Common Dermatologic Disorders: Tips for Diagnosis and Management

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Outline

• Part 1:
  – Approach to the itchy patient
  – Eczemas
  – Fungal infections of the skin
  – Onychomycosis
• Part 2:
  – Seborrheic dermatitis
  – Psoriasis as a systemic disease
  – Acne in adults
  – Topical immunomodulators
  – Sunscreens

Pruritus = the sensation of itch

• Itch can be divided into four categories:
  1. Pruritoceptive
     • Generated within the skin
     • Itchy rashes: scabies, eczema, bullous pemphigoid
  2. Neurogenic
     • Due to a systemic disease or circulating pruritogens
     • Itch “without a rash”
  3. Neuropathic
     • Due to anatomical lesion in the peripheral or central nervous system
     • Notalgia paresthetica, brachioradial pruritus
  4. Psychogenic itch
Pruritus- History

• Suggest cutaneous cause of itch:
  — Acute onset (days)
  — Related exposure or recent travel
  — Household members affected
  — Localized itch
• Itch is almost always worse at night
  — does not help identify cause of pruritus
• Aquagenic pruritus suggests polycythemia vera
• Dry skin itches

Pruritus- Physical Exam

Are there primary lesions present?

Yes
  Pruritoceptive

No
  Neurogenic, Neuropathic, or Psychogenic

Case 1

• 57M complains of 3 months of an itching rash that started on his lower extremities
• He has been self-treating with antifungal creams and OTC hydrocortisone cream
• He showers 2 x/day with hot water, uses an antibacterial soap, and does not moisturize

Case 2

• 68M with ESRD complains of generalized itch

Linear Erosions in “Butterfly” Distribution
Pruritus “Without Rash”
Causes of Neurogenic Pruritus (Pruritus Without Rash)

- 40% will have an underlying cause:
  - Dry Skin
  - Liver diseases, especially cholestatic
  - Renal Failure
  - Iron Deficiency
  - Thyroid Disease
  - Low or High Calcium
  - HIV
  - Medications
  - Cancer, especially lymphoma (Hodgkin’s)

Workup of “Pruritus Without Rash”

- CBC with differential
- Serum iron level, ferritin, total iron binding capacity
- Thyroid stimulating hormone and free T4
- Renal function (blood urea nitrogen and creatinine)
- Calcium
- Liver function tests
  - total and direct bilirubin, AST, ALT, alkaline phosphatase, GGT, fasting total plasma bile acids
- HIV test
- Chest X-ray
- Age-appropriate malignancy screening, with more advanced testing as indicated by symptoms

Neuropathic Pruritus

- Notalgia paresthetica
- Brachioradial Pruritus
  - Localized and persistent area of pruritus, without associated primary skin lesions, usually on the back or forearms
  - Workup= MRI!!
  - Cervical and/or thoracic spine disease in ~100% of patients with brachioradial pruritus and 60% of patients with notalgia paresthetica
- Treatment- capsaicin cream TID, neurontin
  - Surgical intervention when appropriate
Treatment of Pruritus

- Treat the underlying cause if there is one
- Dry skin care
  - Short, lukewarm showers with Dove or soap-free cleanser
  - Moisturize with a cream or ointment BID
    - Cetaphil, eucerin, vanicream, vaseline, aquaphor
- Sarna lotion (menthol/phenol)
- Topical corticosteroids to inflamed areas
  - Face- low potency (desonide ointment)
  - Body- mid to high potency (triamcinolone acetonide 0.1% oint)

Antihistamines for Pruritus

- Work best for histamine-induced pruritus, but may also be effective for other types of pruritus
- First generation H1 antihistamines
  - hydroxyzine 25 mg QHS, titrate up to QID if tolerated
- Second generation H1 antihistamines
  - longer duration of action, less somnolence
  - cetirizine, loratidine, desloratidine, fexofenadine

Systemic Treatments for Pruritus

- Doxepin - 10mg QHS, titrate up to 50 mg QHS
  - Tricyclic antidepressant with potent H1 and H2 antihistamine properties
  - Good for pruritus associated with anxiety or depression
  - Anticholinergic side effects
- Paroxetine (SSRI)- 25- 50 mg QD
- Mirtazepine- 15-30 mg QHS
  - H1 antihistamine properties
  - Good for cholestatic pruritus, pruritus of renal failure
- Gabapentin- 300 mg QHS, increase as tolerated
  - Best for neuropathic pruritus, pruritus of renal failure
Eczemas

