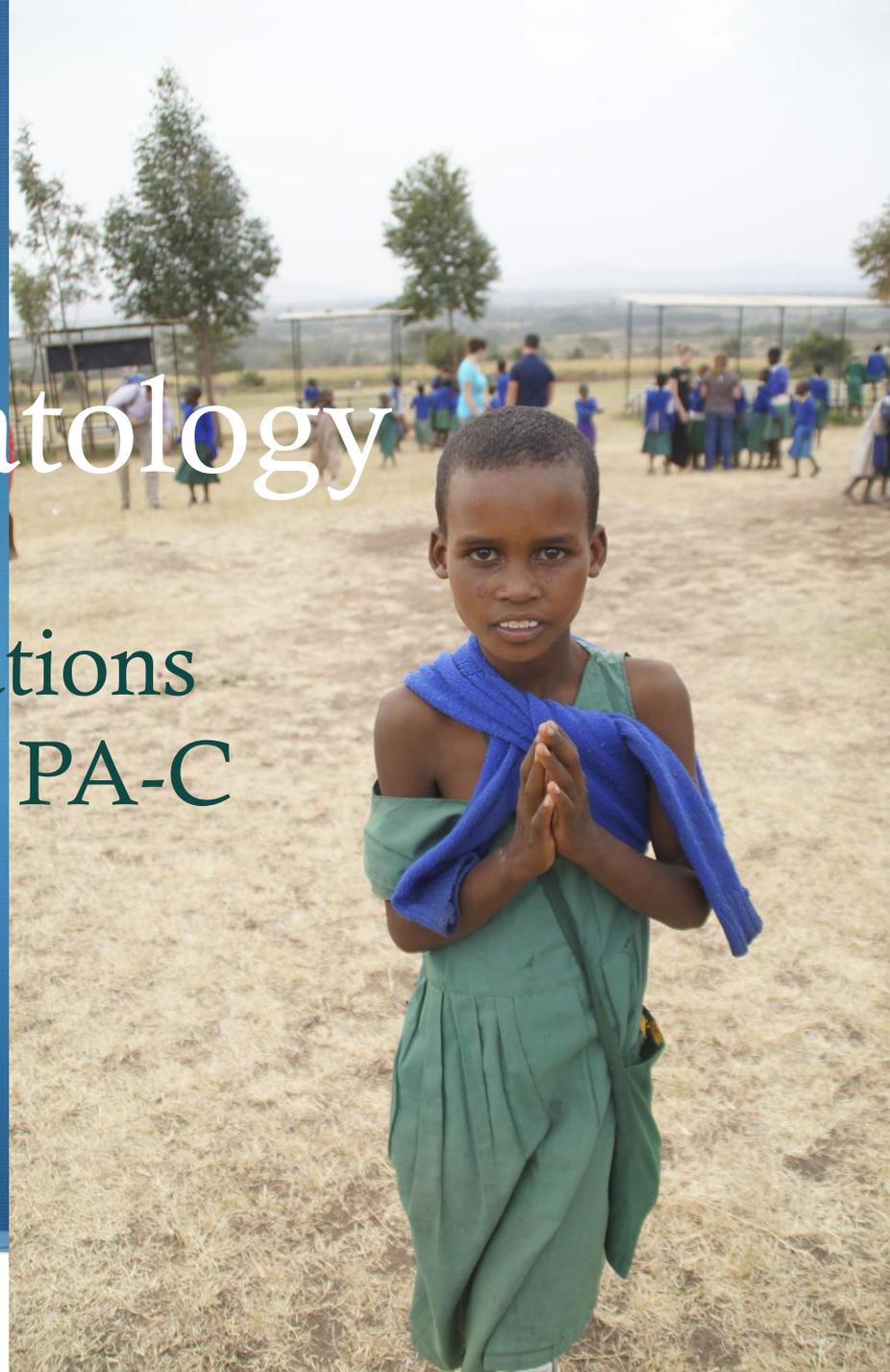


Pediatric Dermatology

Common presentations
Terri Nagy, MPAS, PA-C



Credits

- ◆ Dr. Steve Helms
- ◆ Dr. Eliot Mostow
- ◆ Akron Dermatology/Baraka Health Center patients
- ◆ Emedicine
- ◆ Fisher's Contact Dermatitis 4th edition
- ◆ Bologna's Dermatology 2nd Edition
- ◆ DermAtlas
- ◆ Dr. Matt Ziwras
- ◆ Journal of Clinical and Aesthetic Dermatology

