Updates In Pediatric Dermatology

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Disclosures

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Learning Objectives

• Present new therapies for common pediatric dermatologic conditions

• Describe how to overcome barriers to implementing in practice
Acne

- 85% of adolescents and young adults between 12-24yo develop acne
Types of Acne
# Guidelines of Care for Acne

<table>
<thead>
<tr>
<th></th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
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<tbody>
<tr>
<td><strong>1st Line</strong></td>
<td>Benzoyl Peroxide (BP) or Topical Retinoid</td>
<td>Topical Combination Therapy**</td>
<td>Oral Antibiotic + Topical Combination Therapy**</td>
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<tr>
<td><strong>Treatment</strong></td>
<td>- or- Topical Combination Therapy**</td>
<td>BP + Antibiotic or Retinoid + BP or Retinoid + BP + Antibiotic - or- Oral Antibiotic + Topical Retinoid + BP - or- Oral Antibiotic + Topical Retinoid + BP + Topical Antibiotic</td>
<td>BP + Antibiotic or Retinoid + BP or Retinoid + BP + Antibiotic - or- Oral Antibiotic + Topical Retinoid + BP + Oral Isotretinoin</td>
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<td></td>
<td>or Retinoid + BP or Retinoid + BP +</td>
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<tr>
<td></td>
<td>Antibiotic</td>
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<td><strong>Alternative</strong></td>
<td>Add Topical Retinoid or BP (if not on already) - or- Consider Alternate Retinoid - or- Consider Topical Dapsone</td>
<td>Consider Alternate Combination Therapy or- Consider Change in Oral Antibiotic - or- Add Combined Oral Contraceptive or Oral Spironolactone (Females) - or- Consider Oral Isotretinoin</td>
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*Journal of the American Academy of Dermatology 2016 74, 945-973.e3* DOI: (10.1016/j.jaad.2015.12.037)
Antibiotic Resistance Prevention

• Recent retrospective cohort study in the United Kingdom
• 62% of general practitioners (GP) prescribing oral antibiotics for acne did so without also prescribing a retinoid
• 29% of GPs prescribed oral antibiotics for greater than 6 mo course for acne
New Acne Treatments in Trial

• Topical minocycline foam appears to be effective and safe for the treatment of moderate to severe inflammatory acne in Phase 2 clinical trials.

• Olumacostat glasaretil (OG) inhibits sebocyte lipid production is an effective and safe topical treatment for moderate to severe acne in Phase 2 clinical trials

• Of note, Differin (adapalene) 0.1% cream is now available over the counter
Fig 1. Acetyl coenzyme A carboxylase (ACC) effect on sebum production. CoA, Coenzyme A; HMG CoA, 3-hydroxy-3-methylglutaryl-coenzyme A; OG, olumacostat glasaretil; TOFA, 5-(tetradecyloxy)-2-furancarboxylic acid.

Robert Bissonnette, Yves Poulin, Janice Drew, Hans Hofland, Jerry Tan

**Olumacostat glasaretil, a novel topical sebum inhibitor, in the treatment of acne vulgaris: A phase IIa, multicenter, randomized, vehicle-controlled study**

http://dx.doi.org/10.1016/j.jaad.2016.08.053
Periorificial Dermatitis

- Common condition in children
- Exacerbated by topical steroids
- +/- burning sensation
- Standard treatment is erythromycin x6wk, sometimes topical metronidazole or calcineurin inhibitors
- New study looks at efficacy of topical ivermectin (may be 2/2 demodex)
Atopic Dermatitis

- Most common chronic inflammatory skin condition
- Occurs in 10-15% of children
- Multifactorial pathogenesis but it is TH2 mediated
- Atopic Triad: AD, asthma, allergic rhinitis
Atopic Dermatitis