- Atopic Dermatitis
- Hand and Foot Eczemas
- Stasis Dermatitis
- Asteatotic Dermatitis (Xerotic Eczema)
- Nummular Dermatitis
- Lichen Simplex Chronicus
- Contact Dermatitis (allergic or irritant)

Eczema (=dermatitis)

- Group of disorders characterized by:
  1. Itching
  2. Intraepidermal vesicles (= spongiosis)
     - Macroscopic (you can see)
     - Microscopic (seen histologically on biopsy)
  3. Perturbations in the skin’s water barrier
  4. Response to steroids

Hand Eczema

- Many atopic adults have only hand dermatitis
- Tinea tends to involve only 1 hand, so if two feet and one hand are involved, think tinea
- Treatment:
  - Protect, Moisturize, Medicate
- Occupational history
  - Consider contact dermatitis and patch testing
Asteatotic Dermatitis
(Xerotic Eczema)

- Caused by loss of the epidermal water barrier
- More common in the elderly
- Worsened by hot showers, deodorant soaps
- Worse in the winter (dry, heated air)
- Worse after ski trips (altitude, cold)

Asteatotic Dermatitis
(Xerotic Eczema)

- Lower legs, flanks, arms
- Spares armpits, groin, face
- First stage:
  - flaking of the skin, pruritic
- Second stage:
  - cracking of the skin looking like the bed of a dry lake
  - itchy and stings
- Third stage: Weepy dermatitis, ITCHY
Asteatotic Dermatitis
(Xerotic Eczema)

- Diagnostic clue:
  - Itching is relieved by prolonged submersion in bath (20-30 minutes)
  - Then itching starts again 5-30 minutes after getting out of the water

Asteatotic Dermatitis
Treatment

- Moisturize
- Soap to the axillae, groin, scalp only
- Mid potency topical steroid (TAC) ointment to the areas of redness and itch
- Severe cases, soak in tub 20 minutes, apply TAC ointment, cover with Saran Wrap and sleep in it
Nummular Dermatitis

- Affects middle aged men most, but also other age groups and women
- Some patients have atopic dermatitis
- Some patients start with xerotic eczema
- Alcoholics predisposed

Nummular Dermatitis

- Starts as a single lesion of the lower leg (90%+) or arm (<10%)
- Lesion present for months
- A few new lesions on that leg
- Begins to generalize
- Very, very pruritic
- May become secondarily infected
Nummular Dermatitis

- Disease lasts 18 months, tending to relapse in cleared lesions with minimal irritation or dryness
- Need to be very aggressive in good skin care regimen for 1-2 years after cleared

Nummular Dermatitis Treatment

- Emolliation, dry skin care
- Potent (fluocinonide) or superpotent (clobetasol) topical steroid BID to red plaques
- Oral antihistamine
- Antibiotic if secondarily infected (may need to do bacterial culture of lesion)
- If fails, send to dermatology
**Lichenification**

- Describes lesions that have been rubbed repeatedly.
- The skin is thickened, there is slight scale, there are excoriations, and typically the skin lines are ACCENTUATED
- Lichenification is characteristic of any pruritic and chronic dermatosis

**Eczema**

**Good Skin Care Regimen**

- Soap to armpits, groin, scalp only (no soap on the rash)
- Short cool showers or tub soak for 15-20 minutes
- Apply medications and moisturizer **within 3 minutes** of bathing or swimming

**Eczema**

**Topical Therapy**

- Choose agent by body site, age, type of lesion (weeping or not), surface area
- For Face:
  - Hydrocortisone 2.5% Ointment BID
  - If fails, aclometasone (Aclovate), desonide ointment
- For Body:
  - Triamcinolone acetonide 0.1% Ointment BID
  - If fails, fluocinonide ointment
- For weepy sites:
  - soak 15 min BID with dilute Burrow’s solution (aluminum acetate) (1:20) for 3 days
Eczema
Oral Antipruritics

• Suppress itching with nightly oral sedating antihistamine
• If it is not sedating it doesn’t help
  — i.e. Claritin, Allegra, Zyrtec not useful
• Diphenhydramine, Hydroxyzine 25-50mg, Doxepin 10-25mg

