

Advances in Dermatology: A Year in Review

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What a year 2019 has been for the field of dermatology! Researchers and dermatologists have been working hard to propel the specialty forward, and the hard work has paid off. From discoveries in basic science, to new drugs and new indications for old drugs, there is a lot to review. Let's get right to it:

- **New Clinical Guidelines**
- **New in Psoriasis Treatment**
- **New in Atopic Dermatitis**
- **New in Hair Loss**
- **New in Disorders of Pigmentation**
- **New in Acne**
- **New in Cosmetic Dermatology**
- **New in Cutaneous Oncology**

New Clinical Guidelines

Psoriasis experts with the American Academy of Dermatology (AAD) and the National Psoriasis Foundation (NPF) have been working hard to establish guidelines for all aspects of psoriasis treatment. This year alone, guidelines for the management of psoriasis with biologics¹, phototherapy², with attention to comorbidities³, and for pediatric patients⁴ have been released. Recommendations for nail psoriasis⁵ and for use of the recombinant zoster vaccine in patients on systemic treatment⁶ were also made available. According to the NPF, the recombinant zoster vaccine (Shingrix) is recommended for all psoriasis and psoriatic arthritis patients over 50 years of age, and for younger patients at increased risk. All guidelines are available through the AAD and the NPF.

In addition, hidradenitis suppurativa (HS) experts from the United States and Canada teamed up to create guidelines for the management of HS⁷, published in the JAAD in July 2019.

New in Psoriasis Treatment

Treatment options for psoriasis expanded this year with the release of two new medications. The new IL-23 inhibitor risankizumab (Skyrizi™) became available for adults with moderate to severe plaque psoriasis. Risankizumab is injected subcutaneously at week 0, 4, and then every 12 weeks, and boasts rapid skin clearance. A new topical lotion which uniquely combines halobetasol and tazarotene (Duobrii™) also debuted.

Successful phase 3 trials for the IL17-A and F inhibitor bimekizumab, ixekizumab (Taltz®) for pediatric patients 6-18 years of age with moderate to severe plaque psoriasis, and guselkumab (Tremfya®) for palmoplantar pustulosis, may result in approvals next year.

New in Atopic Dermatitis

A much-needed treatment option for adolescents with moderate to severe atopic dermatitis (AD) became available when dupilumab (Dupixent®) expanded its indication to patients 12-17 years of age in March 2019. An additional indication for children aged 6-11 years with severe atopic dermatitis (60% or more body surface involvement) is expected in the near future given positive results of phase 3 trials released in August.

JAK inhibitors remain a promising option for atopic dermatitis with completion of phase 3 trials this year. Baricitinib (Olumiant®) is a JAK 1 and 2 inhibitor currently FDA-approved for rheumatoid arthritis with favorable results in trials for moderate to severe atopic dermatitis in adults. Abrocitinib is a novel JAK 1 inhibitor also showing treatment success.

New in Hair Loss

A long-suspected gene that may predispose women to central centrifugal cicatricial alopecia (CCCA) has been identified⁸. Researchers identified mutations in peptidyl arginine deiminase, type III (PADI3), a protein involved in hair shaft formation, in a group of women with CCCA. This discovery can help in counseling our patients on the causes of CCCA and offers hope of a molecular target for treatment in the future.

There is continued concern regarding a possible link between frontal fibrosing alopecia (FFA) and sunscreen use. Specifically, the concern lies in nano-sized titanium dioxide and chemical ingredients. Two retrospective survey-based studies were published this year showing an association^{9,10}, however more data is needed to determine causality.

New in Disorders of Pigmentation

The first clinical trial for a topical treatment for vitiligo showed promising results. Ruxolitinib cream, a JAK 1 and 2 inhibitor, helped patients achieve significant repigmentation for up to a year in a phase 2 clinical trial¹¹. Phase 3 trials are underway.

New in Acne

Trifarotene 0.005% cream (Aklief®) is the newest topical retinoid available for the treatment of acne. A novel minocycline 4% foam (Amzeeq™) was approved by the FDA, and a new drug application has been submitted for the topical androgen receptor inhibitor clascoterone 1% cream. Only time will tell where these medications will fit in our arsenal of topical acne regimens.

Oral isotretinoin remains a mainstay of treatment for acne, and data published this year helps ease fears of adverse events. According to a cohort study published in June 2019, significant changes in triglycerides and liver function testing occurred in less than 1% and 0.5%, respectively, of 1863 patients, and no significant changes in cholesterol or complete blood count values were noted¹².

Moreover, the rates of psychiatric adverse events in patients on isotretinoin are likely lower than previously thought. Retrospective evaluations of large cohorts exposed to isotretinoin actually showed lower rates of suicide than the general population¹³, and lack of association with depression¹⁴.

New in Cosmetic Dermatology

Prabotulinumtoxin-A (Jeuveau®), a fourth botulinum toxin for cosmetic use, was released to the market this year with claims of longer duration of action. An additional botulinum toxin is likely to receive approval as favorable phase 3 trials for daxibotulinum toxin A (DAXI) have been reported¹⁵. Daxibotulinum toxin is unique in that it does not have a complexing protein but rather a stabilizing peptide excipient. At the doses used in trials, daxibotulinum toxin showed a longer duration of effect when compared to onabotulinum toxin.

New in Cutaneous Oncology

Rare skin cancers received warranted attention with the publication of clinical guidelines for the management of microcystic adnexal carcinoma¹⁶ and sebaceous carcinoma¹⁷.

Immunotherapy has revolutionized melanoma treatment in recent years. Five-year data for combined ipilimumab and nivolumab¹⁸, combination dabrafenib and trametinib¹⁹, and for pembrolizumab alone²⁰ released this year shows sustained results. While the most effective immunotherapy for melanoma seems to be ipilimumab plus nivolumab, first-line therapy can be individualized based on each patient's tumor characteristics.

What an exciting time to be a dermatologist! As we reflect on 2019, it is with gratitude that we recognize all those who devote their time to advancing our specialty so that we can better serve our patients. Happy Holidays, and Happy New Year.

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