Supported by educational grants from: AbbVie, Allergan, Inc., Almirall, Amgen, Arena Pharmaceuticals, Inc., Bausch Health US in its Solta division, Galderma, Incyte Corporation, Lilly, Ortho Dermatologics, a division of Bausch Health, Sanofi Genzyme and Regeneron Pharmaceuticals, UCB Pharma, Inc.

A SUPPLEMENT TO

cutis®

CUTANEOUS MEDICINE FOR THE PRACTITIONER

REFERENCED IN *INDEX MEDICUS*

VOL. 107 | NO. 5S[ii] | MAY 2021 | mdedge.com/dermatology

INNOVATIONS IN DERMATOLOGY SPRING ABSTRACT COMPENDIUM

INNOVATIONS IN DERMATOLOGY SPRING ABSTRACT COMPENDIUM

Abstract 01

A new tazarotene 0.045% lotion formulation for moderate-to-severe acne: efficacy and safety in phase 2 and phase 3 clinical trials

Emil A Tanghetti, MD[1]; William Philip Werschler, MD[2]; Edward Lain, MD, MBA[3]; Hilary Baldwin, MD[4]; Ashlie M Caronia, FNP[5]; Eric Guenin, PharmD, Ph.D., MPH[6]; Susan Harris, MS[7]; Anya Loncaric, MS[7]; Radhakrishnan Pillai, Ph.D.[7]

[1]Center for Dermatology and Laser Surgery, Sacramento, CA; [2]University of Washington, School of Medicine, Seattle, WA; [3]Austin Institute for Clinical Research, Austin, TX; [4]The Acne Treatment and Research Center, Brooklyn, NY and Robert Wood Johnson University Hospital, New Brunswick, NJ; [5]Premier Clinical Research, Spokane, WA; [6]Ortho Dermatologics*, Bridgewater, NJ; [7]Bausch Health US, LLC*, Petaluma, CA

*Bausch Health US, LLC is an affiliate of Bausch Health Companies Inc. Ortho Dermatologics is a division of Bausch Health US, LLC.

BACKGROUND: Current gel, foam, and cream tazarotene (TAZ) 0.1% formulations for acne can cause irritation. A new, lower-dose tazarotene 0.045% lotion formulation was developed utilizing polymeric emulsion technology, resulting in a uniform distribution of the active ingredient and hydrating excipients. Efficacy and safety were evaluated in one phase 2 and two phase 3 double-blind, vehicle-controlled, 12-week studies in participants with moderate-to-severe acne.

OBJECTIVES: Data from the phase 2 study and two phase 3 studies were summarized to provide an overview of the efficacy and safety of tazarotene 0.045% lotion in participants with moderate-to-severe acne.

METHODS: In the phase 2 study, participants aged ≥12 years (N=210) were randomized (2:2:1:1) to TAZ 0.045% lotion, TAZ 0.1% cream, lotion vehicle, or cream vehicle. In the two pooled phase 3 studies, eligible participants (aged ≥9 years; N=1,614) were randomized (1:1) to TAZ 0.045% lotion or vehicle lotion. Inflammatory and noninflammatory lesion count reductions and treatment success (percent participants achieving ≥ a 2-grade reduction in Evaluator's Global Severity Scores and a clear/almost clear score) were evaluated. Treatment-emergent adverse events (TEAEs) were also assessed. For this analysis, phase 2 results from the cream and lotion vehicles were combined.

RESULTS: At week 12, TAZ 0.045% lotion was statistically superior to vehicle in the reduction from baseline in inflammatory lesions (ph2: 63.8% vs 51.4%; pooled ph3: 57.9% vs 47.8%; $P<0.01$ both) and noninflammatory lesions (ph2: 56.9% vs 35.2%; pooled ph3: 56.0% vs 42.0%; $P<0.001$ both). Additionally, TAZ 0.045% lotion was as effective as TAZ 0.1% cream in reducing inflammatory/noninflammatory lesion counts in the phase 2 study. A greater percentage of TAZ 0.045%-treated participants achieved treatment success versus vehicle across all studies, though this difference did not reach statistical significance in the phase 2 study (ph2: 18.8% vs 10.1%; pooled ph3: 30.4% vs 17.9%; $P<0.001$). TEAE rates for TAZ 0.045% were 14.7% (ph2) and 26.8% (pooled ph3) versus vehicle (13.4% and 19.1%, respectively). Fewer TEAEs were reported for TAZ 0.045% lotion vs TAZ 0.1% cream (14.7% vs 26.8%). Mean cutaneous safety/tolerability scores at week 12 across all studies were <0.5 (1=mild) following treatment with TAZ 0.045% lotion.