Eczema
Severe Cases

• Refer to dermatologist
• Do not give systemic steroids
• We might use phototherapy, hospitalization, immunotherapy

Superficial Fungal Infections

• Dermatophytoses:
  — Infections by fungi that parasitize keratin
    • stratum corneum, nail, or hair
• Candidiasis:
  — Yeast infection of mucosal surfaces and moist skin
• Tinea Versicolor:
  — Yeast infection of skin surface
Superficial Fungal Infections
Diagnosis

- Clinical examination
  – Inaccurate, especially for onychomycosis (nail fungal infection)
- KOH
- Culture
- Biopsy

Superficial Fungal Infections
KOH

- Scrape scale, put on slide, add KOH, and examine at 10x-40x
- Rapid, accurate
- Requires training and repetition

Keys to doing a Good KOH

- Collect from the right area
- Get lots of material
- Adequately digest the keratin (heat)
- Set microscope correctly (condenser down and iris closed partially)
- Scan systematically all of the slide

“Spaghetti and Meatball” KOH smear of Tinea Versicolor
Superficial Fungal Infections Diagnosis

• Fungal Culture:
  — Takes up to 4 weeks for results; contaminants

• Histology:
  — Skin biopsy or nail for histology

Dermatophytoses (Tineas)

• Tinea pedis
• Tinea manuum
• Tinea cruris
• Tinea corporis
• Tinea capitis
• Tinea incognito
Tinea Pedis Complications

- Cellulitis
- Gram Negative Toe Web Infection
- Tinea Corporis (extends onto the dorsal foot and up the leg)

Topical Antifungals

- Polyenes: nystatin
- Imidazoles (fungistatic; BID)
  - Miconazole (OTC), Clotrimazole (OTC), Sulconazole, Oxiconazole, Ketoconazole (BID)
- Ciclopirox
  - Loprox (QD)
- Allylamines (fungicidal; QD)
  - Terbinafine (OTC), Naftifine, Butenafine
Lotrisone

- Combination of betamethasone plus clotrimazole
  - Weak antifungal + superpotent steroid
- Inadequate to kill fungus and may cause complications (striae, fungal folliculitis)
- Dermatologists rarely use it
- Rarely indicated

Tinea versicolor

- Etiology: Malassezia furfur (Pityrosporum ovale)
- Appearance: well-defined scaling patches with hypo- or hyperpigmentation
- Diagnosis: clinical morphology, KOH exam
"Spaghetti and Meatball" KOH smear of Tinea Versicolor

Tinea Versicolor Treatment

- Selenium sulfide shampoo and lotion
- Ketoconazole shampoo
- Topical antifungal agents
- Oral ketoconazole
  - 400 mg, take with coca-cola, wait 30 min, exercise, let sweat sit on skin
  - Repeat in one week
- Prophylactic treatment may prevent recurrence

Superficial Cutaneous Candidiasis

- Etiology: Candida albicans
- Appearance: erythematous plaques, often with “satellite pustules”
- Occurs most commonly in moist, macerated folds of skin
Candidiasis Treatment

- Oral thrush
  - Nystatin suspension
  - Clotrimazole troches
- Balanitis
  - Topical clotrimazole cream
  - Oral fluconazole (single dose)
- Candida intertrigo
  - Topical imidazole cream
- Paronychia
  - Avoid wetwork
  - Topical imidazoles
  - Topical corticosteroid ointment
  - Systemic therapy in resistant cases

Onychomycosis

- Infection of the nail plate by fungus
- Vast majority are due to dermatophytes, especially *Trichophyton rubrum*
- Very common
- Increases with age
- Half of nail dystrophies are onychomycosis
  - This means 50% of nail dystrophies are NOT fungal
Onychomycosis

Onychomycosis

Diagnosis

• KOH is the best test, as it is cheap, accurate if positive, and rapid; Positive 59%
• If KOH is negative, perform a fungal culture
  – Frequent contaminant overgrowth
  – 53% positive
• Nail clipping
  – Send to pathology lab to be sectioned and stained with special stains for fungus
  – Accurate (54% positive), rapid (<7d), written report
  – Downside: Cost (>100)

