

Updates in Pediatric Dermatology

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Pitt-Hershey connection



- I have no conflicts of interest to report
- I will be talking about off-label use of medications

Outline

- Acne
 - Things to watch out for
- Atopic dermatitis
 - Topical steroids
 - Non-steroid topicals
 - IL 4/13
 - JAK
- Psoriasis
 - New topical
 - Biologics approved for kids
 - Other considerations
- Alopecia areata



Roll over image to zoom in

Supplement Facts

Serving Size: 1 Tablet
 Servings Per Container: 30

| | Amount Per Serving | %DV† |
|--|--------------------|---------|
| Vitamin A (as Retinyl Acetate)..... | 860 mcg | 96% |
| Niacin (as Niacinamide) | 25mg | 156% |
| Biotin (as D-Biotin)..... | 150 mcg | 500% |
| Pantothenic Acid (as D-Calcium Pantothenate).... | 750 mg | 15,000% |
| Selenium (as Selenium Amino Acid Chelate)..... | 100 mcg | 182% |
| Chromium (as Chromium Amino Acid Chelate) | 60 mcg | 171% |
| Proprietary Blend..... | 160.5 mg | †† |
| N-Acetyl-L-Cysteine (NAC), Coenzyme Q10, Bioperine® (from Black Pepper Fruit Extract) | | |

† Percent Daily Values based on a 2000 calorie diet.
 †† Daily Value not established.

Other Ingredients: Microcrystalline Cellulose, Stearic Acid, Dicalcium Phosphate, Croscarmellose Sodium, Magnesium Stearate, Silicon Dioxide, and Pharmaceutical Glaze.



Click image to open expanded view



NATURAL • HOLISTIC • HEALING

Supplement Facts

Serving Size: 3 Vegetarian Softgels

Serving Per Container: 30

| | Amount Per Serving | %DV |
|--|--------------------|---------|
| Vitamin A (as Retinyl Acetate) | 1000 mcg(5000 IU) | 100% |
| Niacin (Vitamin B-3) (as Niacinamide) | 20 mg | 100% |
| Pantothenic Acid (as D-Calcium Pantothenate) | 2000 mg | 20,000% |
| Biotin (as D-Biotin) | 300 mcg | 100% |
| Selenium (as Selenomethionine) | 2000 mcg | 286% |
| Chromium (as Chromium Polynicotinate) | 120 mcg | 100% |
| L-Carnitine (as L-carnitine tartrate) | 500 mg | ** |
| Proprietary Blend: | | |
| Co-enzyme Q10 (std.99%) | 50 mg | ** |
| Bioperine (Fruit Extract) | 10 mg | ** |

** Daily Value not Established



Other Ingredients: Carrageenan, Glycerol, Water, Sorbitol
Bioperine ® is a registered trademark of Sabinsa Corporation

Recommended daily allowance (RDA) of vitamin A

| Life Stage | Recommended Amount |
|----------------------------|--------------------|
| Birth to 6 months | 400 mcg RAE |
| <u>Infants</u> 7–12 months | 500 mcg RAE |
| Children 1–3 years | 300 mcg RAE |
| Children 4–8 years | 400 mcg RAE |
| Children 9–13 years | 600 mcg RAE |
| Teen males 14–18 years | 900 mcg RAE |
| Teen females 14–18 years | 700 mcg RAE |
| Adult males | 900 mcg RAE |
| Adult females | 700 mcg RAE |
| Pregnant teens | 750 mcg RAE |
| Pregnant adults | 770 mcg RAE |
| Breastfeeding teens | 1,200 mcg RAE |
| Breastfeeding adults | 1,300 mcg RAE |

Acnetame = 860 mcg

Acnetane = 1000 mcg

RDA Selenium

Table 1: Recommended Dietary Allowances (RDAs) for Selenium [6]

| Age | Male | Female | Pregnancy | Lactation |
|-------------------|---------|---------|-----------|-----------|
| Birth to 6 months | 15 mcg* | 15 mcg* | | |
| 7–12 months | 20 mcg* | 20 mcg* | | |
| 1–3 years | 20 mcg | 20 mcg | | |
| 4–8 years | 30 mcg | 30 mcg | | |
| 9–13 years | 40 mcg | 40 mcg | | |
| 14–18 years | 55 mcg | 55 mcg | 60 mcg | 70 mcg |
| 19–50 years | 55 mcg | 55 mcg | 60 mcg | 70 mcg |
| 51+ years | 55 mcg | 55 mcg | | |

Selenium toxicity = nausea, vomiting, loss/brittleness of hair and nails, fatigue, irritability, “garlic breath”

Acnetame = 100 mcg (182%)

Acnetane = 2000 mcg (286%)

- Even if this was 200 mcg it would still be 363%
- If it’s truly 2000 mcg it would be 3,636% of RDA

Table 3: Tolerable Upper Intake Levels (ULs) for Selenium [6]*

| Age | Male | Female | Pregnancy | Lactation |
|-------------------|---------|---------|-----------|-----------|
| Birth to 6 months | 45 mcg | 45 mcg | | |
| 7–12 months | 60 mcg | 60 mcg | | |
| 1–3 years | 90 mcg | 90 mcg | | |
| 4–8 years | 150 mcg | 150 mcg | | |
| 9–13 years | 280 mcg | 280 mcg | | |
| 14–18 years | 400 mcg | 400 mcg | 400 mcg | 400 mcg |
| 19+ years | 400 mcg | 400 mcg | 400 mcg | 400 mcg |

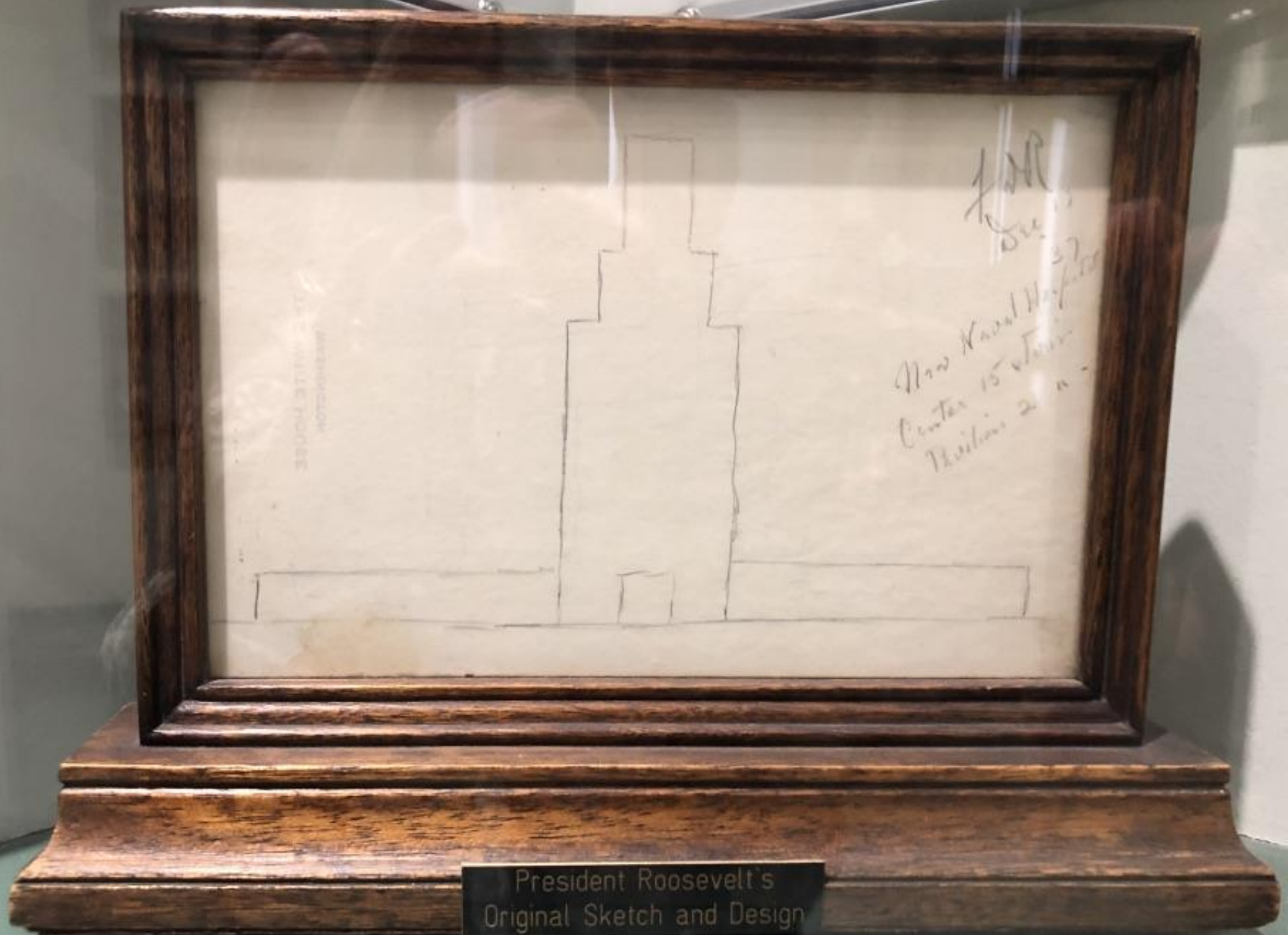
What does this mean for us?

