Dermatologic Therapies for the Nondermatologist

Kathryn Ciccolini AGACNP-BC, MSN, OCN, DNC
Bone Marrow Transplant Hematology/Oncology - Mount Sinai
Supportive Oncodermatology - MSKCC
Financial Disclosures

- Amgen
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The purpose of this presentation is to review the following topics:

- Burden of skin disease in the United States
- Supportive care Path to Prescription Coverage
- Topical Therapies 101
- Topical Steroids
- Topical Moisturizers
- Topical Antipruritics
- Topical Antibiotics
How much do people spend on skin treatments/year?

1. $5 million
2. $10 million
3. $15 million
4. $25 million

- $75 Million spent in skin treatments in 2013
- $10 billion dollars spent in OTC products

JAAD, 2017

Edison & Brod (2017). JAAD, 76(5), 973-974
Lim et al. (2017), JAAD, 76(5), 958-972.e2
Topical Therapy Adherence

Many factors influencing long-term medication adherence:

- Complexity
- Duration
- Cost of treatment
- Patient / physician communication
- Socioeconomic variables
- Values

Specific to topical therapies . . .

- Treatment adherence for dermatological conditions is poor
- Rx redemption only being 65% (psoriasis 50%)
- Following prescribed treatment ranging from 50-60%

Cost major barrier to initiating therapy

Treatment-Related Toxicities Cost

Treatment-related toxicities in cancer setting have been reported to cost thousands of dollars...

n = 110
Total: £140,680
Median: £3860

Nonzee et al, 2008, *Cancer*, 113(6), 1446-52
Supportive Care: Path to Prescription Coverage

Dermatology therapies are known to be costly and difficult to obtain insurance coverage

Rx submission to pharmacy → Insurance approves

Insurance denies → Prior Authorization

Not covered → No PA allowed → Choose alternative

Patient Access Coordinators → Insurance approves

Insurance denies → LOMN

Insurance approves

Appeal

Copay Assistance:
- Reimbursement forms through manufacturer

Prescription Price Trackers:
- http://www.goodrx.com
- https://www.lowestmed.com/

Statewide Assistance Programs:
- https://www.newyorkrxcard.com/

Compound Pharmacies
Topical Therapies 101

Objectives
- Lubricate, medicate
- Treatment or prevention

Excipient
- Inactive substance (vehicle/medium)
- Allowing drug to facilitate through the stratum corneum

Choice Depends on
- Disease state and severity
- Skin Turgor
- Anatomic localization of disease
- Patient preference

Effective Therapy Depends on
- Active Drug
- Properties of vehicle

Importance of Choose Vehicles
- Treatment adherence
- Treatment outcomes

# Topical Therapies - Pros/Cons

<table>
<thead>
<tr>
<th>Vehicle</th>
<th>Pros</th>
<th>Cons</th>
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| Cream | ● Tend to be less irritating  
● Emollient, cooling, moistening properties  
● Has elegant appearance and easy application | May be too oily |
| Foam | ● Minimal residue after application  
● Quick drying, ease of application, lack of fragrance  
● Spreads easy, helpful if treating larger BSA | Skin reactions  
Insurance coverage and expensive |
| Gel | ● Cooling affect  
● Fast onset of action, high patient satisfaction | <1% localized skin reactions. Drying |
| Lotion | ● Most versatile  
● Have lighter feel – patient prefer  
● Intertriginous areas preferred  
● Cooling effect | Skin irritation/burn  
Not as hydrating  
Contains alcohol |

Adapted from: [http://www.skintherapyleHer.com](http://www.skintherapyleHer.com)  
Habif: Clinical Dermatology, 5th Edition 2010
## Topical Therapies - Pros/Cons

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| **Ointment** | ● Provides a higher potency  
 ● Greater drug penetration  
 ● Effective for very dry excoriated skin | Difficult to wash off  
 Insoluble to water  
 Too messy/greasy |
| **Shampoo** | ● High patient satisfaction =  
  ↑ adherence/TX efficacy  
 ● Reduced side effects  
 ● Can be used for extended periods of time | Small # of cases with burning, skin atrophy, and telangiectasia  
 Expensive |
| **Solution** | ● Easy to spread and good use for scalp  
 ● Leaves minimal residue | Irritation  
 Messy  
 No emolliating or skin protective properties |
| **Spray** | ● Can treat larger BSA  
 ● Improved QoL scores compared with other formulations | Can produce a small # of localized reactions  
 Insurance coverage and expensive |

Adapted from: [http://www.skintherapyleHer.com](http://www.skintherapyleHer.com)  
Habif: Clinical Dermatology, 5th Edition 20
How to Prescribe Topical Therapy?

Measurement of cream to prescribe for patients with skin disease

Adult male: 1 FTU = 0.5gm / Adult female: 1 FTU = 0.4gm

Varies with body part

- One hand: 1 FTU
- One arm: 3 FTU
- One foot: 2 FTU
- One leg: 6 FTU
- Face and neck: 2.5 FTU
- Trunk, front and back: 14 FTU
- Entire body: ~40 FTU

Adult Female cream QD to BUE

- 2 arms x 3 FTU x 0.4gm = 2.4gm (QD)
- 2.4gm x 7 = 16.8gm (weekly)
- ~30gm should last 2 weeks
Topical Steroids

**Properties**
- Anti-inflammatory
- Immunosuppressive
- Vasoconstrictive
- Anti-proliferative

**Efficacy/Absorption**
- Best through *inflamed* and *desquamated* skin

**Frequency/Duration**
- BID x 2-4 weeks course
- (1 week of rest → limit side effects and decreased responsiveness)
- No more than 45-60gm/week

- Class I - High (Clobetasol)
- Mid Potency (Triamcinolone)
- Class IV - Low (Hydrocortisone)

- Class 1 is 1000 x more potent than class VII
- Steroids within any class are equivalent strength
- Look at the class and not the percentage

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Topical Steroids Adverse Events

Short Term:
- Burning
- Stinging
- Pruritus
- Erythema
- Irritation

Prolonged:
- Skin Atrophy
- Masking of infection
- Telangiectasias
- Irreversible Striae
- Senile/Solar Purpura
- Hypertrichosis
- Pigmentation Change
- Steroid rosacea
- Periorificial dermatitis

Absorption: 0.25-3%

Duration of Tx
- < 2 weeks: High Potency
- < 6-8 weeks: Mid Potency
- TX in 1-2 week intervals: Low Potency

General Principles of Dermatologic Therapy and Topical Steroid Use
Function of Moisturizing Treatment

Involves…..