Objectives

1. Identify common dermatologic conditions in children
2. Help participants differentiate between disorders with the help of visual aids
3. Identify treatment options, discussing pros and cons of common modalities

Dermatitis

Infectious

Contact

Allergic

Autoimmune

Infectious presentations

Viral

Bacterial

Fungal

Infestations

Diagnosis

- ◆ Anyone itching should be suspect
- ◆ Scabies: Scrape with mineral oil and #15 blade
 - ◆ Finger webs, wrists, axillae, nipples, penis, ankles
- ◆ Lice: Look behind the ears; hair line
- ◆ Treat ALL entire area and counsel patient *ad nauseum*
- ◆ Treat ALL of household / contacts

Treatment

Scabies

- ◆ Permethrin (Elimite)
- ◆ Ivermectin .2mg/kg PO X1 – can repeat in 2 wks

Lice

- ◆ New Products
- ◆ Natroba: >4 yrs – wash off in 10 mins; repeat in one week
- ◆ Sklice: > 6 months – wash off in 10 mins

Molluscum Contagiosum

- ◆ First described in 1817
- ◆ Member of the Poxvirus
- ◆ Dome shaped, umbilicated , pearly, 3-6 mm
- ◆ Can last up to two years!
- ◆ Spread by direct contact
 - ◆ Swimming pools, bathing, sharing towels, sports

Treatment??

- ◆ American Academy of Pediatrics
- ◆ Goal: stimulate immune response
 - ◆ Aldara (Imiquimod)
 - ◆ LN2
 - ◆ Curettage

Imiquimod

- ◆ Immune response modifier
- ◆ Mechanism of action: unsure
- ◆ What we do know:
 - ◆ Activates immune cells thru the toll-like receptor 7 (TLR7)
 - ◆ Cells then secrete: cytokines, interferon- α , interleukin-6 and tumor necrosis factor- α
 - ◆ Also activate Langerhan cells in skin, which activate adaptive immune system

Application

- ◆ Depending on location – applied every other day to every day.
- ◆ Akron Dermatology Molluscum/Imiquimod study:
 - ◆ 50% clear at 12 weeks
- ◆ Irritation/redness/itching
- ◆ Vaseline
- ◆ Avoid topical corticosteroids!
- ◆ Avoid applying right after bathing

Human Papilloma Virus

- ◆ Approx. 100 strains of HPV
- ◆ Contagious
- ◆ Require an immune response to resolve
- ◆ **STUBBORN!!!**

Treatment

- ◆ Liquid nitrogen
- ◆ Pulsed Dye laser
- ◆ OTC salicylic acid treatments
- ◆ Aldara (Imiquimod)
- ◆ Other.....
 - ◆ Beetle juice, squaric acid, retinoids.....

Gianotti-Crosti

- ◆ Commonly associated with Epstein Barr virus
- ◆ Symmetrical, monomorphorous, pink-brown flat top papules
- ◆ 1-10 mm
- ◆ Face, trunk, extremities

Associated Signs/Symptoms

- ◆ Low grade fever
- ◆ Lymphadenopathy – axillary/inguinal
- ◆ Splenomegaly

Prognosis

- ◆ Spontaneously resolves in 3-4 weeks
- ◆ Lymphadenopathy resolves in 2-3 months

Treatment

- ◆ Supportive treatment
- ◆ No topical therapy has been shown to shorten the course

Impetigo

Non Bullous

- ◆ Most common skin infection in children
- ◆ Occurs at site of pre-existing wound
- ◆ Staph. aureus and group A beta hemolytic strep

Bullous

- ◆ Intact skin
- ◆ Exclusively staph. aureus

Treatment

- ◆ Mupirocin ointment BID
- ◆ If widespread – PO
 - ◆ Cephalexin
 - ◆ Amoxicillin-Clavulanate
 - ◆ Clindamycin
 - ◆ Erythromycin
 - ◆ TMP-SMX

Eczema: A Prevalent Condition

Eczema

**Atopic
dermatitis**
2,912,597*

**Chronic
contact
unspecified
dermatitis**
6,441,403*

**Chronic
irritant
dermatitis**
27,000*

**Chronic
allergic
dermatitis**
487,000*

**Acute
allergic
dermatitis**
1,790,000*

Chronic contact dermatitis
7,450,560

*Source: PDDA, patients diagnosed and treated.

