What’s New in PEDIATRIC DERMATOLOGY?
Ilene L. Rothman, M.D.
Chief - Pediatric Dermatology
Women & Children’s Hospital of Buffalo
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What’s New in Hemangioma Treatment?

The Biggest Story: A Letter to the NEJM

What’s New?
- Beta Blockers for Hemangiomas
- Atopic Dermatitis
  - Fillagrin
  - Prevention?
- Contact Dermatitis
  - Car seats
  - Toilet seats
  - Cell phones
- Aquagenic Wrinkling and Cystic Fibrosis
- Wart treatments - what works and what doesn’t?

Propranolol for Severre Hemangiomas

9 weeks old
7 days after starting Propranolol 2mg/kg/d
6 months old Propranolol same dose
9 weeks old

9 months old
Off all meds

Propranolol for Severe Infantile Hemangiomas: Follow-Up Report

• 21 additional patients
• 2mg/kg/d in 2-3 divided doses

• All showed rapid response including color change and softening within 24 hours
• d/c at mean age 9mo
• avg treatment duration 6m

Propranolol for Severe Infantile Hemangiomas: Follow-Up Report

• Adverse effects:
  - 1: mild hypotension with first dose while asleep; resolved with awakening
  - 1: wheezing after 3m treatment
  - 2: insomnia
  - 2: agitation
  - 1: nightmares
  - 1: profuse sweats
  - 1: cold hands

Propranolol for Severe Infantile Hemangiomas: Follow-Up Report

• Conclusions
  - very effective
  - well tolerated
  - without serious adverse effects
Since then, over 300 papers in the literature on propranolol for hemangiomas.

ULCERATED HEMANGIOMAS

Propranolol a Very Promising Treatment for Ulceration: a study of 20 cases with matched historical controls
Hermans et al. JAAD 2011

Propranolol for Treatment of Ulcerated Infantile Hemangiomas
Saint Jean et al. JAAD 2011

Propranolol for Recalcitrant Ulcerated Hemangioma of Infancy
Hong and Fischer Ped Dermatol 2012

HEPATIC HEMANGIOMAS

Hepatic Infantile Hemangiomas Treated with Oral Propranolol - A Case Series
Mhanna et al. Peds Derm 2011
Late initiation of treatment
Oral Propranolol Therapy for Infantile Hemangiomas beyond the Proliferation Phase: A Multicenter Retrospective Study

- 49 patients
- >1yo or documented cessation of growth

Late initiation of treatment
involution accelerated in patients up to age 10y
most had improvement, some dramatic

Late initiation of treatment
Propranolol and Infantile Hemangiomas Four Years Later: A Systematic Review

- Searched for all studies on response of hemangiomas to propranolol June 2008-June 2012
- 41 studies found
- 1264 patients
Propranolol and Infantile Hemangiomas Four Years Later: A Systematic Review

- Treatment initiated at mean of 6.6 months
- Mean dose 2.1mg/kg/d
- Mean treatment duration 6.4 months

Response rate (ie, any improvement): 98%
Rebound growth (in studies where noted): 17%

371 adverse events
- 136: sleep changes
- 61: acrocyanosis
- 5: symptomatic hypotension
- 4: hypoglycemia
- 1: symptomatic bradycardia

Conclusions
- High rate of efficacy
- Low rate of serious adverse events

Recommendations
- Propranolol should be first-line therapy for hemangiomas that need systemic therapy
- With proper monitoring at initiation of treatment, propranolol should be safe in infants with hemangiomas
Topical Beta-blocker for Superficial hemangiomas

- Topical treatment for capillary hemangioma of the eyelid using beta-blocker solution.

Guo and Ni
Arch Ophthalmol 2009

Topical timolol gel for infantile hemangiomas: a pilot study.

Pope and Chakkittakandiyil
Arch Dermatol 2010

Timolol 0.5% or 0.1% Gel-Forming Solution for Infantile Hemangiomas: A Retrospective, Multicenter, Cohort Study

- 73 patients
- all but one improved
- 0.5% better than 0.1%
- better with superficial hemangiomas (pre-selected group of patients)

Chakkittakandiyil et al
Ped Dermatol 2012
What’s New in Atopic Dermatitis?