Onychomycosis

Interpreting Nail Cultures

• Any growth of *T. rubrum* is significant
• Any growth of contaminant is not considered relevant until it is grown twice from independent samples, AND no dermatophyte is cultured
• Relevant contaminants: *C. albicans, Scopulariopsis brevicaulis, Fusarium, Scytalidium* (Carribean, Japan, Europe)
  – Especially in immunosuppressed patients

Onychomycosis

Treatment

• Topical Therapy: Limited efficacy
• Ciclopirox (Penlac) 8% Lacquer: Cure rates 30% to 35% for mild to moderate onychomycosis (20% to 65% involvement); clinical response about 65%
• Itraconazole: 200 mg BID with acid drink and food for one week each month for 3 months
• Terbinafine: 250 mg QD for 12 weeks (84 days)
  – Check LFTs at 6 weeks
• Efficacy: 35% complete cures; 60% clinical cures
Onychomycosis
Toenail Treatment

• At 2 to 3 months the nail begins to grow out normally and continues so throughout the next 12 months
• May repeat KOH/culture at 4-6 months. If culture is still positive, treatment will probably fail. KOH may still be positive (dead dermatophytes)

Common Dermatologic Disorders: Tips for Diagnosis and Management Part 2

Break!
Outline

• Part 1:
  – Approach to the itchy patient
    – Eczemas
    – Fungal infections of the skin
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• Part 2:
  – Seborrheic dermatitis
  – Psoriasis as a systemic disease
  – Acne in adults
  – Topical immunomodulators
  – Sunscreens

Seborrheic Dermatitis

• Etiology: Triggered by a yeast on the skin called Pityrosporum ovale
• Chronic condition that waxes and wanes
• May flare with illness, infection, meds
• HIV infection (virtually 100% affected)
• Parkinson’s patients frequently affected
• Patients given antipsychotics that have Parkinson’s like effects also affected

Seborrheic Dermatitis

• Greasy, yellow scale on erythematous patches and plaques
• Scalp, behind ears, nasolabial fold, and hairy areas (beard, central chest, groin, eyelid margin)
• Non-pruritic
Seborrheic Dermatitis
Treatment

- Topical steroids
  - Face: hydrocortisone 2.5% cream (with or without ketoconazole cream) BID x 14d
  - Scalp: fluocinonide scalp solution
- Ketoconazole cream
  - Use with HC 2.5% cream for 2-14 d, then solo therapy for maintenance
- Other- sulfur based
- Shampoo: Ketoconazole, Zinc Pyrithione, Selenium sulfide, Tar, Salicylic acid

Psoriasis

- 2.1% of the US population has psoriasis
- Most frequent onset 15-35 years
- Hereditary component (36% of patients have a family member with psoriasis)
- 4.5 million adults, 1.5 million have moderate to severe disease (>3% of body)
- Overall cost to treat exceeds $3 billion per year in the US

Source: National Psoriasis Foundation: www.psoriasis.org
Psoriasis

- Erythematous, well demarcated plaques with an adherent, silvery scale
- Involves elbows, knees, scalp, umbilicus
- Nail involvement (pits, subungual hyperkeratosis, oil spots)
- May be extensive
- Look for typical areas of involvement
Psoriasis Aggravators

- **Medications**
  - Systemic steroids (withdrawal)
  - Beta blockers
  - Lithium
  - Hydroxychloroquine
- **Infections**
  - Strep- children and young adults
  - Candida (balanitis)
- **Trauma**
- **Sunburn**
- **Severe life stress**
- **HIV**
  - 6% of AIDS patients develop psoriasis
- **Alcohol for some**
- **Smoking for some**

Severity of Psoriasis

- Mild: 0-2% body surface area
- Moderate: 3-10% BSA
- Severe: >10% BSA, or marked/disabling involvement of special sites: face, hands, feet, genitalia

- Treatment protocols are based on severity of disease, interference with function, location
  
  * Using the size of the patient’s palm to represent 1% BSA

Psoriatic Arthritis

- 6-40% of psoriatic patients have arthritis
- In 20% of cases the arthritis starts before the psoriasis, 20% same time, and 60% of the time the skin disease appears first
- Associated with HLA-B27
- Treatment with methotrexate, cyclosporine, or biologics
Psoriatic Arthritis Types

- Monoarticular or polyarticular acral type (70%)
- Distal interphalangeal involvement (16%)
- Symmetrical rheumatoid arthritis type (RF negative) (15%)
- Arthritis mutilans (osteolysis and digital shortening) (5%)
- Axial type (spondylitic type) (5%)