- Make sure you ask about anything they may be using
- Stop all other acne treatments, especially when starting isotretinoin



Atopic Dermatitis



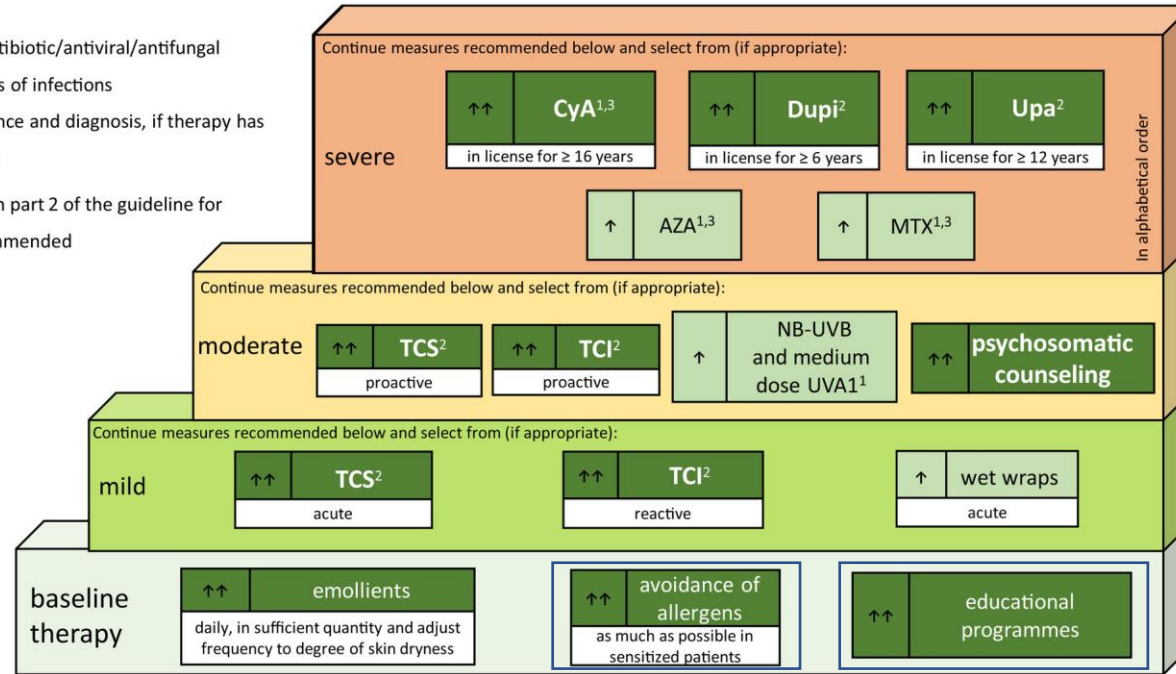


President Roosevelt's
Original Sketch and Design



Stepped-care plan for children and adolescents with atopic eczema

- Add antiseptic/antibiotic/antiviral/antifungal treatment in cases of infections
- Consider compliance and diagnosis, if therapy has insufficient effect
- Refer to Table 2 in part 2 of the guideline for TCS classes recommended



¹ refer to guideline text for restrictions, ² licensed indication, ³ off-label treatment

↑↑ (dark green) strong recommendation for the use of an intervention / ↑ (light green) weak recommendation for the use of an intervention

For definitions of disease severity, acute, reactive, proactive see section 'VII' and section 'Introduction to systemic treatment' of the EuroGuiDerm Atopic Eczema Guideline

AZA=azathioprine; CyA=ciclosporin; Dupi=dupilumab; MTX=metothrexate; TCI=topical calcineurin inhibitors; TCS= topical corticosteroids; Upa=upadacitinib; UVA1=ultraviolet A1; NB-UVB=narrow-band ultraviolet B



| Symbols | Implications (adapted from GRADE ¹) |
|---------|---|
| ↑↑ | We believe that all or almost all informed people would make that choice. |
| ↑ | We believe that most informed people would make that choice, but a substantial number would not. |
| 0 | We cannot make a recommendation. |
| ↓ | We believe that most informed people would make a choice against that intervention, but a substantial number would not. |
| ↓↓ | We believe that all or almost all informed people would make a choice against that choice. |
| | No recommendation. |

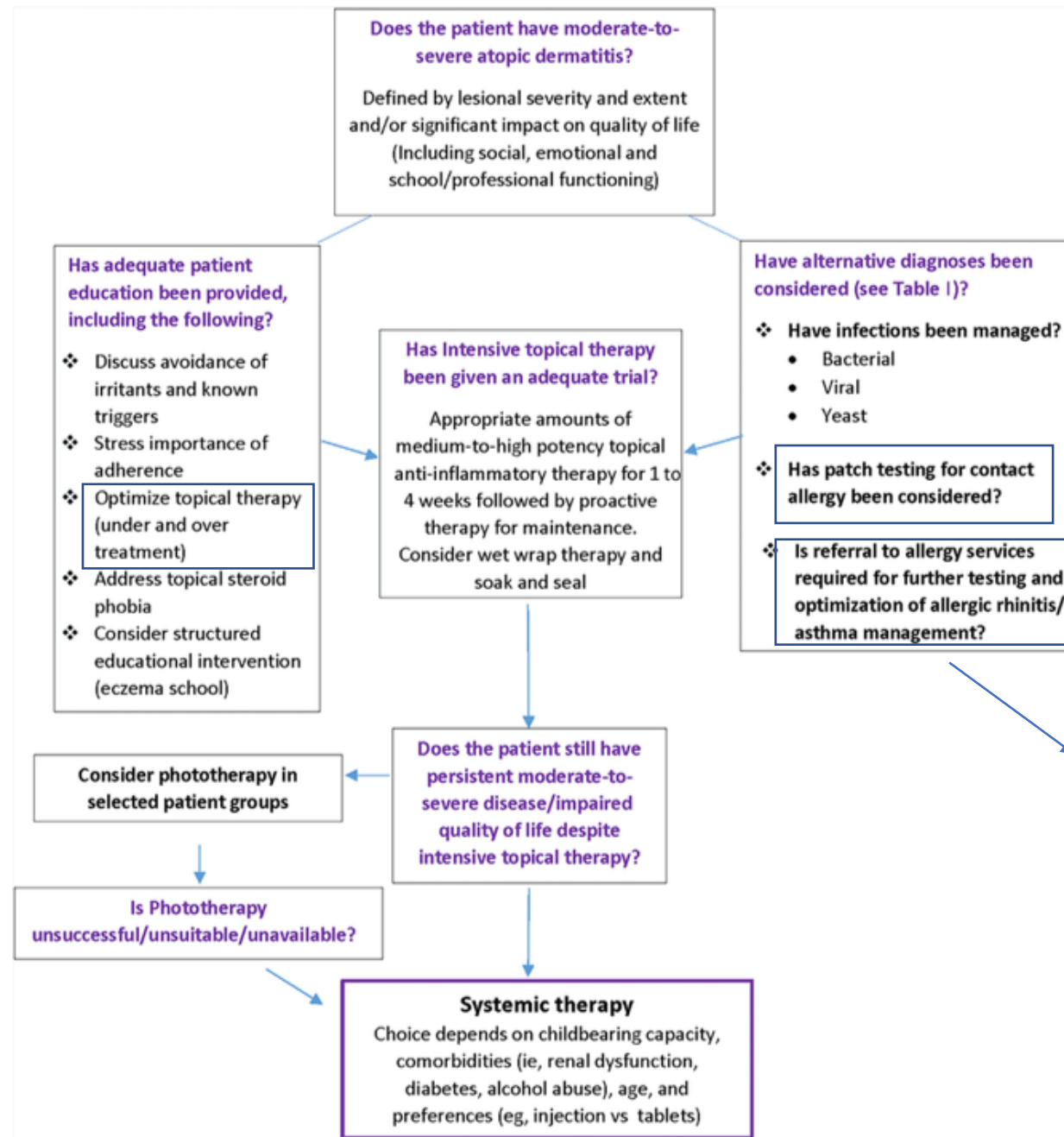
When should you use systemic therapy?

- Panel of expert recommendations October 2017

“It doesn’t work”

- They put it on and nothing changed
 - Do you have the correct diagnosis?
 - Do you need a much stronger treatment?
- The cream helped but it didn’t completely go away
 - Stronger treatment
- Rash improved but it came back when they stopped using it
 - Expectation management

- Once daily use
- Treat texture, not time
- Daily moisturizer is a must



1. Specific concern
2. List of “allergies”
3. Nothing else is working*
4. Formula fed
5. LEAP

Fig 1. Algorithm to decide when systemic immunomodulatory therapy is warranted in patients with atopic dermatitis.

Table II. Most common on-label and off-label systemic therapies in AD

| Drug (in alphabetical order) | Approved for AD? | Estimated efficacy (% reduction in composite severity scores) | Dose range | Common or serious side effects | Monitoring required* |
|------------------------------|------------------------------------|---|--|--|--|
| Azathioprine | No | 26%-39% ⁵ | Adult: 1-3 mg/kg/day; Pediatric: 1-4 mg/kg/day | Hematologic abnormalities, skin and other malignancies, hepatosplenic lymphoma, and CNS infections such as PML | CBC, CMP, thiopurine methyltransferase |
| Cyclosporine | No in United States, yes in Europe | 53%-95% ⁵ | Adult and pediatric: 2.5-5 mg/kg | Renal insufficiency, hypertension, and drug interactions | CBC, CMP, magnesium, uric acid, lipids, and blood pressure |
| Dupilumab | Yes | 73% ⁶² | Adult: 600 mg loading followed by 300 mg/wk | Injection site reactions and conjunctivitis | None |
| Methotrexate | No | 42% ⁵ | Adult: 7.5-25 mg weekly Pediatrics: 0.2-0.7 mg/kg weekly | Hepatotoxicity, hematologic abnormalities, teratogen, gastrointestinal intolerance, nausea, and fatigue | CBC, CMP |
| Mycophenolate | No | Unknown | 1.0-1.5 g orally twice daily Pediatric: 30-50 mg/kg daily | Gastrointestinal, teratogen | CBC, CMP |

AD, Atopic dermatitis; CBC, complete blood count with differential and platelets; CMP, complete metabolic panel with basic chemistries and liver function tests; CNS, central nervous system; PML, progressive multifocal leukoencephalopathy.

*See published review by Sidbury et al⁷ for more complete and detailed information regarding dosing and drug monitoring.

