Update in Dermatology

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• Update in Psoriasis  
• Update in Atopic Dermatitis  
• New Uses for Older Therapeutics

No disclosures
Psoriasis: A Systemic Disease

- Chronic inflammatory disease with abnl keratinocyte proliferation
- Immune-mediated, primarily T-cells

Classic Skin Findings
- Trunk, extensor surfaces of elbows and knees
- Well-demarcated, erythematous scaly patches
- Silvery scale

Classic Plaque Psoriasis
Classic Plaque Psoriasis

“Special Area” Skin Findings of Psoriasis

• Nail involvement
  • Nail Pitting: small pits in nails
  • Onycholysis
  • Nail Dystrophy with subungual keratosis

• Scalp and Facial involvement
• Palmoplantar (Hands and Feet)
• Axillae
• Genitalia
Nail Psoriasis

Onycholysis
Nail Pitting
Nail Psoriasis

Palmoplantar Psoriasis
Palmoplantar Psoriasis

Psoriasis in Genital Region
Psoriasis in Genital Region

Psoriasis is a Systemic Disease

- Systemic disease with comorbidities
  - Psoriatic Arthritis
  - Cardiovascular Disease
  - Hypertension
  - Obesity
  - Diabetes
  - Inflammatory bowel disease

Psoriatic Arthritis

- Asymmetric oligoarthritis
- Distal arthritis
- Symmetric polyarthritis
- Spondyloarthritis
- Arthritis mutilans

- Joint pain (both large and small joints)
- Swelling and morning stiffness
Factors to consider when choosing Tx

• % TBSA and disease severity
• Any Comorbidities?

• Quality of life measures:
  • Itching
  • Sleep deprivation
  • Anxiety and depression

PASI Score

• Psoriasis Area and Severity Index
  • Diagnostic assessment tool for disease severity
  • Response to therapy assessment tool

  • Areas of Involvement (hand equates 1%)
    • Head (10%): head, neck, and scalp
    • Upper extremities, including hands (20%)
    • Lower extremities, including buttocks, feet (40%)
    • Trunk (30%)
  • Severity (redness, thickness, scaliness) on scale 0-4
  • % Body surface area on scale 0-6
• **PASI score**: “standardized” clinical assessment

• **PASI response**: PASI 50/75/90
  • % of improvement in PASI score from baseline
  • PASI 75 responder: PASI score dropped 75%

• Newer meds with PASI 90-100 responders

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**Available Treatments for Psoriasis**

• Topical Treatments: topical steroids +/- topical calcipotriene
• Traditional Systemic: methotrexate and cyclosporine
• Phototherapy (Narrow Band Ultraviolet B/NBUVB)
• Alternative Oral: apremilast and acitretin
• Biologics
# Biologics for Psoriasis

- Mechanism of action in inflammatory cascade
- % TBSA involved OR special area
- Psoriatic Arthritis? Other Comorbidities?
- Compliance
  - SQ vs IV
  - # of injections (weekly, biweekly, monthly, q3 months)
- Immunosuppression and need for lab monitoring
- Cost

## Monoclonal Antibody Nomenclature

<table>
<thead>
<tr>
<th>Name</th>
<th>Antibody Origin</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>-XI-mab</td>
<td>Chimeric</td>
<td>Infliximab</td>
</tr>
<tr>
<td>-ZU-mab</td>
<td>Humanized</td>
<td>Ixekizumab, Certolizumab</td>
</tr>
<tr>
<td>-U-mab</td>
<td>Human</td>
<td>Adalimumab, Ustekinumab</td>
</tr>
</tbody>
</table>

Sketch from Wikipedia
### TNF alpha Inhibitors

<table>
<thead>
<tr>
<th>Brand Name Approved</th>
<th>Date</th>
<th>Maintenance Dosing after loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Etanercept Enbrel</td>
<td>2004</td>
<td>SQ once a week</td>
</tr>
<tr>
<td>Infliximab Remicade</td>
<td>2006</td>
<td>IV every 8 weeks</td>
</tr>
<tr>
<td>Adalimumab Humira</td>
<td>2008</td>
<td>SQ every other week</td>
</tr>
<tr>
<td>Certolizumab Cimzia</td>
<td>2013</td>
<td>SQ every other week</td>
</tr>
</tbody>
</table>

### IL12/23 Inhibitors

<table>
<thead>
<tr>
<th>Brand Name Approved</th>
<th>Date</th>
<th>Maintenance Dosing after loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ustekinumab Stelara</td>
<td>2009</td>
<td>SQ every 12 weeks</td>
</tr>
</tbody>
</table>