Allergic Contact Dermatitis

25 chemicals responsible for nearly half of all cases

- ◆ Poison Ivy
(Toxicodendron radicans)
- ◆ Nickel
- ◆ Rubber gloves
- ◆ Hair Dye and temporary tattoos (p-Phenylenediamine)
- ◆ Textiles
- ◆ Preservatives
- ◆ Fragrances
- ◆ Corticosteroids
- ◆ Neomycin
- ◆ Benzocaine
- ◆ Photoallergy

American Contact Dermatitis Allergen of the Year

- 2000 Disperse Blue Dyes
- 2001 Gold
- 2002 Thimerosal
- 2003 Bacitracin
- 2004 Cocamidopropyl betaine
- 2005 Corticosteroids
- 2006 Paraphenylenediamine
- 2007 Fragrance
- 2008 Nickel
- 2009 Mixed
Dialkylthiourea

Common Cutaneous Irritants

- Water
- Dry air and temperature variation
- Solvents
- Metalworking fluids
- Cumulative
- Micro trauma
- Mechanical trauma
- Rubber gloves
- Sodium lauryl sulfate
- Hydrofluoric acid
- Alkalis

Treatment

- ◆ Identify the causative agent
- ◆ Avoidance
- ◆ Topical corticosteroids
- ◆ Moisturizers to repair skin barrier

Two Hypothesis

Outside-In

- ◆ Barrier disruption (defective stratum corneum)
- ◆ Triggers cytokines, TNF-alpha, and secondary inflammation

Inside-Out

- ◆ Abnormal epidermal phenotype
- ◆ Caused by increased cytokines which are produced by certain T cells
- ◆ Results in inflammation and barrier disruption

Definition

- ◆ Pruritic disease
- ◆ Usually starts in infancy
- ◆ Signs and symptoms
 - ◆ Pruritus
 - ◆ Excoriations
 - ◆ Xerosis
 - ◆ lichenification

AD

- ◆ Evidence of inflammation
- ◆ Evidence of trans-epidermal water loss due to barrier dysfunction
- ◆ May be associated with other atopic disorders
 - ◆ Asthma
 - ◆ Urticaria
 - ◆ Allergic rhinitis

Atopic dermatitis: Treatment

- ◆ Avoid irritants
- ◆ Moisturize – to restore barrier
- ◆ Topical steroids?
- ◆ Oral steroids?
- ◆ Tacrolimus ointment/Pimecrolimus cream
- ◆ New products?????



Irritants

No fragrances or dyes

- cleansers
- shampoo/conditioner
- laundry
- moisturizers

www.globalpackagegallery.com

www.tisthiseasonblog.blogspot.com

www.coupondad.com

Moisturize!

To restore skin barrier function

- ◆ CeraVe
- ◆ Cetaphil
- ◆ New Products
 - ◆ Cetaphil Restoraderm
 - ◆ Aveeno Eczema Therapy

First line therapy

for all patients with AD despite severity

- ◆ Topical corticosteroids
- ◆ Things to consider:
 - ◆ Potency
 - ◆ Site
 - ◆ Frequency of application
 - ◆ Duration of therapy
 - ◆ Risk vs benefit
 - ◆ Age of patient

Topical Steroids

Class 1 (Superpotent)

- Clobetasol propionate ointment and cream 0.5%
- Betamethasone dipropionate gel and ointment (optimized vehicle) 0.05%
- Diflorasone diacetate ointment (optimized vehicle) 0.5%
- Halobetasol propionate ointment 0.05%

Class 2 (High Potency)

- Amcinonide ointment 0.1%
- Betamethasone dipropionate AF cream 0.05%
- Desoximetasone gel, ointment and cream 0.25%
- Diflorasone diacetate ointment 0.05%
- Fluocinonide gel, ointment, and cream 0.05%
- Halcinonide cream 0.1%
- Mometasone furoate ointment 0.1%