Psoriasis and Comorbidities

- Recent evidence links severe psoriasis with
  - Arthritis
  - Cardiovascular disease (including myocardial infarction)
  - Hypertension
  - Obesity
  - Diabetes
  - Metabolic syndrome
  - Malignancies
    - Lymphomas, SCCs, solid organ malignancies
    - Higher mortality
Psoriasis and Comorbidities

- Psoriasis patients more likely to
  - Be depressed
  - Drink alcohol
  - Smoke

Psoriasis and Comorbidities

- In patients with psoriasis, important to
  1. Recognize this association
  2. Screen for and treat the comorbidities according to American Heart Association, American Cancer Society, and other accepted guidelines

Treatment for Psoriasis

- Topical therapy
  - Steroid ointment (start mid-potency)
  - Calcipotriene (Dovonex)
  - Tazarotene (Tazorac)
  - Coal tar
  - Tacrolimus (Protopic) / pimecrolimus (Elidel)
  - Combination agents: calcipotriene/betamethasone dipropionate (Taclonex)

Treatment for Psoriasis

- Phototherapy- refer to dermatologist
  - Broadband UVB or Narrowband UVB
  - PUVA: psoralens + UVA
  - Excimer laser

- Systemic therapy- refer to dermatologist
  - Acitretin (oral retinoid)
  - Methotrexate
  - Cyclosporine
  - Biologics (etanercept, infliximab, adalimumab, alefacept, efalizumab)

**Systemic steroids are NOT on this list!**
Biologic Agents in Psoriasis

- Anti TNF alpha agents most commonly used
- Effective for severe, refractory psoriasis, pustular psoriasis, psoriasis associated with psoriatic arthritis
  - Etanercept (Enbrel)
    - 50 mg SQ twice weekly for first 3 months
    - Then 50 mg weekly
  - Infliximab (Remicade)
    - 5mg/kg IV infusion weeks 0,2,6, then q6 weeks
    - Often combined with MTX
  - Adalimumab (Humira)
    - 80 mg SQ at week 0, then 40 mg SQ every other week

Contraindications

- Class III-IV congestive heart failure
- History of systemic lupus
- History of granulomatous infections (TB, histoplasmosis)
- Check PPD!
- History of or current serious infection
- Demyelinating disease
- Underlying malignancy

Psoriasis Therapy Is Complex

Monotherapy
- Topicals
  - Corticosteroids
  - Calcipotriene
  - Tazarotene
- Lights
  - UVA
  - UVB
  - Narrowband PUVA

Monotherapy
- Systemics
  - Acitretin
  - MTX
  - CsA

Rotation Therapy
- Biologics
  - Alefacept
  - Efalizumab
  - Etanercept

Sequential Therapy
- Case 1

Source: National Psoriasis Foundation.
Psoriasis Treatment
Case 1: Mild

• Sequential Therapy
  – Phase 1: Induction
    • Topical steroid (halobetasol propionate 0.05%) PLUS Calcipotriene twice daily for 2-4 weeks to elbows/knees
  – Phase 2: Transition
    • Calcipotriene twice daily. Use combination with topical steroids twice daily only on weekends
  – Phase 3: Maintenance
    • Calcipotriene twice daily only
    • Moisturize whole body
Psoriasis Treatment
Case 2: Inverse Psoriasis

- Mild steroids 1st- HC, desonide, or aclovate
- Calcipotriene too irritating for most
- Topical tacrolimus or pimecrolimus
- Concurrent yeast/tinea triggering psoriasis?

1 Lebwohl, et al. JAAD 2004;51:723-30
Psoriasis Treatment
Case 3: Moderate to severe

- Treatment Depends Upon:
  - Child bearing potential: NO ACITRETIN
  - Malignancy history: avoid biologics, cyclosporine. Consider acitretin.
  - Hepatitis C: consider etanercept
  - HIV: acitretin, phototherapy
  - Psoriatic arthritis: MTX, cyclosporine and TNF blockers

Psoriasis Treatment
Case 4: Guttate Psoriasis

- 3-22% of psoriasis patients
- Raindrops
- Young patients after strep infection
  - Consider checking ASO, throat culture, treating for strep
- May clear spontaneously or evolve into plaques
- UVB best anecdotally (refer to dermatology)