### IL17 Inhibitors

<table>
<thead>
<tr>
<th>Brand Name Approved</th>
<th>Date</th>
<th>Maintenance Dosing after loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secukinumab Cosentyx</td>
<td>2015</td>
<td>SQ every 4 weeks</td>
</tr>
<tr>
<td>Ixekizumab Taltz</td>
<td>2016</td>
<td>SQ every 4 weeks</td>
</tr>
<tr>
<td>Brodalumab Siliq</td>
<td>2017</td>
<td>SQ every 2 weeks</td>
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</table>

### IL23 Inhibitors

<table>
<thead>
<tr>
<th>Brand Name Approved</th>
<th>Date</th>
<th>Maintenance Dosing after loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guselkumab Tremfya</td>
<td>2017</td>
<td>SQ every 8 weeks</td>
</tr>
<tr>
<td>Tildrakizumab Ilumya</td>
<td>2018</td>
<td>SQ every 12 weeks</td>
</tr>
<tr>
<td>Risankizumab Skyrizi</td>
<td>2019</td>
<td>SQ every 12 weeks</td>
</tr>
</tbody>
</table>

### Screening and Monitoring

- **Baseline labs**
  - CBC, CMP
  - *Check TB status* (Quantiferon-TB-Gold, PPD, CXR)
    - If +latent TB, then needs 9 months INH therapy
  - Serologies: HIV, Hep B and C, and VZV

- **Routine maintenance**
  - Annual TB tests
  - Q3-6 month CBC, CMP
Immunizations

Up-to-date Immunizations: administer prior to start
  • Live vaccines: wait 4 weeks to initiate tx
  • Attenuated vaccines: wait 2 weeks to initiate tx
    • Inactive vaccines: influenza (shot), Shingrix

During therapy: LIVE vaccines contraindicated
  • If needed, STOP biologic and wait 3 months to safely administer
How to choose which biologic to use?
Remember these are immunosuppressants


Psoriatic Arthritis
- First line: TNF inhibitors or IL 17 Inhibitors
- IL 23 inhibitors
- IL 12/23 inhibitors

FDA approved biologics for PsA

**TNF alpha Inhibitors**
- Etanercept (Enbrel)
- Infliximab (Remicade)
- Adalimumab (Humira)
- Certolizumab (Cimzia)

**IL17 Inhibitors**
- Secukinumab (Cosentyx)
- Ixekizumab (Taltz)

**IL23 Inhibitors**
- Guselkumab (Tremfya)

**IL12/23 Inhibitors**
- Ustekinumab (Stelara)
Systemic Therapies for Psoriasis

With underlying CAD
- TNF inhibitors
- IL 12/23 inhibitor

With underlying CHF
- IL17 inhibitors
- IL 23 inhibitors
- *TNF inhibitors are CONTRAINDICATED* in CHF

Are biologics cardioprotective?

Treatment of Psoriasis With Biologic Therapy Is Associated With Improvement of Coronary Artery Plaque Lipid-Rich Necrotic Core: Results From a Prospective, Observational Study
https://doi.org/10.1161/CIRCIMAGING.120.011199

Association Between Early Severe Cardiovascular Events and the Initiation of Treatment With the Anti–Interleukin 12/23p40 Antibody Ustekinumab
Psoriasis and Obesity
• Weight based dosing
  • Infliximab (5mg/kg/dose)
  • Ustekinumab (45 mg <100 kg; 90 mg > 100 mg)

Psoriasis and IBD
• TNF inhibitors (adalimumab, infliximab, certolizumab)
• IL 12/23 inhibitor (ustekinumab)
• AVOID IL17 inhibitors

Use of Biologics in Era of COVID
• Patient education regarding social distancing and mask wearing
• Continue biologic therapy for now
  • Discontinue if any s/sx of infection

• If pt develops active COVID infection
  • Discontinue biologic agent
  • Supportive care
  • Consider alternative therapeutic options (home phototherapy)

• Restart only after COVID-negative and fully recovered from infection
Psoriasis and pregnancy
  • Biologics have been used with normal outcomes (certolizumab)
  • Consider alternative options (home UVB)

Psoriasis in pediatric population
  • Ustekinumab and Ixekizumab: approved for > age 6
  • Etanercept: approved for > age 4
    • Remember immunizations in this age group!