Table II. Drug efficacy in pediatric clinical trials

| Drug | Duration | Dose | Disease severity reduction, % (scoring system) | P value |
|--------------|----------|------------------|--|-------------------------|
| Cyclosporine | 1 year | 5 mg/kg/d | 56 (Six Area, Six Sign Atopic Dermatitis) | <.001* |
| | 12 weeks | 2.5-5 mg/kg/d | 35-44 (Scoring Atopic Dermatitis); 46 (Six Area, Six Sign Atopic Dermatitis) | <.001*; NS [†] |
| Flunisolide | 2 weeks | 7.5 mg/wk | 54 (Total clinical severity) | <.001 [‡] |
| Methotrexate | 12 weeks | 640-1200 μ g | 49 (Scoring Atopic Dermatitis) | NS [†] |
| Montelukast | 4 weeks | Not specified | 42 (Six Area, Six Sign Atopic Dermatitis) | <.05* ^{‡§} |
| Omalizumab | 24 weeks | 150-375 mg Q2-4W | 26 (Scoring Atopic Dermatitis) | NR |

NS, Not significant; Q2-4W, every 2-4 weeks.

*Compared with baseline.

[†]No difference between methotrexate and cyclosporine.

[‡]Compared with placebo.

[§]NS with crossover group.

Non-steroid topicals

- Pimecrolimus cream
 - 3 months and older
 - Do not use occlusive dressings
- Tacrolimus ointment
 - 0.03% - 2-15 years old
 - 0.1% - 16 and up
- Burning is a common side effect
- Black box warning – “skin malignancies and lymphoma reported”

Clinical situations in which topical calcineurin inhibitors may be preferable to topical steroids

Recalcitrance to steroids

Sensitive areas (eg, face, anogenital, skin folds)

Steroid-induced atrophy

Long-term uninterrupted topical steroid use

Some will use these in areas to prevent flares

Not very strong

Crisaborole ointment

- Mild-moderate atopic dermatitis
- 3 months and older
- Burning is a common side effect

Ruxolitinib 1.5% cream

- Brand name Opzelura
- Atopic dermatitis 12 years and older
 - No more than 20% BSA
 - Reassess at 8 weeks
 - Also approved for vitiligo (though only 10% BSA)
- JAK 1 and 2 inhibitor
- Multiple black box warnings
 - Infection
 - MI/stroke
 - Lymphoma and other malignancies
 - Thrombosis

Safety

- 1072 patients between two trials; ages 12 and up

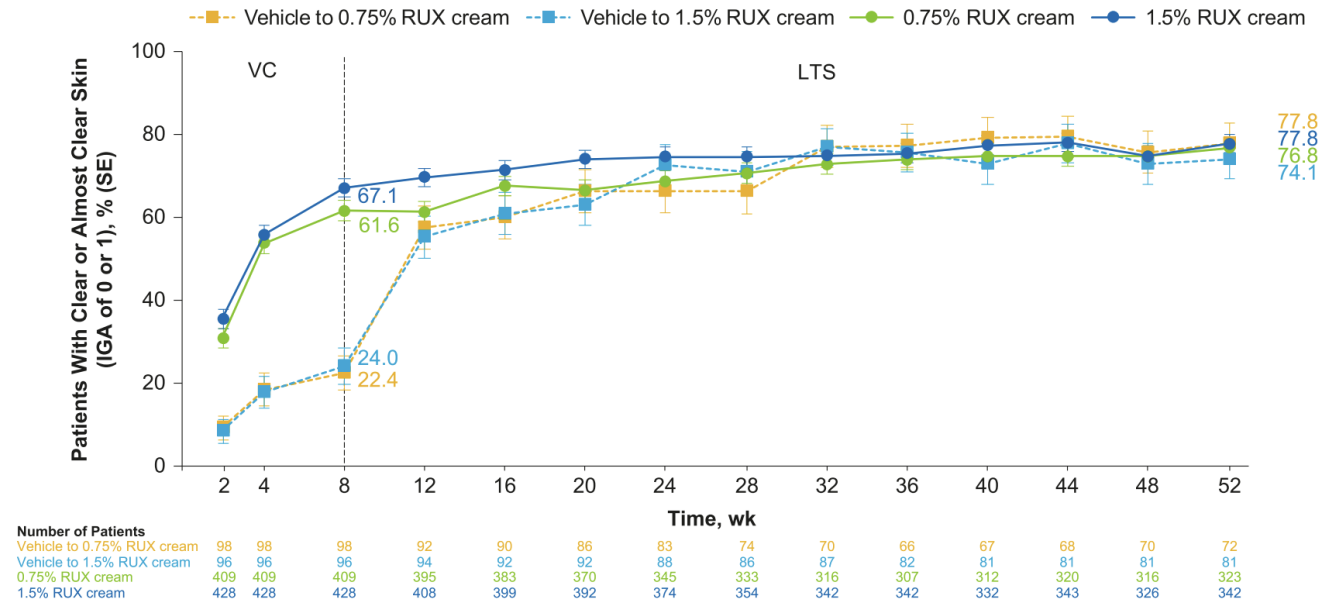


Fig 1. Proportion of patients with clear or almost clear skin (IGA 0/1) for the 52-week study period. *IGA, Investigator's Global Assessment; LTS, long-term safety; RUX, ruxolitinib; VC, vehicle controlled. *Among patients who continued into the LTS period.

- No serious drug-related adverse events
- Plasma concentrations were “low”

| Medication | GoodRx Cost* |
|-----------------------------|--------------|
| Triamcinolone 0.1% ointment | \$6.29 |
| Clobetasol ointment | \$11.59 |
| Tacrolimus 0.03% ointment | \$23.72 |
| Pimecrolimus cream | \$47.49 |
| Crisaborole ointment (60g) | \$709.16 |
| Ruxolitinib cream (60g) | \$1938.49 |

GoodRx price as of 4/10/2023 in 17033 zip code

Dupilumab

- IL 4/13 inhibitor
 - Tralokinumab (IL 13 inhibitor) approved for 18 and older only
- Prefilled syringe and Pen
 - Pen approved for age 2 and up
- FDA approved down to the age of 6 months
 - Moderate to severe atopic dermatitis
 - Moderate to severe asthma with concurrent moderate to severe atopic dermatitis
 - 6 years and older

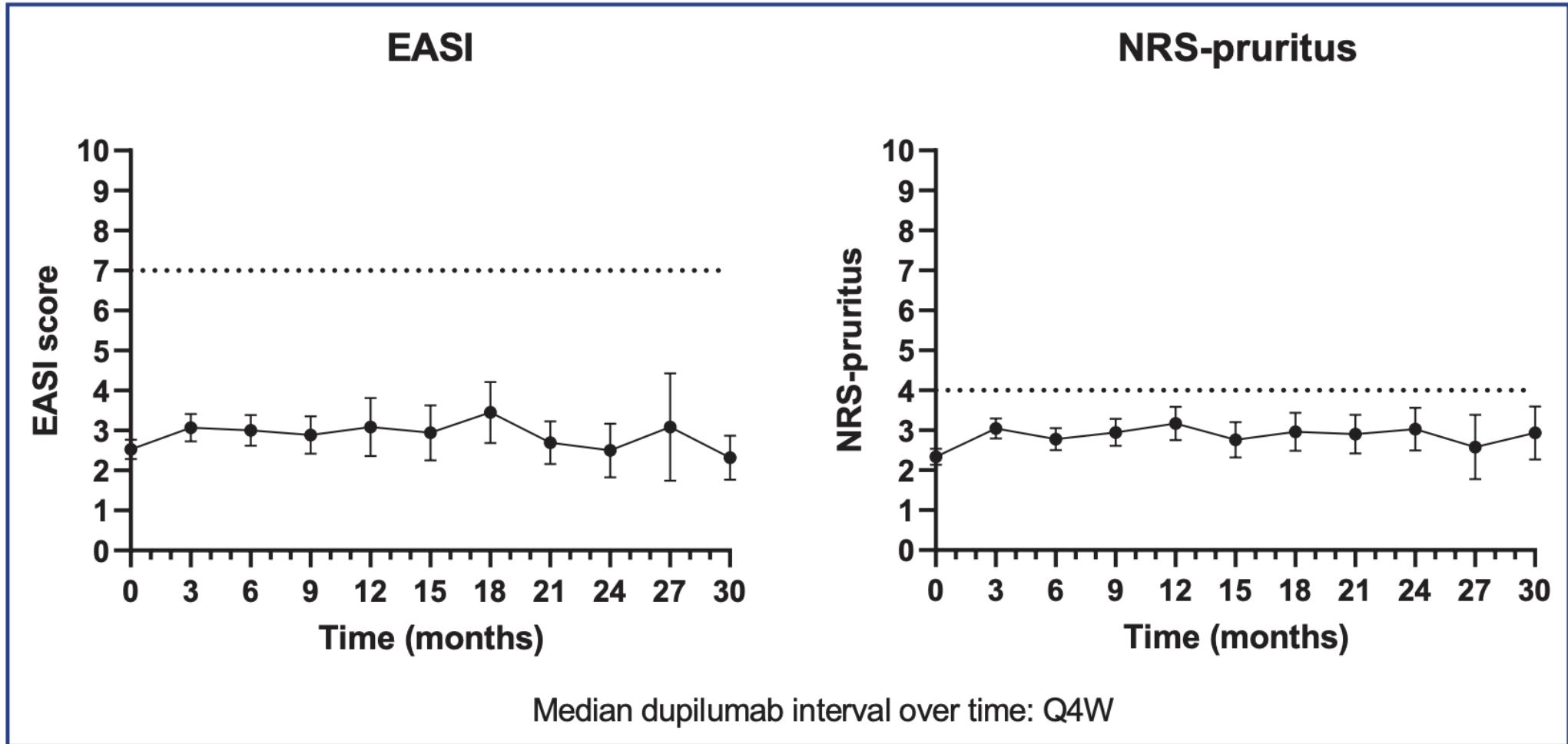
Any increased risk of infection?

- 612 total patients
 - 205 placebo
 - 407 dupilumab
- Infection rates were lower in the group treated with dupilumab vs placebo

Do you need to be on it forever?

- Patients treated with dupilumab for more than 1.3 years
- 595 total patients (all adults), 401 who tapered on their medication
- 88.3% successfully tapered their dose while maintaining their good result

How did the 401 do?