- Filaggrin
- Prevention?

WHAT’S NEW IN ATOPIC DERMATITIS?

- Filaggrin mutations: two recent review papers:
  - Filaggrin Mutations Associated with Skin and Allergic Diseases
  - One Remarkable Molecule: Filaggrin
What is Filaggrin?

- FILament AGGRegating Protein

What is Filaggrin?

- Binds keratin and intermediate filament proteins
- Important role in barrier function of the skin

What is Filaggrin?

- Present in about 50% of those with AD
- Increased severity of AD
- More persistent AD
- More skin infections (7-fold)
- Greater chance of developing multiple environmental allergies (“Atopic March”)

Filaggrin gene mutations

- Present in about 50% of those with AD
- Increased severity of AD
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Future 25 years….
- Improved understanding of skin barrier mechanisms?
- Prevention of atopic disease?
- Novel treatments for atopic dermatitis?
Can we prevent atopic dermatitis?

A Pilot Study of Emollient Therapy for the Primary Prevention of Atopic Dermatitis

- Premise: Filaggrin research shows us the importance of the skin barrier
- Goal: maintain intact skin barrier from birth
- Emollients have been shown to improve barrier function

A Pilot Study of Emollient Therapy for the Primary Prevention of Atopic Dermatitis

- 22 neonates at high risk for development of atopic dermatitis (mothers recruited during pregnancy)
- Cetaphil cream at least once a day; encouraged to apply immediately after bath

A Pilot Study of Emollient Therapy for the Primary Prevention of Atopic Dermatitis

- Results:
  - 15% developed atopic dermatitis
  - No control group but historical controls: expectation of 30-50% developing atopic dermatitis

What’s New in Contact Dermatitis?

- Car seats
- Toilet seats
- Cell phones
“Car Seat Dermatitis”: A Newly Described Form of Contact Dermatitis

- 21 patients (2006 - 2009)
- Distribution is key:
  - Lower lateral legs
  - Elbows
  - Occiput in half-dependent on presence of cover
  - Upper posterior thighs in summer
  - Increased incidence in summer months

Treatment

- Topical steroids
- Barrier to car seat (blanket, cloth pad, manufacturer replacement)

Etiology?

- Car seats in all cases had a shiny nylon-like seat pad
- All showed rapid improvement with change in material
- Unclear what the specific allergen is
Toilet Seat Dermatitis

1. Recognizing and Treating Toilet Seat Dermatitis in Children
   Litvinov et al Pediatrics 2010

2. Persistent allergic contact dermatitis to Plastic Toilet Seats
   Heilig et al Pediatric Dermatology 2011

3. Polyurethane Toilet Seat Contact Dermatitis
   Turan et al Pediatric Dermatology 2011

- 5 cases
- delays in diagnosis of 1-2 years
- 2 cases from harsh detergents
- 2 cases of allergic contact dermatitis to plastic seats
- 1 case unspecified

2. Persistent allergic contact dermatitis to Plastic Toilet Seats
   Heilig et al Pediatric Dermatology 2011
   • case report: 6yo girl
   • patch test positive to polypropylene
   • 4 year history

3. Polyurethane Toilet Seat Contact Dermatitis
   Turan et al Pediatric Dermatology 2011
   • case report: 10yo girl
   • patch test positive to polyurethane foam
   • polyurethane foam inside the leather seat
   • Nickel or chromate allergy
   • Allergy to touch screens

Cell Phone Dermatitis

• Nickel or chromate allergy
• Allergy to touch screens
Cell Phone Dermatitis

1. Cell Phone and Cellular Phone Accessory Dermatitis due to Nickel Allergy
   Berk and Bayliss
   Pediatric Dermatology 2011

2. Facial Contact Dermatitis and the Irritant Contact Potential of Mobile Phone Screens
   Valdivieso et al
   Pediatric Dermatology 2012

- positive patch test to the phone screen
3. Facial Contact Dermatitis and the Irritant Contact Potential of Mobile Phone Screens

- mobile phone and touchscreen companies refused to reveal materials
- Treatment: cover phone with plastic wrap - stayed clear

Valdivieso et al
Pediatric Dermatology 2012

What's New in the treatment of warts??