Changes in common locations of atopic eczema with age

INFANT

CHILD

ADULT
Types of Atopic Dermatitis
Atopic Dermatitis

- Guidelines of care for the management of atopic dermatitis in JAAD
- Emollients are mainstay for the treatment and maintenance of atopic dermatitis
- Bathing should be performed daily with mild, fragrance free soap
- Topical steroids are the mainstay for first line treatment in AD and topical calcineurin inhibitors can also be effective
- Refractory AD can be treated with phototherapy (ie nbUVB) or systemic treatment (ie cyclosporine, azathioprine, methotrexate)
- Probiotics may be mildly helpful but food avoidance is not recommended
New Treatment for Atopic Dermatitis

- Topical crisaborole 2% oint, a PDE 4 inhibitor, is effective for mild to moderate AD in Phase 3 clinical trial for children and adults.
- Dupilumab, a human monoclonal antibody to IL-4 receptor alpha, is effective for moderate to severe AD in Phase 3 clinical trials in adults.
- 5 year randomized trial found that pimecrolimus (elidel) cream was safe and effective for long term management of mild to moderate AD in infants.
Contact Dermatitis In Children With Atopic Dermatitis

• Patch tested children with AD were younger and had a longer history of dermatitis compared to those without AD

• Increase frequency of reactions to:
  – cocamidopropyl betaine (ie acne cleansers- panoxyl, clearasil, biore)
  – wool alcohol/lanolin (ie Aquaphor)
  – tixocortol pivalate
  – Parthenolide (extract of feverfew, in Aveeno products)
# 2014 ISSVA Classification of Vascular Anomalies

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<thead>
<tr>
<th>Vascular Anomalies</th>
<th>Vascular Malformations</th>
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<tr>
<td><strong>Vascular Tumors</strong></td>
<td><strong>Simple</strong></td>
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<tr>
<td>Benign</td>
<td>CM</td>
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<tr>
<td>Locally aggressive or borderline</td>
<td>LM</td>
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<tr>
<td></td>
<td>VM</td>
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<tr>
<td>Malignant</td>
<td>AVM</td>
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## Vascular Lesions

### Benign vascular tumors
- Infantile hemangioma/hemangioma of infancy
- Congenital hemangioma
  - Rapidly involving CH (RICH)\(^a\)
  - Noninvoluting CH (NICH)
  - Partially involving CH (PICH)
- Tufted angioma\(^a\,b\)
- Spindle cell hemangioma
- Epithelioid hemangioma
- Pyogenic granuloma (or lobular capillary hemangioma)
- Others

### Locally aggressive or borderline vascular tumors
- Kaposiform hemangioendothelioma\(^a\,b\)
- Retiform hemangioendothelioma
- Papillary intralymphatic angioendothelioma, Dabska tumor
- Composite hemangioendothelioma
- Kaposi sarcoma
- Others

### Malignant vascular tumors
- Angiosarcoma
- Epithelioid hemangioendothelioma
- Others

### CMs
- Cutaneous and/or mucosal CM ("port wine" stain)
- CM with bone and/or soft tissue overgrowth
- CM with CNS and/or ocular anomalies (Sturge-Weber syndrome)
- CM of CM-AVM
- CM of microcephaly-CM (MICCAP)
- CM of megalencephaly-CM-polymicrogyria (MCAP)
- Telangiectasia
  - Hereditary hemorrhagic telangiectasia (HHT; different types)
  - Others
- Cutis marmorata telangiectatica congenita (CMTC)
- Nevus simplex/salmon patch/"angel kiss," "stork bite"
  - Others

### LMs
- Common (cystic) LMs
  - Macrocystic LM
  - Microcystic LM
  - Mixed cystic LM
- Generalized lymphatic anomaly (GLA)
- LM in Gorham-Stout disease
- Channel-type LM
- Primary lymphedema
- Others

### VMs
- Common VM
- Familial VM cutaneo-mucosal (VMCM)
- Blue rubber bleb nevus (Bean) syndrome VM
- Glomuvenous malformation (GVM)
- Cerebral cavernous malformation (CCM; different types)
- Others