Class 3 (High Potency)

- Amcinonide cream 0.1%
- Betamethasone dipropionate cream 0.05%
- Betamethasone valerate ointment 0.1%
- Diflorasone diacetate cream 0.05%
- Fluticasone propionate ointment 0.05%
- Triamcinolone acetonide cream (HP) 0.5%
- Triamcinolone acetonide (Kenalog) ointment 0.1%

Class 4 (Medium Potency)

- Fluocinolone acetonide ointment 0.025%
- Flurandrenolide ointment 0.05%
- Fluticasone propionate cream 0.05%
- Hydrocortisone valerate ointment 0.2%
- Mometasone furoate cream 0.1%
- Triamcinolone acetonide (Kenalog) cream 0.1%

Class 5 (Medium Potency)

- Alclometasone dipropionate ointment 0.05%
- Betamethasone dipropionate lotion 0.05%
- Betamethasone valerate cream 0.1%
- Fluocinolone acetonide cream 0.025%
- Flurandrenolide cream 0.05%
- Hydrocortisone butyrate cream 0.1%
- Hydrocortisone valerate cream 0.2%
- Triamcinolone acetonide lotion 0.1%

Class 6 (Low Potency)

- Alclometasone dipropionate cream 0.05%
- Betamethasone valerate lotion 0.05%
- Desonide cream 0.05%
- Fluocinolone acetonide cream 0.01%
- Fluocinolone acetonide solution 0.05%
- Triamcinolone acetonide (Aristocort) cream 0.1%

Class 7 (Low Potency)

- Topicals with hydrocortisone, dexamethasone, and prednisolone

CUTANEOUS ABSORPTION BY ANATOMIC SITE

Site of application	Absorption
Forearm (flexor)	1*
Forearm (extensor)	1.1
Plantar surface	0.14
Ankles	0.42
Palms	0.83
Back	1.7
Scalp	3.5
Axillae	3.6
Chest and abdomen	6
Cheeks, lower aspect	13
Scrotum	42

Topical Steroids

- ◆ Fluocinolone topical (Derma- Smoothe scalp and eczema oil)
- ◆ Desoximetasone cream/ointment (Topicort)
- ◆ Clocortolone pivalate cream (Cloderm)
 - ◆ Both Class C in re: cross reactivity for allergens
 - ◆ Won't cross react

2nd Line Immunomodulators

- ◆ Tacrolimus (Protopic 1% and .3%)
- ◆ Pimecrolimus (Elidel)
- ◆ Both: short term treatment and non-continuous chronic treatment in conjunction with TCS



BLACK BOX

Does it work?

Sure.....

Bleach studies

Baths

- ◆ ¼ - ½ cup bleach in tub of water – 2x weekly
- ◆ Pts. Age: 6 months – 17 years
- ◆ 3 months study
- ◆ Dramatic reduction in eczema area and severity index from neck down

Aurstat/Atropro

- ◆ Anti-itch gels
- ◆ Applied 2x daily for 3 days alone, then combined with moisturizer days 4-7
- ◆ Itch reduction: 23% on day 1; 44% on day 3; 77% on day 7

EASI

1. Head and neck

2. Upper limbs

3. Trunk

4. Lower limbs

◆ Assess intensity

◆ Absent = 0

◆ Mild = 1

◆ Moderate = 2

◆ Severe = 3

1. Redness

2. Thickness

3. Crusting

4. Lichenification

Scoring

Calculate area affected in each region

◆ 0 = 1-9%

◆ 1 = 10-29%

◆ 2 = 30-49%

◆ 3 = 50-69%

◆ 4 = 70-89%

◆ 5 = 90-100%

◆ Maximum score = 72

◆ Minimum score = 0

Special Circumstances...



PO steroids

- ◆ Prelone 15/5
- ◆ 1-2 mg/kg PO div BID X 5 days

Antibiotics

- ◆ Cefdin 125/5; 250/5

- ◆ 30 mg/kg/day div Q 12 hours X 7-10 days

- ◆ Septra DS

- ◆ 8-10 mg/kg/day div Q 12 hours X 7-10 days

Treatment Rule:
2 week treatment regimens
If not better – re-evaluate!