Bottom line- it's worth considering decreasing the frequency in patients who are doing well

My experience

- Itch vs rash
 - Itch tends to improve first
 - Rash with time
- Expectation management
 - Still need steroid creams
 - Don't get lazy

Oral JAK inhibitors

- Upadacitinib
 - JAK 1,2,3 inhibitor
 - 12 and older, >40 kg
- Abrocitinib
 - JAK 1 inhibitor
 - 12 and older, >25 kg
 - Reassess at 12 weeks
- Black box warnings
 - Infection
 - CV death
 - Malignancy
 - Thrombosis

Safety

- Review of 3 randomized clinical trials, 552 patients age 12-17

Table 1.

Demographics and Baseline Characteristics for Adolescents

| Characteristic | No. (%) | | | | | | | | |
|-----------------------|--------------------|--------------|-------------|--------------------|--------------|-------------|--------------|--------------|-------------|
| | Upadacitinib 15 mg | | | Upadacitinib 30 mg | | | Placebo | | |
| | Measure Up 1 | Measure Up 2 | AD Up | Measure Up 1 | Measure Up 2 | AD Up | Measure Up 1 | Measure Up 2 | AD Up |
| No. | 64 | 58 | 60 | 64 | 62 | 60 | 61 | 60 | 63 |
| Sex | | | | | | | | | |
| Female | 34 (53) | 38 (66) | 27 (45) | 36 (56) | 26 (42) | 25 (42) | 33 (54) | 35 (58) | 36 (57) |
| Male | 30 (47) | 20 (34) | 33 (55) | 28 (44) | 36 (58) | 35 (58) | 28 (46) | 25 (42) | 27 (43) |
| Age, mean (SD), y | 15.5 (2.0) | 15.2 (1.8) | 15.4 (1.7) | 15.7 (1.6) | 15.8 (1.7) | 15.3 (1.9) | 15.1 (1.7) | 15.5 (1.7) | 15.1 (1.9) |
| Weight, mean (SD), kg | 61.1 (12.2) | 60.0 (13.5) | 64.1 (18.0) | 61.8 (14.8) | 64.0 (14.0) | 63.9 (18.5) | 64.0 (17.0) | 66.0 (15.9) | 61.4 (16.4) |
| Race | | | | | | | | | |
| Asian | 12 (19) | 5 (9) | 13 (22) | 10 (16) | 12 (19) | 6 (10) | 10 (16) | 6 (10) | 14 (22) |
| Black | 6 (9) | 5 (9) | 5 (8) | 0 | 3 (5) | 6 (10) | 6 (10) | 7 (12) | 5 (8) |
| White | 45 (70) | 42 (72) | 41 (68) | 50 (78) | 46 (74) | 46 (77) | 41 (67) | 45 (75) | 44 (70) |
| Other ^a | 1 (2) | 6 (10) | 1 (2) | 4 (6) | 1 (2) | 2 (3) | 4 (7) | 2 (3) | 0 |

| | UP 15mg | | | UP 30mg | | | Placebo | | |
|--|---------|-------|---------|---------|---|---|---------|-------|-------|
| → Any Serious AEs, n (%) | 1 (2) | 2 (3) | 1 (2) | 0 | 0 | 0 | 1 (2) | 3 (5) | 0 |
| Infections and infestations, n (%) | | | | | | | | | |
| Cellulitis | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 (2) | 0 |
| Impetigo | 1 (2) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Subcutaneous abscess | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 (2) | 0 |
| Injury, poisoning and procedural complications, n (%) | | | | | | | | | |
| Ligament rupture | 0 | 0 | 1 (1.7) | 0 | 0 | 0 | 0 | 0 | 0 |
| Nervous system disorders, n (%) | | | | | | | | | |
| Migraine | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 (2) | 0 |
| Psychiatric disorders, n (%) | | | | | | | | | |
| Suicide attempt ^b | 0 | 1 (2) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Respiratory, thoracic and mediastinal disorders, n (%) | | | | | | | | | |
| Pneumomediastinum | 0 | 1 (2) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Skin and subcutaneous tissue disorders, n (%) | | | | | | | | | |
| Dermatitis atopic | 0 | 1 (2) | 0 | 0 | 0 | 0 | 1 (2) | 1 (2) | 0 |
| Eczema | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| → Any AE Leading to Discontinuation, n (%) | 0 | 2 (3) | 1 (2) | 1 (2) | 0 | 0 | 1 (2) | 1 (2) | 1 (2) |
| Hepatobiliary disorders, n (%) | | | | | | | | | |
| Hepatic function abnormal | 0 | 0 | 1 (2) | 0 | 0 | 0 | 0 | 0 | 0 |
| Immune system disorders, n (%) | | | | | | | | | |
| Drug hypersensitivity | 0 | 0 | 0 | 0 | 0 | 0 | 1 (2) | 0 | 0 |
| Respiratory, thoracic and mediastinal disorders, n (%) | | | | | | | | | |
| Asthma | 0 | 1 (2) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Skin and subcutaneous tissue disorders, n (%) | | | | | | | | | |
| Acne | 0 | 0 | 0 | 1 (1.6) | 0 | 0 | 0 | 0 | 0 |
| Dermatitis atopic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 (2) | 1 (2) |
| Pruritus | 0 | 1 (2) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

eTable4. Characterization of Acne Adverse Events in Adolescents^a

| Parameter | Patients, n (%) | | |
|---|------------------------------------|------------------------------------|--------------------------|
| | Upadacitinib 15 mg (n = 182) | Upadacitinib 30 mg (n = 186) | Placebo (n = 183) |
| Any acne AE, n (%) | 22 (12.1) | 28 (15.1) | 4 (2.2) |
| Predisposing factors, n (%) | n = 22 | n = 28 | n = 4 |
| Medical history of acne | 9 (40.9) | 4 (14.3) | 4 (100) |
| Family history of acne | 11 (50.0) | 12 (42.9) | 2 (50.0) |
| Concomitant medication associated with acne | 0 | 0 | 0 |
| Other predisposing factors for acne | 5 (22.7) | 11 (39.3) | 1 (25.0) |
| Discontinuation of study due to acne AE, n (%) | 0 | 1 (0.5) | 0 |
| Recurrence of acne AE, n (%) | 1 (0.5) | 1 (0.5) | 0 |
| Time to onset of first acne event, median (range), days | 51.5 (11, 103) (n = 22) | 47.5 (1, 102) (n = 28) | 41.5 (8, 96) (n = 4) |
| Duration of first acne event, median (range), days | 104.5 (29, 564) (n = 6) | 84.0 (23, 505) (n = 13) | 21.0 (21, 21) (n = 1) |
| Medications used to treat acne, n (%) | n = 22 | n = 28 | n = 4 |
| None | 5 (22.7) | 11 (39.3) | 1 (25.0) |
| Topical | 12 (54.5) | 13 (46.4) | 3 (75.0) |
| Oral ^b | 2 (9.1) | 0 | 0 |
| Missing | 5 (22.7) | 4 (14.3) | 0 |
| Areas of acne involvement ^c , n (%) | n = 22 | n = 28 | n = 4 |
| Face | 21 (95.5) | 27 (96.4) | 4 (100) |
| Trunk | 13 (59.1) | 10 (35.7) | 1 (25.0) |
| Extremities | 0 | 0 | 0 |
| Morphology of acne ^c , n (%) | n = 22 | n = 28 | n = 4 |
| Inflammatory papules | 18 (81.8) | 22 (78.6) | 4 (100) |
| Comedones | 12 (54.5) | 16 (57.1) | 3 (75.0) |
| Pustules | 9 (40.9) | 7 (25.0) | 1 (25.0) |
| Scarring | 3 (13.6) | 1 (3.6) | 0 |
| Inflammatory nodules and cysts | 0 | 0 | 0 |

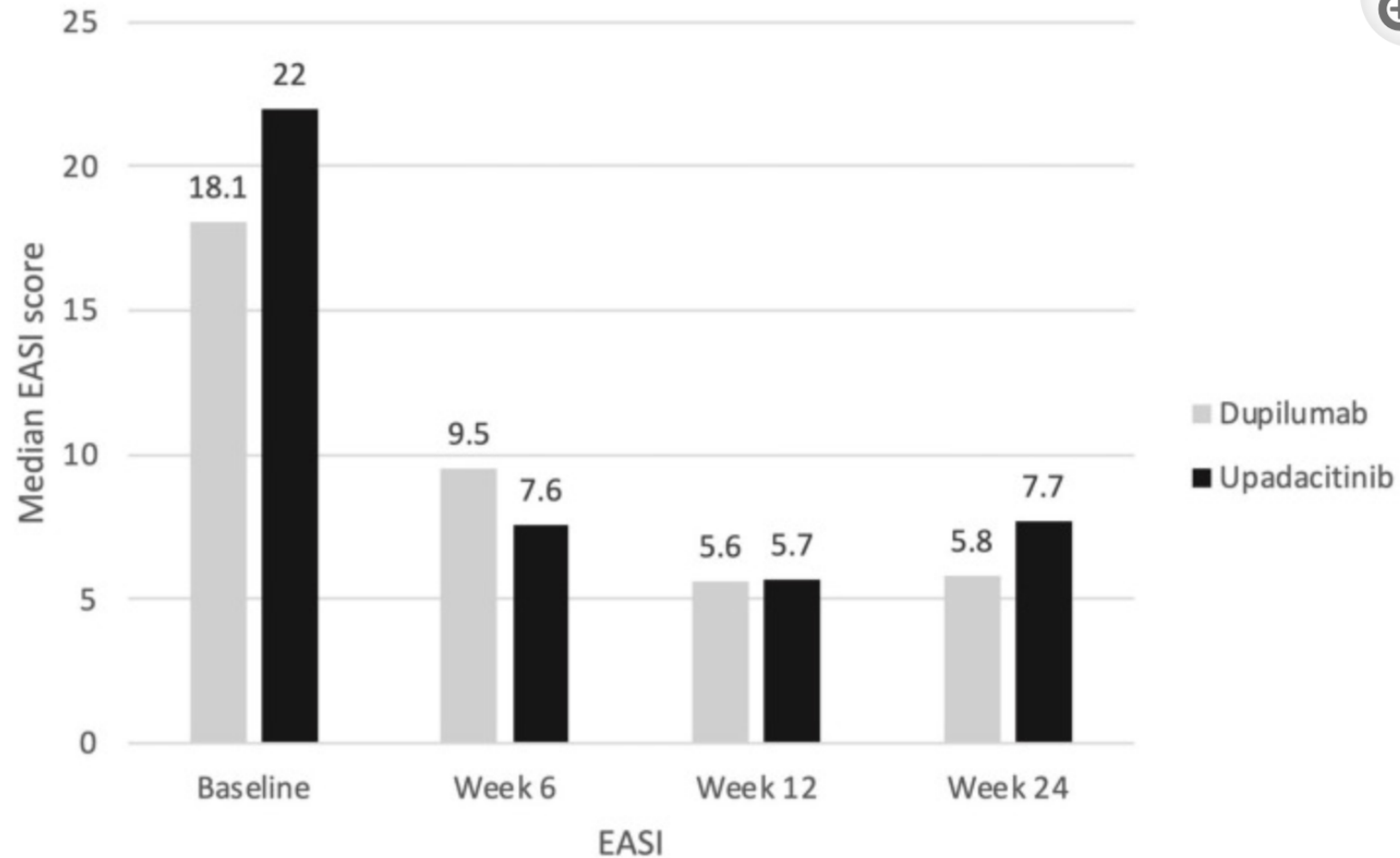
Abbreviation: AE, adverse event.