Atopic Dermatitis
  • Chronic inflammatory disease: “the itch that rashes”
  • Upregulation of Type 2 T helper cells
  • Significant pruritus
  • Traditional treatment aimed at improved skin barrier function
    • Emollients
    • Topical steroids
    • Short-term immunosuppressants for severe disease
Atopic Dermatitis
Dupilumab

- Fully human monoclonal Ab that inhibits IL4 and IL13
- FDA approved for moderate-severe AD
  - 2017- FDA approved for adults
  - 2019- FDA approved for adolescents (ages 12-17)
  - 2020- FDA approved for children ages 6-11
- Loading dose and SQ injections every 2 weeks
- Well tolerated, minimal drug interactions
- SE
  - Injection site reactions
  - Ocular: conjunctivitis

Eczema Treatment Tips

- Patient education
- Moisturize with ointment twice daily
  - Look for CERAMIDE emollients: replace “bricks and mortar”
- Daily baths
  - Avoid harsh soaps: fragrance-free, perfume-free
  - 10-15 min, warm (not hot) water
  - Dilute bleach or dilute VINEGAR baths to decrease Staph on skin
- For recalcitrant or rapid rebound: ?allergic contact? Patch test!
**Are sunscreens toxic to the environment?**

**HAWAII SUNSCREEN BAN**
- Ban the sale of oxybenzone and octinoxate by 2021 unless by MD rx with goal of protecting coral reefs

- Coral reefs are dying (coral reef bleaching)
- Multi-factorial issue but *climate change* with increase in water temperature likely has greater impact on environment
- 90% top-rated sunscreens contain oxybenzone
- Better alternative: “Reef Safe Sunscreen”
  - MINERAL sunscreens
  - Sun protective clothing

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**What is Sun Protective Factor (SPF)?**

- Measures UVB protection only (not UVA)
- Direct measurement of how much time protected vs unprotected skin takes to burn when exposed to sunlight

- Mineral sunscreens, “natural ingredients”
  - Opaque, thicker in consistency, harder to rub in
  - Less likely to cause irritation (not chemically based)

- Chemical sunscreens: chemically based ingredients
  - Easier to rub in, more convenient to apply
  - Can cause skin irritation and rashes, esp in sensitive skin

**Ingredients**
- TITANIUM DIOXIDE
- ZINC OXIDE
- Avobenzone
- Oxybenzone
- Octinoxate
- Octisalate
**Sunscreen Tips**

- Broad spectrum coverage
  - UVA and UVB coverage
- SPF 50+ for high sun exposure, SPF 30+ for daily use
- Water-resistant
- Minimum of 2 ounces (2 shot glasses) to cover areas that are sun-exposed
- Must apply at least 30 min before heading outside
- Reapply every 2 hours
- Water-resistance lasts 40-80 minutes
- Check expiration dates: buy new every season

**Find the one that you like that works for you**

![Sunscreen Products]

- **Elta MD**
- **Neutrogena Ultra Sheer**
- **Neutrogena Pure & Free**
- **Aveeno Baby Continuous Protection**
- **La Roche-Posay Anthelios**
Comedonal Acne

- **Cleanser**
  - salicylic acid or benzoyl peroxide OTC wash
  - Sulphur soap
  - Sodium sulfacetamide+-Sulphur cleanser

- **Topical retinoid**
  - Adapalene 0.1% gel OTC
  - Tretinoin 0.025% → 0.05% → 0.1%
  - Start slow (BIW), warn about dryness
  - If oily: gel; If more sensitive: cream

Acne in different skin types
Female Acne

Inflammarory Acne Treatment Algorithm

- Cleanser + Retinoid
- Topical antibiotic with combo benzoyl peroxide
  - Avoid topical antibiotic monotherapy
  - If needed, add 3 months of oral antibiotic

- If no improvement, consider hormonal option for females
- If severe, no improvement, or not sustained improvement
  - Referral to Dermatology: ISOTRETINOIN
**Spironolactone**

Approaches to limit systemic antibiotic use in acne: Systemic alternatives, emerging topical therapies, dietary modification, and laser and light-based treatments

- Anti-androgenic effect with ↓ sebum
- Effective in female patients with hormonal component to acne
- Safe choice for patients who decline, cannot tolerate, or have contraindications for OCPs
- Avoid in pts with renal insufficiency (can lead to hyperkalemia)
- No increased risk of cancer (including no increased risk of breast cancer)
- Start 50 mg daily (can titrate up to 200 mg/day, most avg 100 mg/day)
  - Do not use in pregnancy or lactation

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I’m itching all over, esp at night…

![Hand with itchy skin](image1)
![Hand with itchy skin](image2)
Scabies

- Permethrin
  - Apply all over from neck down, including under nails and in groin/genital area; leave on 6-8 hours
  - Reapply in 1 week

- Ivermectin (off-label for adults)
  - Anti-parasitic
  - Topical option
  - For adults: Oral option 200 mcg/kg, repeat in 1 week
    - Dispensed in 3 mg tabs: 3-6 tabs depending on weight
    - Not used for pregnant or lactating women or kids < age 6 or < 15 kg
Topical Ivermectin 1%

- Anti-inflammatory properties
- Effective in
  - Papulopustular rosacea
  - Seborrheic dermatitis
  - Perioral dermatitis
- Singular monotherapy (Soolantra)
- Compounded with metronidazole