Maintenance

- ◆ Gentle cleansers
- ◆ Daily moisturizers
- ◆ Avoid irritants
- ◆ Early use of topical corticosteroids or immunomodulators
- ◆ Bleach baths/hydrogels

Tinea

- ◆ Dermatophyte infection
 - ◆ *Trychophyton*
- ◆ Person to person contact
- ◆ **Scaly**
- ◆ Expanding
- ◆ Can have alopecia

Treatment

- ◆ Ketoconazole 2% shampoo - daily
- ◆ Topical Ciclopirox – BID till clear plus 1 week
- ◆ Capitus - Griseofulvin 20-25 mg/kg/day for 6-8 weeks
- ◆ Avoid Lotrisone!

Lotrisone

Betamethasone

💧 Class 1 Steroid

Clotrimazole

💧 Ok antifungal

Tinea Versicolor

- ◆ Hypo or Hyper pigmented patches and macules on chest, back, neck, abdomen.....
- ◆ *Malassezia furfur*
- ◆ Ketoconazole 2% shampoo as a body wash
- ◆ Topical ciclopirox cream BID till clear plus 1 week

New FDA Warning

7/26/13

- ◆ Ketoconazole Tablets - no longer 1st line for fungal infections
- ◆ Due to “severe liver injury, adrenal insufficiency and adverse drug interactions”
- ◆ Ketoconazole tablets pulled from European Union markets

<http://www.fda.gov/Drugs/DrugSafety/ucm362415.htm>

Recommended PO treatment

Adolescents only

Fluconazole (Diflucan)

- 150-300 mg dose
- Weekly
- 2-4 weeks
- 200 mg tablet
- 2 tablets 1 hour prior to sweating
- Repeat in 1 week

Granuloma Annulare

- ◆ Commonly mistaken as tinea!
- ◆ Benign infiltrative disorder of unknown etiology
- ◆ May be associated with DM, TB, insect bites, sinusitis, thyroiditis, etc....
- ◆ **Not scaly**
- ◆ Asymptomatic

Autoimmune

Dermatoses



Vitiligo

- ◆ Destruction of melanocytes
- ◆ Seen in 1% of US population
- ◆ Females > males
- ◆ Can occur at any age

Treatment

- ◆ Tacrolimus (Protopic 1% and .3%)
- ◆ Vitamin therapy
 - ◆ Vitamin C
 - ◆ Folic Acid
 - ◆ Vit. B12

Cutis magazine 1992 Jul: 50 (1): 39-42

Folic Acid and Vitamin B12 in Vitiligo: A Nutritional Approach

Montes LF, Diaz ML, LaJous J, Garcia NJ

Guttate Psoriasis

- ◆ Multiple 'drop like' papules/plaques
- ◆ Salmon-pink color
- ◆ Scaly
- ◆ Can be pruritic

Associated signs/symptoms

- ◆ Commonly preceded by a strep infection
 - ◆ 80 % of patients
 - ◆ Usually strep pharyngitis
 - ◆ Can also be perianal
 - ◆ May only be clinical – and not symptomatic

Treatment

- ◆ Topical corticosteroids
 - ◆ 4 days on/3 days off each week
- ◆ Antimicrobials (strep pharyngitis)
 - ◆ Cephalexin 40mg/kg/day divided 2x daily for 10 days
 - ◆ Amoxicillin 25mg/kg 2x daily for 10 days
 - ◆ Erythromycin 30-50 mg/kg/day divided 3-4x daily

Prognosis

- ◆ Usually short lived
- ◆ Usually resolves with treatment of strep infection
- ◆ 1:3 patients develop chronic long term plaque psoriasis