Psoriasis Treatment
Case 4: Guttate Psoriasis

- 55 yr old male
- COPD, HTN, non-small cell lung cancer and mild psoriasis
- Presents with low grade fever and diffuse erythema (erythroderma)
- Meds:
  - ACE inhibitor x 3 months
  - 1 week of pulsed prednisone with rapid taper for COPD flare

Case 5
Psoriasis Treatment
Case 5: Pustular Psoriasis

- Pustular and erythrodermic variants of psoriasis can be life-threatening
- Most commonly seen in patients who carry a diagnosis of psoriasis who have been given systemic steroids and now are rebounding
- High cardiac output state with risk of high output failure
- Electrolyte imbalance (Ca^{2+}), respiratory distress, temperature dysregulation
- Best treated with hospitalization and cyclosporine or acitretin
Approach to the Adult Acne Patient

Acne Treatment Options- Topical
- Benzoyl peroxide
- Antibiotics- clindamycin, erythromycin, combination benzoyl peroxide and either of above
- Sulfur based preparations
  - Good for acne/rosacea overlap or if also has seborrheic dermatitis
- Azeleic acid
- Retinoids

Acne Treatment Options- Systemic
- Antibiotics
  - Doxycycline 100 mg po BID
  - Minocycline 50-100 mg po BID
  - Tetracycline 500 mg po BID
- Oral contraceptives
- Spironolactone
- Isotretinoin

Treatment of Acne
- Clinical features
  - Non-inflammatory open and closed comedones ("blackheads and whiteheads")
  - Inflammatory papules and pustules
  - Cystic nodules
- Pathogenesis (treatment targets)
  - Excess sebum
  - Abnormal follicular keratinization
  - Inflammation from Propionibacterium acnes
Acne Treatment

• Pathogenesis
  – Excess sebum
    • Retinoids
    • Hormonal agents (note menses, hirsutism, BMI)
  – Abnormal follicular keratinization
    • Retinoids (topical or oral)
  – Inflammation from *Propionibacterium acnes*
    • Topical/oral antibiotics, benzoyl peroxide

Acne Vulgaris
Old Wives Tales

• Acne is not related to skin dirt. Washing more doesn’t help!!!
• Acne vulgaris is not related to diet; chocolate and greasy food do not cause or exacerbate acne

Acne Treatment

• Mild inflammatory acne- benzoyl peroxide + topical antibiotic
• Moderate inflammatory acne- oral antibiotic
• Comedonal acne - topical retinoid
• Acne with hyperpigmentation- azeleic acid
• Hormonal component- oral contraceptive, spironolactone
• Cystic, scarring- isotretinoin
  – Teratogenic, hypertriglyceridemia, transaminitis, cheilitis, xerosis, alopecia (telogen effluvium)

Topical Retinoids

• Side effects
  – Irritating- redness, flaking/dryness
  – May flare acne early in course
  – Photosensitizing
  – Tazarotene is category X in pregnancy !!!
Topical Retinoids- How to Use Them

- Warn patients of side effects
- Start with a low dose: tretinoin 0.025% cream
- Wait 20-30 minutes after washing face to apply
- Use 1-2 pea-sized amount to cover the whole face
- Start BIW or TIW
- Moisturize 30 minutes after applying
- If using another topical acne therapy, use on alternate days
- Sunscreen daily
Acne in Adult Women

- Often related to excess androgen or excess androgen effect on hair follicles
- Other features of PCOD are often not present—irregular menses, etc.
- Serum testosterone can be normal
- Spironolactone 50 mg-100mg daily with or without OCP’s can be very effective, especially in women with lower facial acne
Topical Immunomodulators

- Tacrolimus (0.03%, 0.1%) and Pimecrolimus (1%)
- Approved as second line for the treatment of atopic dermatitis in patients ≥ 2 years
- Anti-inflammatory
- Avoids steroid side effects
  - Atrophy/striae, telangiectasias, hypopigmentation
- Very useful for dermatitis in areas prone to steroid side effects
  - Especially on facial skin, intertriginous areas

Topical Immunomodulators and Cancer

- 29 cases of cancers in children and adults associated with use of these agents
  - Lymphomas, SCC’s, sarcomas
- Causality not proven

Tacrolimus and Pimecrolimus
Black box warning

Information for Healthcare Professionals

Tacrolimus (marketed as Protopic)