Conclusion

Psoriasis is a systemic disease
- Monitor for heart disease, hyperlipidemia, diabetes
- Biologics as effective systemic tx

Atopic dermatitis
- Tx targets repair of skin barrier
- Systemic biologics (dupilumab) for tx

Using older therapeutics in new ways
- Spironolactone for female hormonal acne
- Topical ivermectin for seb derm and oral ivermectin for scabies

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Melanoma in the Primary Care Setting

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Disclosures

• None
Melanoma in the Primary Care Setting

- Epidemiology of melanoma
- Screening for melanoma
- Assessing a skin lesion
- Prevention strategies

Epidemiology of melanoma

- Incidence is increasing
  - Reasons for this are not entirely clear
    - UVR exposure?
    - Life expectancy?
    - Socioeconomic status?
    - Over-diagnosis?
    - Previous underreporting?
Screening for melanoma

• USPSTF recommends against screening general population for skin cancer with total body skin exam (TBSE)
• Referring a targeted population for screening is likely best
• Johnson, Leachman et al screening recommendations:
  • Adults ages 35-75 with 1 or more of the following risk factors should be screened at least annually with TBSE to detect both melanoma and non-melanoma skin cancers

Johnson, Leachman et al screening recommendations

• Personal history
  • Personal history of melanoma, actinic keratosis, or keratinocyte carcinoma (SCC)
  • CDKN2A carrier (or carrier of other high penetrance mutation including CDK4, MITF, BAP1, p14 ARF, TERT, POT1, ACD, TERF2IP, BRCA2, PTEN)
• Immunocompromised either from disease or medications
• Family history of melanoma in 1 or more family members
Johnson, Leachman et al
screening recommendations

• Physical features
  • Light skin (Fitzpatrick I-III)
    • I: always burns, never tans
    • II: usually burns, tans minimally
    • III: sometimes mild burn, tans uniformly
  • Blonde or red hair
  • Greater than 40 total nevi
  • Two or more atypical nevi
  • Many freckles
  • Severely sun-damaged skin
• UVR overexposure
  • History of blistering or peeling sunburns
  • History of indoor tanning

Assessing a skin lesion

• ABCDEs of melanoma
  • Asymmetry
  • Border irregularity
  • Color that is not uniform
  • Diameter greater than 6 mm
  • Evolving – size, shape, or color

Source: CDC PHIL - melanoma
Assessing a skin lesion

• ABCDE limitations – it’s usually not so obvious!
  • Amelanotic and early stage lesions
  • Seborrheic keratoses are very common benign lesions and are also often pigmented and can meet ABCDE criteria
  • Non-melanoma skin cancer is more common and less likely to be pigmented and meet these criteria

Assessing a skin lesion

• Gross appearance is not everything
  • Is it a new lesion?
  • Is it growing/changing?
  • Does it itch or bleed?
  • What do the patient’s other skin lesions look like?
  • What is the patient’s age and risk factors?
  • What does it look like on dermoscopy?

• In summary, it can be hard to know what is worrisome
• Over 50% of melanomas are self-detected
• Do you have a new or changing skin lesion?
Biopsying a lesion to rule out melanoma

• Remove **entire lesion**, ideally with **1 mm margins**

• Punch biopsy or deep shave biopsy

• Pitfalls
  • Transection of melanoma
  • Pathology interpretation
    • How to approach a ‘dysplastic nevus’ after biopsy
      • Degree of atypia and wording of pathology report matter

Dermatologic tools

• Dermoscopy
• Full body photography
• Confocal microscopy
• Future: Augmented intelligence?
Dermoscopy

- Dermatologists receive training during residency
- Popular in-depth, multi-day training courses open to primary care providers
  - Mayo Clinic Scottsdale
  - Memorial Sloan Kettering

Source: NIH

Prevention strategies: practical advice for patients

- Sunscreen
  - At least **SPF 30**
  - **Broad spectrum** (UVA and UVB ray protection)
  - **Water-resistant**
  - Reapply **every 2 hours** or after swimming/sweating
- Avoid sun during peak hours (10a – 2p)
- Sun protective clothing
**Sunscreen**

- **FDA** issued a *proposed rule* in 2019
  - Generally recognized as safe and effective (GRASE)
    - Zinc oxide
    - Titanium dioxide
  - Not GRASE (these aren’t present in legal US sunscreens)
    - PABA
    - Trolamine salicylate
  - Requesting more information
    - Commonly used in US: ensulizole, octisalate, homosalate, octocrylene, octinoxate, oxybenzone, avobenzone
    - Not commonly used in US: cinoxate, dioxybenzone, meradimate, padimate O, sulisobenzone