^aAcne adverse events refer to investigator identified events from Measure Up 1, Measure Up 2, and AD Up.^bIncluded retinoid (1 patient) and tetracycline (1 patient).^cPercentages calculated out of the number of patients experiencing acne, not the total population.

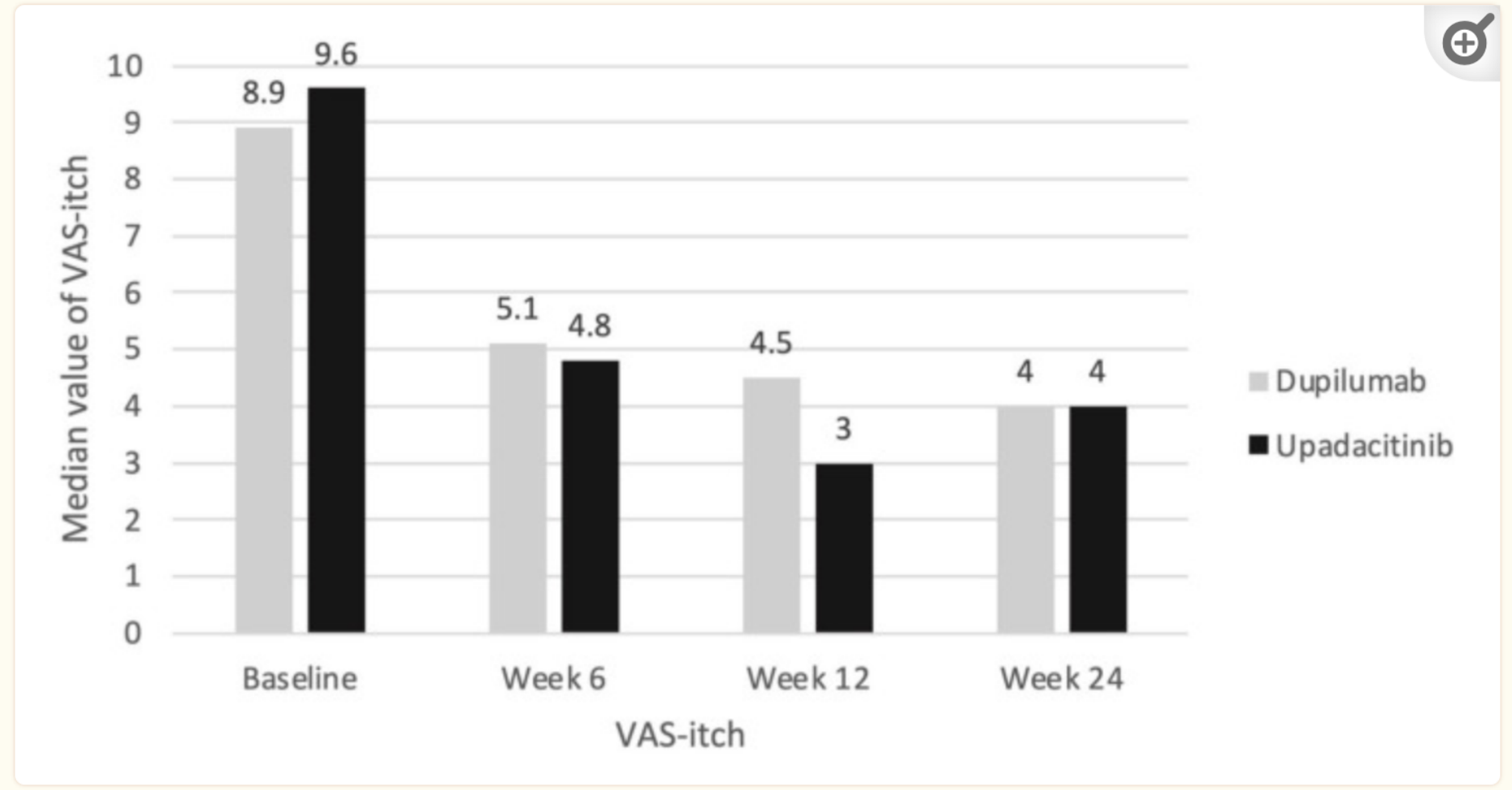
My experience

- They can work very well and quickly
- Side effects are a concern for parents but it seems safe in younger patients
- Don't be surprised if you see worsening acne

Head-to-head



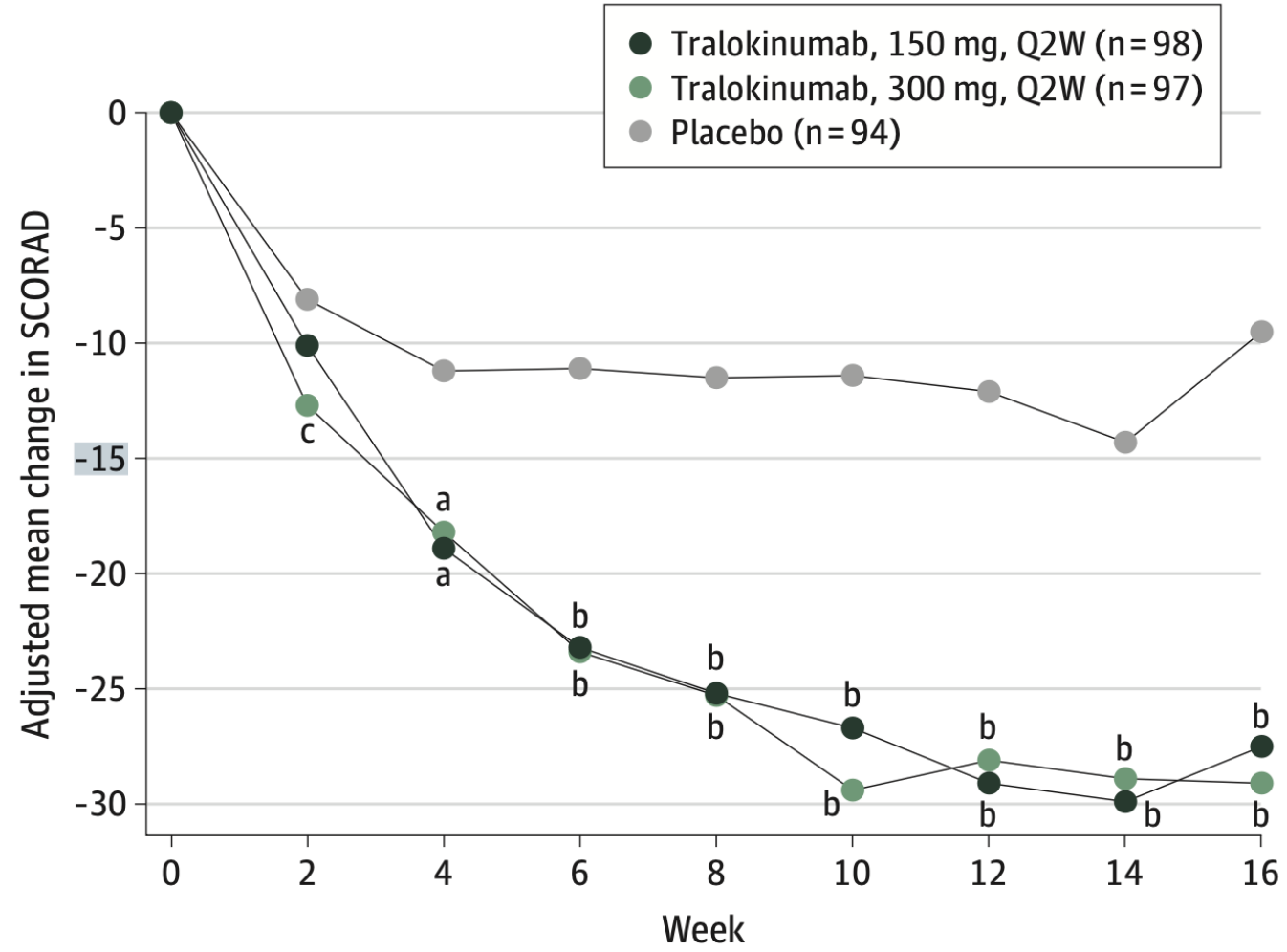
Bottom line = expectation management is key