Long Term Treatment

- ◆ Topical corticosteroids

Most Class 1 steroids are not indicated for children

- ◆ Triamcinolone

- ◆ 1% oint – med. potency

- ◆ .1% crm – med/low potency

- ◆ Topical Vitamin D

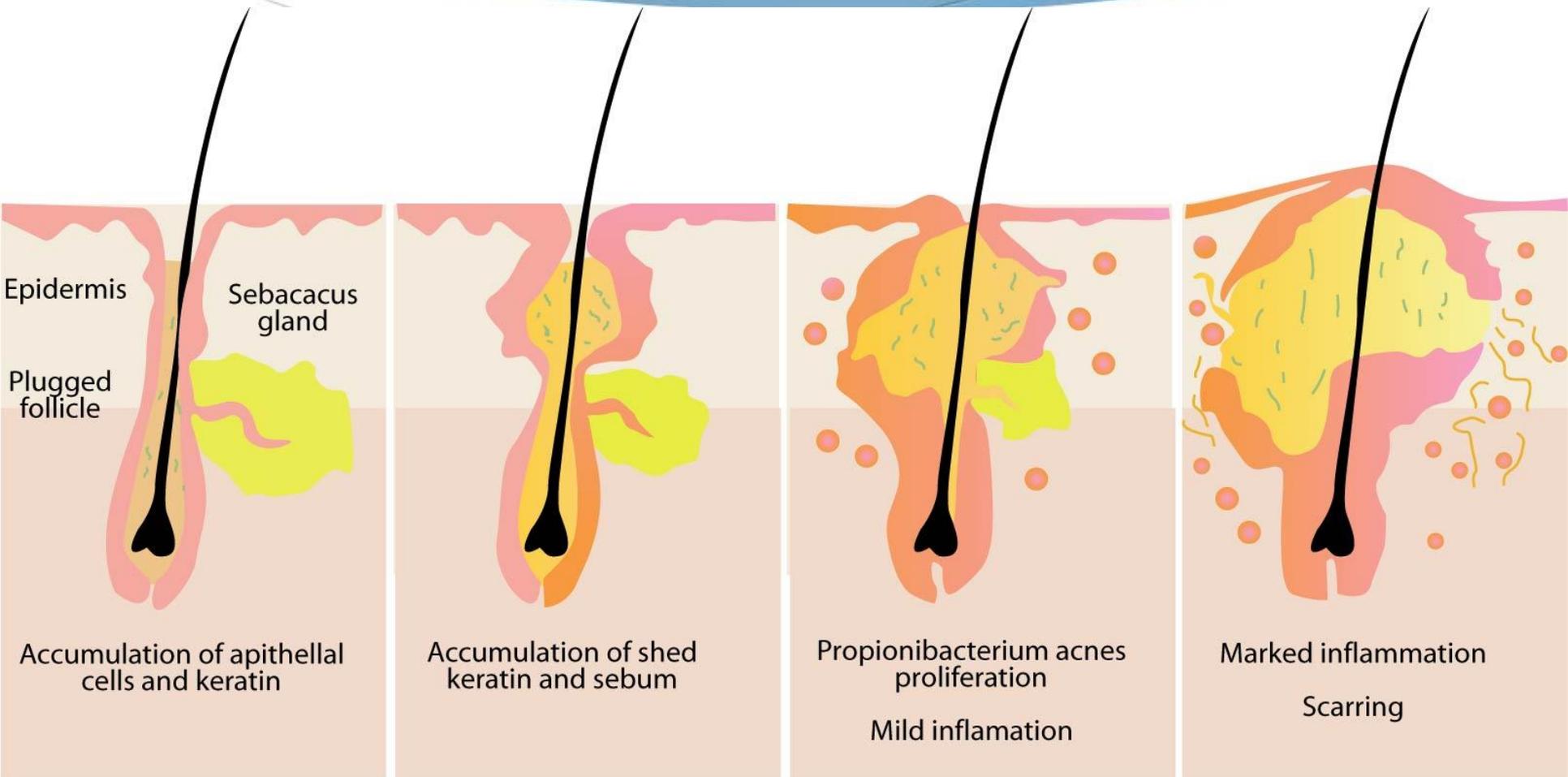
- ◆ Not indicated for pediatrics

Long Term Treatment

- ◆ Methotrexate 0.2-0.7 mg/kg/week
 - ◆ Combined with folic acid supplement
 - ◆ Increased tolerability; decreased nausea, anemia, liver enzyme elevation and pancytopenia
- ◆ Biologics
 - ◆ Humira: 20-40mg SC every 2 weeks (age 4 and up)
 - ◆ Enbrel: 0.8 mg/kg – 50 mg SC weekly (age 2 and up)

Acne

- ◆ Hormones
- ◆ Sticky oil
- ◆ Dead skin
- ◆ Bacteria
- ◆ Inflammation



Treatment...