### AVMs
- Sporadic
- In HHT
- In CM-AVM

### AVFs
- Sporadic
- In HHT
- In CM-AVM
- Others
Infantile Hemangiomas

• Benign vascular tumor
• Most present in the first few weeks of life (1/3 present at birth)
• More common in premature infants, females, mothers of AMA or with placental problems during pregnancy
• Growth phase (in 1st 6mo of life) → plateau phase (1st few years of life) → involution phase (3-10yo)
Types of Hemangiomas
Complications of Hemangiomas

• Functional compromise
  – Eye
  – Ear
  – Airway
  – Anogenital

• Ulceration

• Permanent disfigurement
  – Lip, tip of nose, parotid, anogenital

• Visceral lesions

• Hypothyroidism

• Associated syndromes or features
Management of Hemangiomas: Interventions

- Parental support and careful observation
- Wound care when ulcerated
- Propranolol is treatment of choice for complicated lesions
  - Topical timolol gel: Might moderate proliferation; might help heal ulcers
- 2nd line options:
  - Systemic corticosteroids, intralesional corticosteroids
  - Vincristine
  - Pulsed dye laser
  - Embolization
  - Surgical excision
Infantile Hemangiomas

- Topical timolol is a safe and effective treatment for superficial, thin IH
- Oral propranolol has a safe profile with minimal AE if pt are screened properly for contraindications
- ~25% of patients on oral propranolol have rebound growth after d/c
Vascular Malformations
New Treatments for Vascular Anomalies

• Sirolimus (rapamycin) was efficacious and well tolerated for treatment of a variety of vascular anomalies in a phase 2 clinical trial

• Propranolol may be effective at low doses for the treatment of lymphatic anomalies in a recent retrospective case series
Psoriasis

- Chronic inflammatory skin condition affecting 4-5% of US population
- Multifactorial but it is TH1 mediated
- Guttate type is more common in children often following strep infection
- May be associated with arthritis and/or nail findings
Types of Psoriasis
Psoriasis Treatment

• Topical treatment:
  – Topical steroids
  – Topical vitamin D analogs
  – Topical calcineurin inhibitors
  – Tazorac (retinoid)

• Phototherapy:
  – nbUVB
  – Excimer laser
  – PUVA (not commonly used b/c risk of skin cancer)

• Systemic treatment:
  – Methotrexate
  – Cyclosporine
  – Acitretin
  – Biologics
Psoriasis

• Study showed a decrease in QOL of parents of children with psoriasis (ie sleep disruption, sadness, frustration, burden of care)
• Increased rates of psychiatric comorbid conditions in children with psoriasis (ie depression, substance abuse, eating disorders)
• Increased rates of metabolic syndrome in children with psoriasis
Psoriasis treatments and trials

• Approval for etanercept in children
• Investigation of biosimilars and other biologics in adults → Guselkumab (anti IL 23 monoclonal ab) highly effective including adalimumab nonresponders
• Clinical trial is starting to investigate the efficacy of ixekizumab, (anti IL 17A monoclonal ab) for treatment of moderate to severe plaque psoriasis in children (approved in adults)
Alopecia areata

- Most common non-scarring alopecia
- T cell mediated autoimmune condition
- May have associated nail findings
- Clinical course is unpredictable
- May be associated with other autoimmune conditions
- Current treatments include: topical or intralesional steroids, squaric acid topical tx
Types of Alopecia areata
New Treatments for alopecia areata

• Tofacitinib, a JAK kinase inhibitor, was found to be effective in the treatment of alopecia areata in adolescents

• Clinical trial is underway to evaluate efficacy of topical JAK kinase inhibitor in adults with alopecia areata
Teledermatology

- Provides pediatric dermatology care remotely
- Dermatologist are able to identify the correct diagnosis most of the time through teledermatology
- It is best utilized with standardized history taking and photography
- Teledermatology is best for characteristic presentations of skin conditions and for follow up of previously diagnosed conditions
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