Tralokinumab

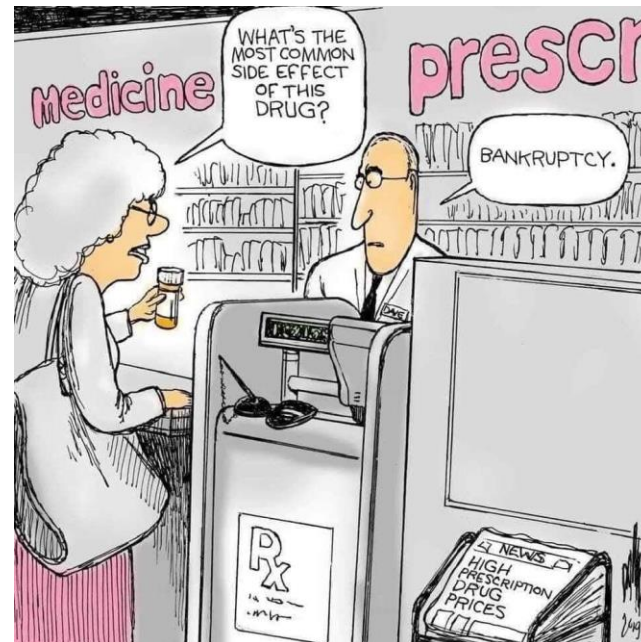
- FDA approved in the US for adults only
- 289 patients age 12-17 completed the 52 week trial

D SCORAD



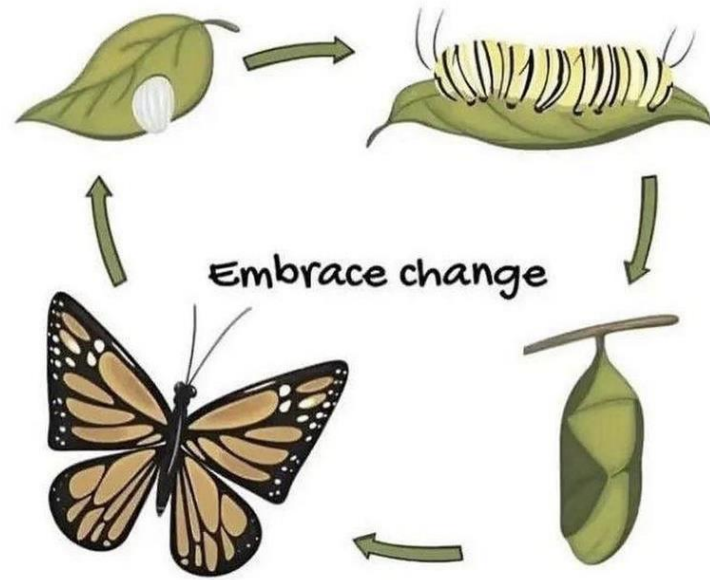
Overall

- Start with topical steroids
- Other topicals exist but aren't nearly as strong
 - More expensive
- Systemic immunosuppressives don't work very well
- Newer systemic medications
 - Work well
 - Very expensive
 - Expectation management





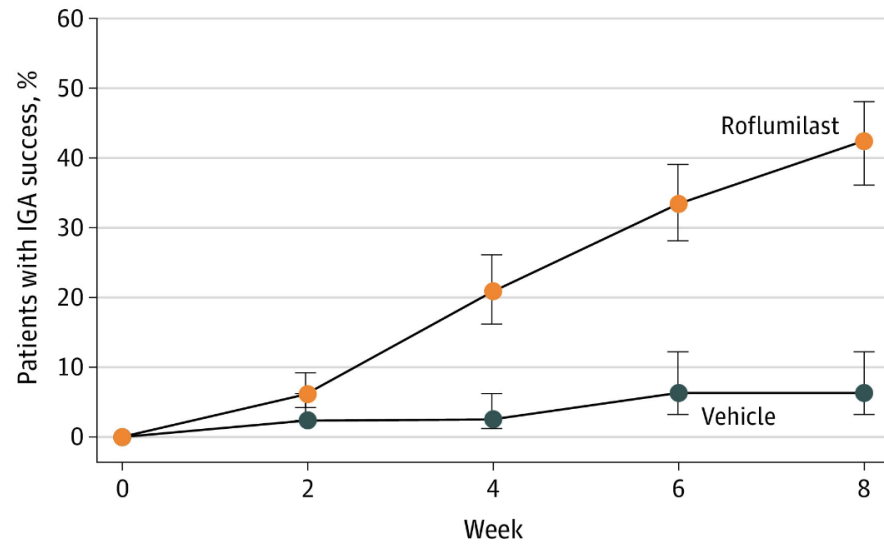
Psoriasis



Roflumilast cream 0.3%

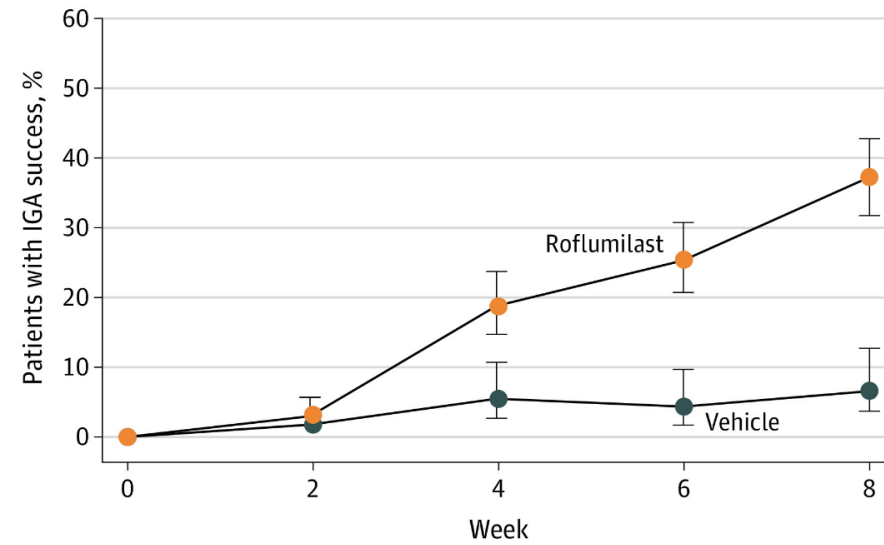
- FDA approved (as of 7/29/2023) for 12 and up
- Once daily dosing

A DERMIS-1 IGA success rate



| No. of patients | Week 0 | Week 2 | Week 4 | Week 6 | Week 8 |
|-----------------|--------|--------|--------|--------|--------|
| Roflumilast | 286 | 269 | 262 | 252 | 255 |
| Vehicle | 153 | 143 | 132 | 131 | 132 |

B DERMIS-2 IGA success rate



| No. of patients | Week 0 | Week 2 | Week 4 | Week 6 | Week 8 |
|-----------------|--------|--------|--------|--------|--------|
| Roflumilast | 290 | 274 | 267 | 258 | 264 |
| Vehicle | 152 | 145 | 139 | 129 | 131 |