- ◆ Retinoids
- ◆ PO antibiotics
- ◆ BPO cleansers
- ◆ BCP
- ◆ Isotretinoin

Retinoids and analogues

- ◆ Act on retinoid receptors
- ◆ Tretinoin, Adapalene, Tazarotene
- ◆ Important in inflammatory and non-inflammatory acne
- ◆ Nightly based on photoinactivation
- ◆ Benzoyl peroxide inactivated by tretinoin

PO Antibiotics

- ◆ Doxycycline 100 mg QD WITH FOOD for 2-3 months
 - ◆ Pseudotumor cerebri
- ◆ TMP-SMX DS 1 PO BID X 1 month then QD X 1 month
 - ◆ Stevens Johnson Syndrome
- ◆ Oracea 40 mg (Doxycycline) 1 PO QD

BPO Cleansers

- ◆ Neutrogena Clear Pore
- ◆ Oxy 5
- ◆ Proactive
- ◆ BenzeFoam Ultra

New Study – Triple therapy

97 'severe' acne patients

- ◆ Minocycline HCL extended release 1 mg/kg
 - ◆ Solodyn
- ◆ Clindamycin 1.2%/Tretinoin .025%
 - ◆ Ziana or Veltin
- ◆ Benzoyl Peroxide cloths/foam/cleansers
 - ◆ Benzefoam Ultra

Results

- ◆ At week 12 – 80% of patients were deemed no longer candidates for isotretinoin (Accutane) due to substantial improvement of their acne

BCP

- ◆ Ortho Tri-Cyclen
- ◆ Estrostep
- ◆ YAZ
 - ◆ Controversial due to potential increase in blood clots
 - ◆ Recently – papilledema

CAUSES BIRTH DEFECTS

Isotretinoin

PARANOIA is
KEY!!!



**DO NOT
GET PREGNANT**

Isotretinoin

- ◆ Shrinks the oil glands – so less oil is produced
- ◆ Indicated for 12 years and up
- ◆ Highly regulated by FDA
- ◆ Ipledge program
- ◆ 0.5-1 mg/kg/day for max 120-150 mg/kg

Generic forms

- ◆ Claravis
- ◆ Amnesteem
- ◆ Zenatane
- ◆ Absorica

Acne Keloidalis Nuchae

- ◆ Follicular papules and pustules
- ◆ Form keloid-like scars
- ◆ Posterior scalp and nape of neck
- ◆ Seen in men > women 20:1
- ◆ African Americans>Hispanics>Caucasians
- ◆ Ages 14-25
- ◆ Can lead to scarring alopecia

Cause

- ◆ Unclear
- ◆ Chronic rubbing from collars/head gear
- ◆ Frequent short hair cuts
- ◆ Chronic skin irritation caused by short curly hairs

Treatment

- ◆ Nothing perfect
- ◆ Avoid exacerbation
 - ◆ Collars
 - ◆ Head gear
 - ◆ Short hair cuts

Treatment

- ◆ Topical clindamycin gel
- ◆ Topical corticosteroids
 - ◆ Desoximetasone gel
- ◆ Po antibiotics
 - ◆ Doxycycline 100 mg 2x daily for 2 weeks
- ◆ Intralesional triamcinolone

Hidradenitis Suppurativa

aka acne inversa

- ◆ Disorder of the apocrine gland with follicular occlusion
- ◆ Chronic 'boils' resulting in scarring
- ◆ Often found in the axilla, under the breasts and in the groin region

Prevalence

- ◆ 1-2% of US population
- ◆ Women > men
- ◆ 11-50 years old

Presentation

- ◆ Rarely starts before puberty
- ◆ Can begin with sweating, itching and inflammation/erythema
- ◆ Progress to painful lesions
- ◆ Psychologically difficult for patients

Treatment

- ◆ I & D
 - ◆ Weight loss
 - ◆ Topical clindamycin gel
 - ◆ Benzoyl Peroxide washes
 - ◆ Doxycycline 100 mg 2x daily X 2 weeks for acute cases
- Isotretinoin??