- Repair skin barrier
- Retain/increase water content
- Reduce TEWL
- Restore lipid barriers ability to attract, hold, redistribute water
- Maintain skin integrity and appearance

*Moisturizers perform these functions by acting as humectants, emollients, and occlusives*

Madison, J Invest Dermatol, 121(2), 231-241
Differences in Topical Moisturizers

**Occlusive:**
- Physically block TEWL – hydrophobic barrier
- Allowing skin to retain natural moisture
- “Coat the skin”, Best used after bathing

- **Petrolatum (Aquaphor)**
- **Lanolin, Mineral Oil**

**Emollients:**
- Mainly lipids, and oils
- Fill spaces between skin flaking (corneocytes)
- Hydrate and improve skin softness, flexibility, and smoothness

- **Cholesterol, Squalene, Fatty Acids**

**Humectants:**
- Improve hydration of stratum corneum by drawing TEWL and in humid conditions the external environment
- **Attracts/retains water**

- **Ammonium Lactate**
- **Urea 10%**

**Keratolytics:**
- Soften and facilitate exfoliation of epidermal cells (keratin)

- **Urea 20-40%**
- **Salicylic Acid**

Spencer. (1988). Dry Skin and Moisturizer
Moisturizer Education

- Fragrance-free creams
- Gentle soaps with moisturizers
- Applying moisturizer after shower
- Glove or sock occlusion
- Avoiding products containing alcohol.
- Avoid scratching skin
- Monitor for infection with dry and cracked skin
- Use mild, gentle laundry detergent

Medication first for best chance of absorption
Moisturizer creates a barrier
Makeup smudges – best to apply last

Adapted from Lacouture ME. Skin Care Guide for People Living with Cancer. 2012.
Caring for Your Dry Skin Patient Education Fact Card http://www.mskcc.org
Topical Antipruritics

- **Pramoxine 1% and Hydrocortisone 2.5%**
  - **Ind**: Inflammatory, pruritic and burning conditions
  - **MOA**: anesthetic and corticosteroid

- **Doxepin 5%**
  - **Ind**: Pruritus
  - **MOA**: tricyclic antidepressant with potent H1/H2 antagonist effects
  - **Considerations**: Avoid occlusive dressing, risk of drowsiness if applied >10% BSA, inform clinician of pregnancy

Cream, ointment, gel
- Can cost >$200
- Typically BID

Cream only
- 30-45gm
- Can cost up to $500
Topical Antipruritics

• **Epiceram**
  – Nonsteroidal controlled release skin barrier

• **MOA:** Replenishes the natural concentrations of lipids in the stratum corneum: ceramides, cholesterol and free fatty acids.

  Indications: xerotic and pruritic dermatoses (atopic dermatitis, irritant contact dermatitis and radiation dermatitis)

Free of: steroid, fragrance, paraben, propylene glycol and is noncomedogenic

Twice daily
$$ Expensive

http://epiceram-us.com/
Topical Antipruritics

Tacrolimus:

- **Indication:** Not commonly used for pruritus unless underlying etiology is inflammatory – used as a second-line approach
- **MOA:**
  - Calcineurin inhibitor
  - Prevents transcription of IL-2 via calcineurin complex binding
  -Suppresses cellular immunity → blocking T Cell activation and proliferation preventing release of T-Cell derived cytokines
  - Antipruritic effect reported to results from reduction of inflammation
- **Considerations:** Re-examined if no improvement <6 weeks. <1% skin cancer and lymphoma development. Avoid use on malignant or premalignant skin conditions or infected areas. Can be safely applied to thinner skin over face and eyelids. Can cause local skin reactions such as burning sensation*

Tacrolimus [UpToDate, 2015]
Topical Antibiotics

38% of patients w/EGFR inhibitor therapy (n=221) in 2010 Showing evidence of bacterial, fungal, and viral infections Most common being staphylococcus aureus and methicillin resistant staph aureus

Variety of Potential Uses:
- Infectious (localized, impetiginized, staph nasal carriage)
- Noninfectious (acne vulgaris)
- Other: post op surgical ppx, chronic wounds based on C&S

Gram (+) Topicals:
- Mupirocin ointment 2% (staph / strep)

Gram (-) Topicals
- Gentamicin 0.1% (Aerobacter, Escherichia, Klebsiella, Salmonella, Shigella, Proteus + pseudomonas)
  Has some G+ activity

Gram (+ / - )Topicals
- Silvadene cream (pseudomonas, serratia, enterobacter, klebsiella, e. Coli, proteus mirabilis, morganella, candida, staph, yeast)
Keypoints

Be aware of skin disease burden, financial impact, influence on topical therapy adherence and clinical outcomes

Be able to appropriately prescribe the right amount and vehicle of a topical prescription

Be able to describe classes of steroids, types of moisturizers, antipruritics and antibiotics, know their clinical indications, and possible AEs.
Thank you!

kathryn.ciccolini@mountsinai.org