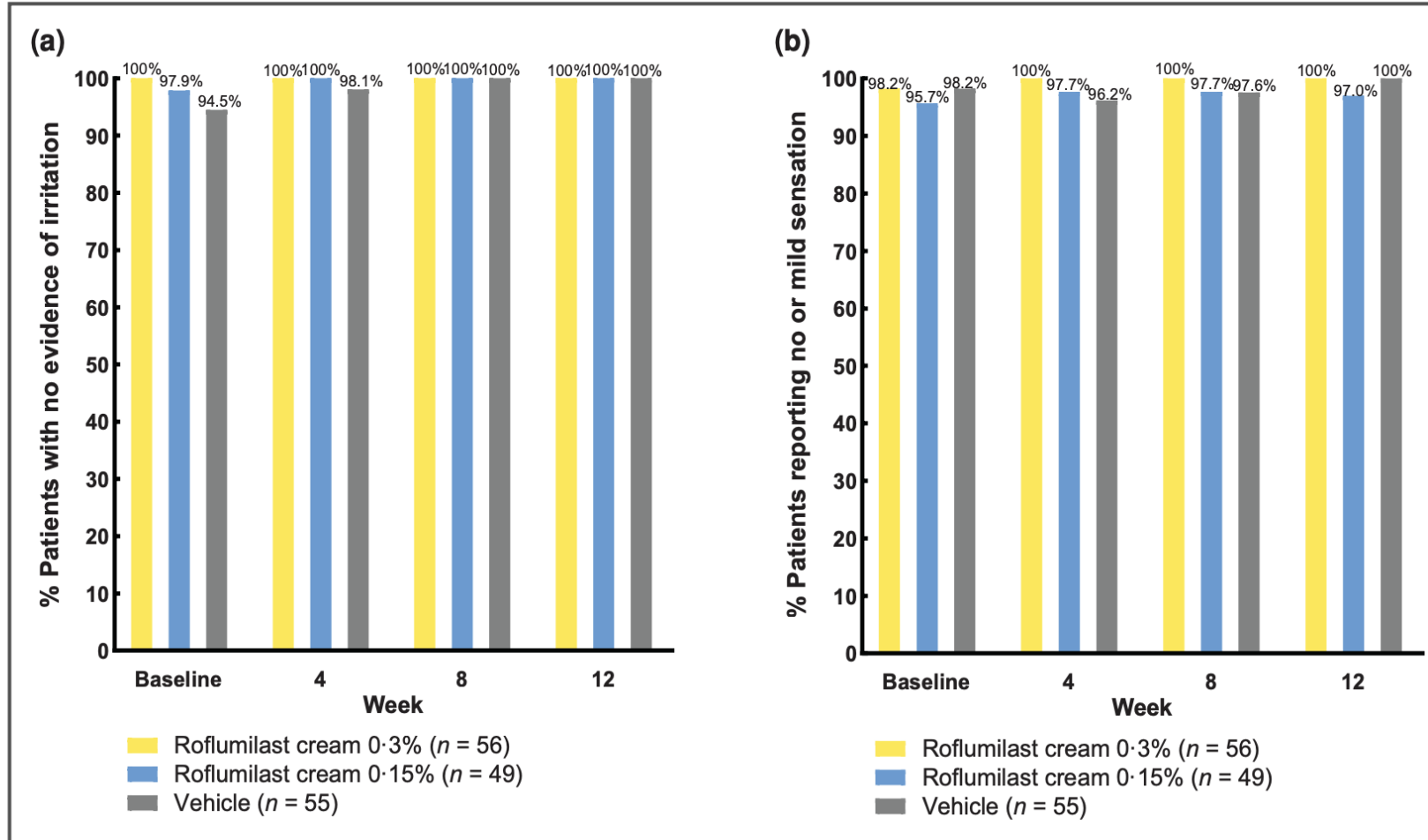
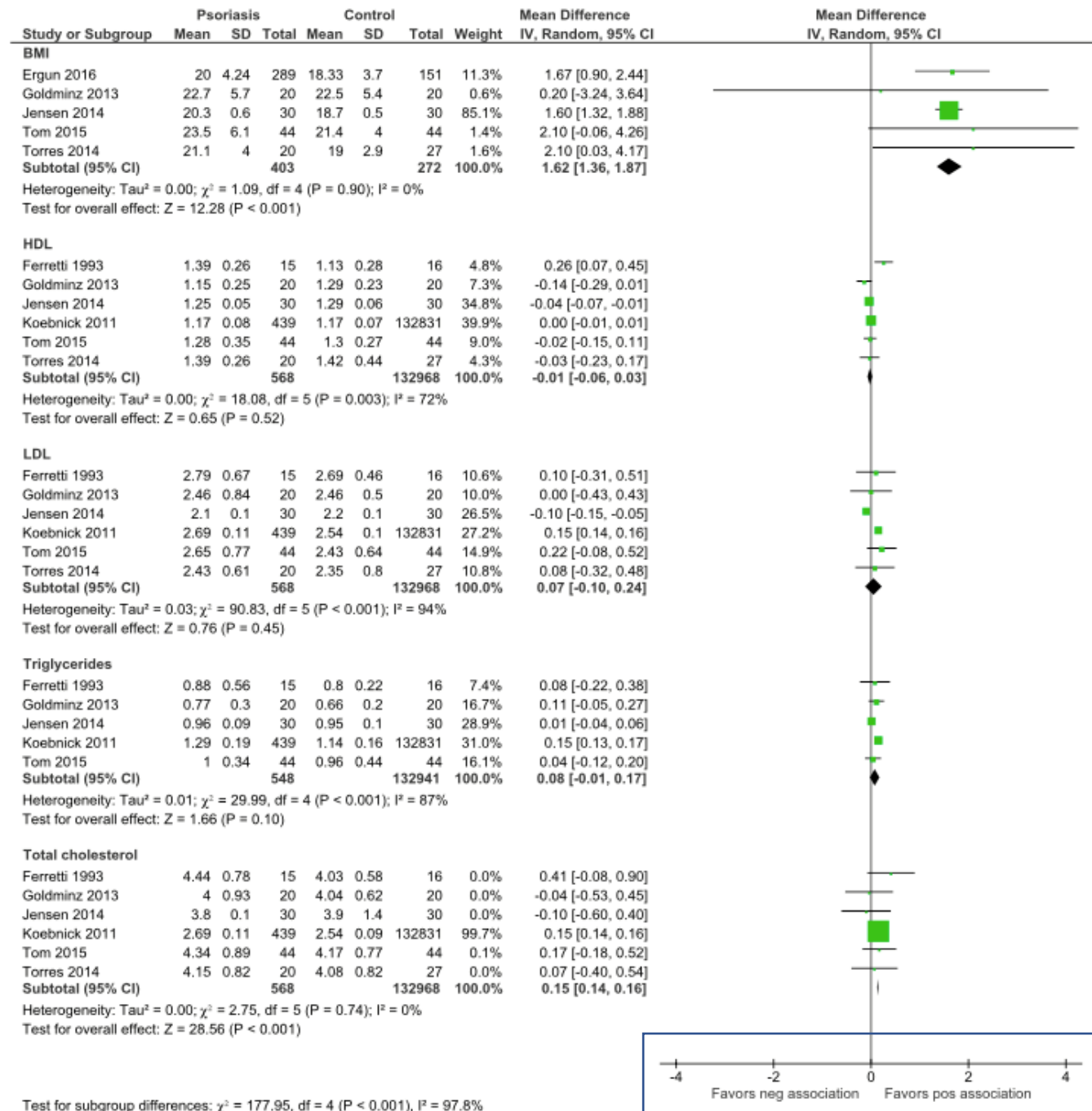


Figure 1 (a) Percentages of patients with psoriasis involving the face and/or intertriginous areas who had no evidence of irritation on investigator-rated local tolerability assessments. (b) Percentages of patients with psoriasis involving the face and/or intertriginous areas who had scores of ‘no sensation’ or ‘slight warm, tingling sensation; not really bothersome’ on patient-rated assessments of local tolerability in the 10–15 min post-application.

Comorbidities

- Metanalysis...very data dense

FIGURE 4 Forest plot showing significant association between childhood psoriasis and elevated waist-to-height ratio



What do the guidelines say?

- They recommend screening for obesity and other cardiovascular risk factors
 - Either we do it or send them back to PCM
- AAP recommends screening with lipid panel between ages of 9-11 and again at 17 and 21
- AAP recommends screening for hypertension annually starting at 3
- Patients who are obese or have psoriasis should be screened for diabetes every three years at the onset of puberty or age 10, whichever is sooner
 - Glucose, A1C, free insulin

Other comorbidities

- Arthritis
 - Screen for joint pain and morning joint stiffness
 - Nail involvement (pitting)
- Uveitis
 - Has not been reported in patients with skin disease only; worth screening if they have arthritis
 - Eye pain, redness, visual changes, photophobia

Treatment

- How many topical medications are FDA approved for the treatment of psoriasis in kids?
 - Calcipotriene (12 and up)
 - Tazarotene (12 and up with less than 20% BSA)
- Which biologic agents are approved for use in kids?
 - Etanercept (4 and up)
 - Ustekinumab (6 and up)
 - Ixekizumab (6 and up)
 - Secukinumab (6 and up)

Expectation management!

Location, location, location...

- Treatment of:
 - Nail involvement?
 - Scalp?
 - Inverse areas?



11/2020



06/2021

Scalp

- Clobetasol solution nightly as needed
 - Need to get rid of scale first
 - Dawn liquid dish detergent
- Fluocinolone oil
 - Ask if they would use an oil first
- Clobetasol foam
 - Careful in those who wash their hair less often

Inverse/intertriginous areas

- Topical steroids
- Roflumilast cream
- Topical calcineurin inhibitors
- Systemic therapy

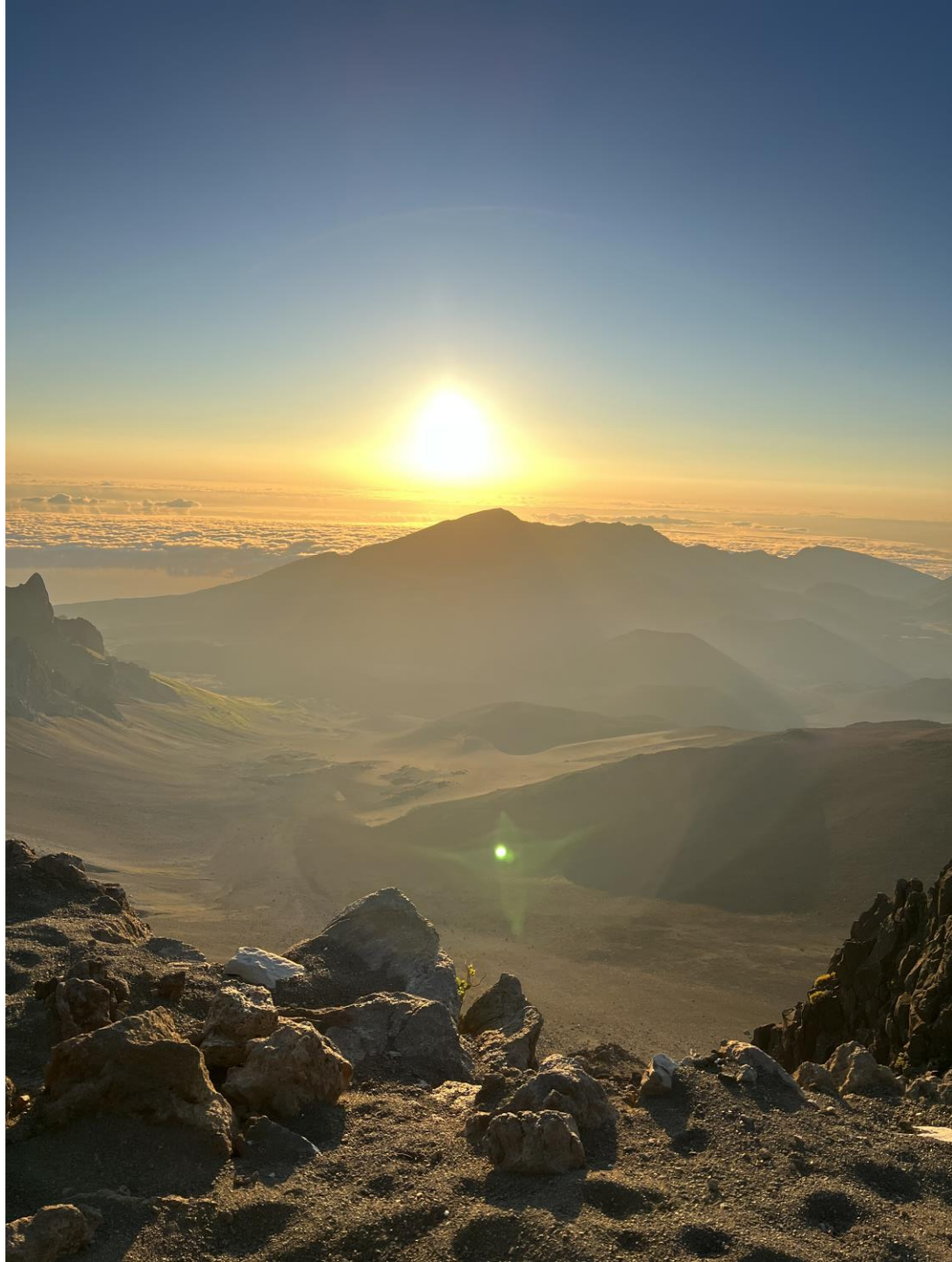
Pustular psoriasis





DIRA and DITRA

- DIRA (deficiency of the interleukin-1 receptor antagonist)
 - IL-1 consistently activated
 - Presents in the first few days of life with pustulosis and inflammation
 - Fever usually not present
 - Treat with IL-1 receptor antagonist (anakinra, rilonacept)
 - Canakinumab inhibits IL-1B, not the receptor
- DITRA (deficiency of IL-36 receptor antagonist)
 - Generalized pustular psoriasis
 - Inflammation and fever
 - Median onset 7 months (avg age of diagnosis was 55 months)