- What works and what doesn't?

Wart Treatment: 2 reviews in 2011
1. Efficacy of Topical Treatments for Cutaneous Warts: a meta-analysis and pooled analysis of Randomized Controlled Trials
Kwok et al
Br. J of Dermatol 2011

2. Update: Treatment of Cutaneous Viral Warts in Children
Boull and Groth
Pediatric Dermatol 2011

1. Efficacy of Topical Treatments for Cutaneous Warts: a meta-analysis and pooled analysis of Randomized Controlled Trials
Kwok et al
Br. J of Dermatol 2011

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Br. J of Dermatol 2011

- 77 studies (majority: “low methodological quality
  - Salicylic acid > Placebo
  - Cryotherapy = Placebo
  - Aggressive cryotherapy > gentle cryotherapy
  - Salicylic acid + cryotherapy > either alone

• SUGGESTED benefit from:
  • Bleomycin
  • 5-FU
1. Efficacy of Topical Treatments for Cutaneous Warts: a meta-analysis and pooled analysis of Randomized Controlled Trials

Kwok et al
Br. J of Dermatol 2011

**Benefit NOT suggested with:**
- Duct Tape
- PDT

**THEIR RECOMMENDATIONS:**
- First line: Salicylic Acid
- Second line: Cryotherapy, esp aggressive

2. Update: Treatment of Cutaneous Viral Warts in Children

- Highlighted most recent and highest quality studies

Boull and Groth
Pediatric Dermatol 2011

**INJECTED IMMUNOTHERAPY**
- Injected Immunotherapy (candida, mumps, trichophyton)
- after 5 treatments, 56% cure (compared with 23% placebo) and **improved resolution of distant warts in 49%**
  - Horn et al
  - Arch Derm 2005

**ZINC?**

1. Oral Zinc Sulfate in the treatment of recalcitrant viral warts: randomized placebo-controlled clinical trial

Al-Gurairi et al
Br J Dermatol 2002

2. Evaluation of oral zinc sulfate effect on recalcitrant multiple viral warts: a randomized placebo-controlled clinical trial

Yaghobi et al
JAAD 2009

**1. Oral Zinc Sulfate in the treatment of recalcitrant viral warts: randomized placebo-controlled clinical trial**

- Zinc (10mg/kg to max 600mg/d) x 2 months
  - complete clearance in 86.9% (0% of controls)
  - **All participants were zinc-deficient prior to study**
  - **Response correlated with increase in serum zinc**

**Authors postulate that zinc-deficient individuals may be more prone to developing warts**
1. Oral Zinc Sulfate in the treatment of recalcitrant viral warts: randomized placebo-controlled clinical trial

- Caution in accepting results:
  - large drop-out rate in study
  - notable adverse effects:
    - nausea (100%)
    - vomiting (12.7%)
    - mild epigastric pain (13%)

Al-Gurairi et al, Br J Dermatol 2002

Cimetidine?

- Rigorous studies showed no benefit over placebo

Yinaz et al, J Am Acad Derm 1996
Karabulut et al, Arch Derm 1997

Duct tape?

- Rigorous studies showed no benefit over placebo

Ficht et al, Arch Ped Adolesc Med 2002

de Haen et al, Arch Ped Adolesc Med 2006
Warner et al, Arch Derm 2007

What's New in Pediatric Dermatology?

- Beta Blockers for Hemangiomas
- Atopic Dermatitis
  - Filagrin
  - Prevention?
- Contact Dermatitis
  - DISTRIBUTION
  - Car seats
  - Toilet seats: shiny material
  - Delays in diagnosis
  - Cell phones: Nickel or touch screen

What's New?

- Wart treatments - what works and what doesn't?
  - Salicylic acid, Aggressive cryotherapy, injectible immunotherapy, Zinc

- Simetidine, Duct tape?
- Potatoes and Snails?