6/2006: The issues described in this alert have been addressed in product labelling.
FDA Response

- Second line, short-term, intermittent treatment of atopic dermatitis
- Avoid in children < 2 years
- Use intermittently
- Do not use in children or adults with a weakened immune system
- Use the minimum amount to control the patient’s symptoms
- In animals, increasing the dose resulted in higher rates of cancer

Topical Immunomodulators

**When to use**

- Eyelid dermatitis
- Refractory psoriasis on upper thighs, scrotum, glans penis
- Otherwise use cheaper alternatives first
  - Tacrolimus = triamcinolone acetonide 0.1%
  - Pimecrolimus = hydrocortisone 2.5%
- If not responding to treatment, consider a skin biopsy

Sunscreens 101
Why Sunscreens?

• Prevention of skin cancer
• Prevention of photosensitivity (UVA)
  – Medications
  – Diseases: e.g. lupus erythematosus
• Prevention of skin aging

UV-B and UV-A

<table>
<thead>
<tr>
<th>UVB (290-320nm)</th>
<th>UVA (320-400nm)</th>
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<tbody>
<tr>
<td>• Burning rays of the sun</td>
<td></td>
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<tr>
<td>• Filtered by the ozone layer</td>
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<td>• Most carcinogenic</td>
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<td>• Primary target of sunscreens</td>
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| |
| • Tanning rays |
| • Aging rays |
  – a complete UVA blocker = anti-aging cream |
| • Cause of medication related photosensitivity (e.g. HCTZ) |
| • Harder to block |

Sunscreen 101

• SPF refers ONLY to UVB blockage
• There is no standardized measure of UVA blockade (yet)
• Water resistant
  – Maintain SPF after 40 minutes of immersion in water
• Water proof
  – Maintain SPF after 80 minutes of immersion in water

Chemical vs Physical Sunscreens

• Chemical sunscreens have UV absorbing chemicals
  – Benzophenone, Parsol 1789, Mexoryl, etc
  – Chemical UVA blockers are photo-unstable (degrade)
    • Stabilizers are now common (e.g. Helioplex)

• Physical sunscreens scatter or block UV rays
  – Zinc and titanium are physical blockers
  – More photostable
  – Block UVA well
  – Inelegant (white film)
What Sunscreen Should I Buy?

- SPF must be double digits (preferably ≥30)
- Broad spectrum (UVA AND UVB protection)
- UVA blockade does not parallel SPF on the label
- Best UVA protection in US:
  - TiO₂, ZnO, Mexoryl, or Parsol 1789 with Helioplex
- Examples:
  - Neutrogena Ultrasheer SPF 85 (Parsol 1789 with helioplex)
  - Anthelios XL 50+ (Mexoryl) (now approved in US as SPF 40)

How to Apply Sunscreen

- Put it on every morning before leaving the house (at least 20 min before sun exposure)
- For heavy sun exposure: reapply 20 minutes after exposure begins
- Reapply every 2 hours or after swimming/sweating/towel-drying
- Apply liberally (1 oz application covers the body)
- Put sunscreen on your children (75% of skin cancers are produced by sun exposure BEFORE the age of 18!!!)

What to Tell Your Patients

- Use sunscreen, SPF ≥ 30 EVERYDAY
- Avoid mid-day sun/Short Shadow Seek Shade
- Wear protective clothing (hats)
- Put sunscreen on your children
- Ask your doctor to check your skin lesions (most persons with melanoma have been seeing doctors regularly for years)
- Vitamin D Supplement for those at risk for osteoporosis who obey stringent sun-protections practices
  - E.g. organ transplant patients

Vitamin D and Sunscreens

American Academy of Dermatology
Position Statement

- To minimize the risk of UV-induced skin cancers, a comprehensive photoprotective regimen, including the regular use and proper use of a broad-spectrum sunscreen, is recommended. This is especially important for those with fair skin, as the amount of UV exposure required to maximize vitamin D synthesis in the skin is far less than the sunburn dose.
- The National Academy of Sciences Institute of Medicine guidelines for vitamin D are a standard reference for advising patients on proper minimal intake levels. A higher dose of vitamin D supplementation for individuals with known risk factors for vitamin D deficiency (dark skin, elderly, photosensitive patients) should be considered.

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