded indication to include chin augmentation, in addition to its use in the cheeks.

Collagenase clostridium histolyticum (Qwo™) was approved by the FDA as an injectable treatment for cellulite in the buttocks of adult women<sup>22</sup> and is expected to become available in the Spring of 2021.

As 2020 comes to a close, we are left with much to reflect upon. With profound gratitude, we recognize our colleagues in the medical community fighting to control the COVID-19 pandemic, as well as those who work to advance the field dermatology. And with heavy hearts, we recognize the lives lost this year. May the New Year bring health and happiness. Happy Holidays and Happy New Year.

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