Alopecia areata

- Ritlecitinib approved for ages 12 and up with “severe” alopecia areata as of 6/23/2023
- JAK 3 inhibitor, also inhibits tyrosine kinase expressed in hepatocellular carcinoma (TEC) kinases
- Same black box warnings as other oral JAKs
- 50 mg daily

Salt score

- Ranges
 - No hair loss = 0%
 - Limited = 1-20%
 - Moderate = 21-49%
 - Severe = 50-94%
 - Very severe = 95-100%

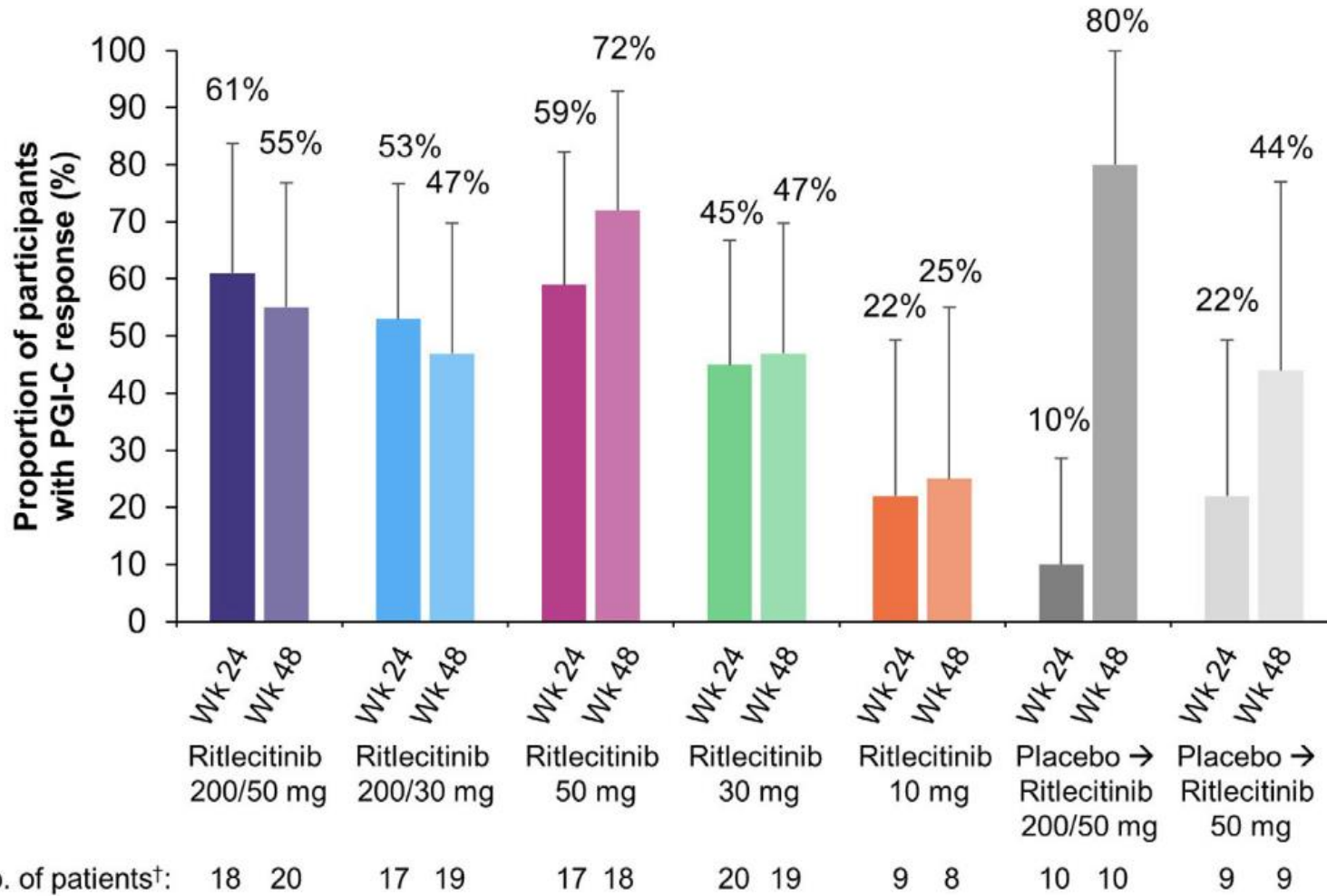
TABLE 1 Baseline demographic and disease characteristics in adolescent patients (N = 105).

| | Ritlecitinib 200/50 mg (n = 20) | Ritlecitinib 200/30 mg (n = 19) | Ritlecitinib 50 mg (n = 18) | Ritlecitinib 30 mg (n = 20) | Ritlecitinib 10 mg (n = 9) | Placebo → ritlecitinib 200/50 mg (n = 10) | Placebo → ritlecitinib 50 mg (n = 9) |
|---|---------------------------------------|---------------------------------------|-----------------------------------|-----------------------------------|----------------------------------|--|---|
| Age, mean (SD), years | 15.0 (1.8) | 14.7 (1.9) | 15.3 (1.4) | 15.1 (1.6) | 15.4 (1.3) | 14.6 (1.1) | 13.8 (1.6) |
| Female, n (%) | 7 (35.0) | 14 (73.7) | 6 (33.3) | 9 (45.0) | 6 (66.7) | 6 (60.0) | 6 (66.7) |
| Race, n (%) | | | | | | | |
| White | 14 (70.0) | 9 (47.4) | 12 (66.7) | 15 (75.0) | 5 (55.6) | 9 (90.0) | 8 (88.9) |
| Asian | 5 (25.0) | 7 (36.8) | 3 (16.7) | 3 (15.0) | 2 (22.2) | 0 | 0 |
| Black or African American | 1 (5.0) | 1 (5.3) | 3 (16.7) | 1 (5.0) | 2 (22.2) | 1 (10.0) | 1 (11.1) |
| American Indian or Alaska Native | 0 | 1 (5.3) | 0 | 0 | 0 | 0 | 0 |
| Multiracial | 0 | 1 (5.3) | 0 | 1 (5.0) | 0 | 0 | 0 |
| Weight, mean (SD), kg | 63.1 (16.0) | 63.2 (21.0) | 63.6 (17.8) | 63.3 (15.6) | 60.5 (18.3) | 56.9 (12.5) | 51.2 (12.5) |
| Height, mean (SD), cm | 167.8 (10.9) | 163.5 (8.3) | 167.4 (12.0) | 164.9 (11.1) | 169.3 (7.3) | 161.5 (8.2) | 156.1 (15.5) |
| Patients with AT or AU, n (%) ^a | 8 (40.0) | 9 (47.4) | 8 (44.4) | 8 (40.0) | 3 (33.3) | 5 (50.0) | 4 (44.4) |
| AT | 5 (25.0) | 6 (31.6) | 7 (38.9) | 5 (25.0) | 2 (22.2) | 1 (10.0) | 3 (33.3) |
| AU | 2 (10.0) | 2 (10.5) | 1 (5.6) | 3 (15.0) | 1 (11.1) | 4 (40.0) | 1 (11.1) |
| Not specified | 1 (5.0) | 1 (5.3) | 0 | 0 | 0 | 0 | 0 |
| Baseline SALT score | | | | | | | |
| All adolescent patients, mean (SD) | 93.2 (10.9) | 89.1 (16.9) | 92.3 (13.9) | 89.9 (13.9) | 86.0 (17.7) | 92.8 (13.2) | 90.6 (12.3) |
| Adolescent patients with non-AT/AU ^a AA, mean (SD) | 88.6 (12.2) | 79.2 (18.5) | 86.2 (16.3) | 83.2 (14.5) | 79.1 (18.0) | 85.7 (16.2) | 84.0 (11.9) |
| Patients without normal EBA score, n (%) | 16 (80.0) | 16 (84.2) | 12 (66.7) | 16 (80.0) | 8 (88.9) | 9 (90.0) | 7 (77.8) |
| Patients without normal ELA score, n (%) | 14 (70.0) | 13 (68.4) | 11 (61.1) | 14 (70.0) | 6 (66.7) | 8 (80.0) | 6 (66.7) |
| Disease duration since diagnosis, mean (SD), years | 6.8 (4.4) | 7.7 (4.7) | 5.8 (4.5) | 6.4 (4.0) | 5.9 (4.0) | 5.6 (4.9) | 6.7 (5.2) |
| Duration of current AA episode, mean (SD), years | 3.3 (3.0) | 3.7 (3.2) | 2.3 (2.0) | 3.1 (2.2) | 1.8 (1.6) | 2.5 (1.6) | 2.3 (2.3) |
| Prior treatment for AA, n (%) | 13 (65.0) | 12 (63.2) | 13 (72.2) | 11 (55.0) | 7 (77.8) | 7 (70.0) | 6 (66.7) |

Abbreviations: AA, alopecia areata; AT, alopecia totalis; AU, alopecia universalis; EBA, Eyebrow Assessment; ELA, Eyelash Assessment; SALT, Severity of Alopecia Tool.

^aParticipants in the AT/AU category had a SALT score of 100 (complete scalp hair loss) at baseline as assessed by the investigator (regardless of the category in the AA history case report form).

Percent of patients who reported a response of “moderately improved” or “greatly improved”



- Most common adverse events: headache, acne, and nasopharyngitis
- Two total patients discontinued
 - Urticaria
 - Eczema

One more

- 718 patients with at least 50% scalp hair loss
 - Excluded those who had AA for more than 10 years
- Oral ritlecitinib daily for 24 weeks vs. placebo with a 24 week extension
- “23% of patients treated had 80% or more scalp hair coverage after 6 months of treatment”
- Most common side effects
 - Headache
 - Diarrhea
 - Acne

Bottom line

- It seems safe
- Effective for some but not for all
- Better than anything else we have