CONCLUSIONS: In a phase 2 and two pooled phase 3 studies, lower-dose TAZ 0.045% lotion was more effective versus vehicle in the treatment of moderate-to-severe acne. In the phase 2 study, TAZ 0.045% lotion had fewer TEAEs than TAZ 0.01% cream. Overall, this new lotion formulation is a viable treatment option that is effective and has fewer TEAEs than TAZ 0.01% cream.

FUNDING SOURCE: The studies were funded by Ortho Dermatologics.

Corresponding author information:
Dr. Hilary Baldwin
142 Joralemon Street, Brooklyn, NY 11201
Phone: (718) 797-3340; Fax: (718) 246-0140

Abstract 02

Online CME improves dermatologists' knowledge and competence in the diagnosis and management of acne

Shari J. Dermer, PhD[1]; John Maeglin, MBA[1]; Linda Stein Gold, MD[2]

Medscape Education, New York, NY[1]; Department of Dermatology, Henry Ford Health Center, Detroit, MI[2]

BACKGROUND: Although acne is fairly common, clinicians are not aware of its impact on the quality of life (QoL) and how to best prevent acne scars.

OBJECTIVES: The goal of this research was to assess whether continuing medical education (CME) can increase knowledge and competence in managing acne.

METHODS: Dermatologists participated in online CME activities on the diagnosis and treatment of acne. [Stein Gold L, et al. 2018; Graber E, et al 2019; Harper J, et al 2019] CME formats were a 30-minute panel discussion and two 15-minute 2-person video conversations, with synchronized slides. Effectiveness was analyzed using

3-multiple-choice and 1-self-efficacy questions for each activity, presented as pre-/post-CME repeated pairs. Activities posted from December 2018 through March 2019; data were collected for 30 days after launch. Chi-square test assessed changes in responses to questions from pre- to post-CME. P values measured significance; $P < .05$ = statistically significant.
RESULTS: In pre- to post-CME for all activities combined, average correct responses improved from 43% (pre) to 59% (post); N=379, $P < .05$.

Quality of Life: Post-CME, there was a 15% absolute improvement in knowledge on the impact of acne on quality of life QoL (36% to 51% pre/post; $P < .05$); a 33% overall increase in confidence assessing the impact of acne on QoL; and an overall 26% increase in confidence in the ability to ameliorate the psychosocial impact of acne with treatment.

Scar Prevention: Post-CME, there was a 17% absolute improvement in knowledge on the risk for acne scars and scar prevention (36% to 51% pre/post; $P < .05$); a 27% overall increase in confidence in individualizing treatment in adults.
CONCLUSIONS: Online CME consisting of video-based discussions with synchronized slides improved dermatologists' knowledge relating to the impact of acne on QoL and preventing acne scars.

REFERENCES

Stein Gold L, Graber EM, Harper JC. More Than Skin Deep: Exploring the Impact of Acne on Patients. December 22, 2018. https://www.medscape.org/viewarticle/906402

Graber EM, Berson D. Ask the Experts in Acne Management: Special Considerations for Teenagers with Acne. January 29, 2019. https://www.medscape.org/viewarticle/907803

Harper JC, Berson D. Ask the Experts in Acne Management: Special Considerations for Adults with Acne. March 22, 2019. https://www.medscape.org/viewarticle/907917

Abstract 03

Assessing changes in facial skin quality using non-invasive clinical skin imaging techniques (RCM and OCT) after use of a topical retinoid product in subjects with moderate to severe photodamage

Lisa T. Goberdhan, MSHS; Giovanni Pellacani, MD; Marco Ardigo, MD, Ph.D.; Katie Schneider, BS; Elizabeth T. Makino, BS, CCRA, MBA; and Rahul C. Mehta, PhD

BACKGROUND: There are limited studies assessing cosmetic skin changes utilizing reflectance confocal microscopy (RCM) and optical coherence tomography (OCT).
OBJECTIVES: To explore the cosmetic effects of a topical cosmetic retinoid (RET05) a study was conducted using RCM and OCT.
METHODS: A twelve-week, open-label study was conducted to assess the effects of RET05 on subjects with facial photodamage. Study endpoints included investigator grading, standardized (VISIA-CR) and 3D Photography (Antera3D), independent RCM (VivaScope®1500) and OCT (VivoSight) image analysis, validated FACE-Q scales, and subject questionnaires.
RESULTS: Twenty-three subjects, 45-68 years old, with Fitzpatrick Skin Types II-IV completed the study. At week 12 versus baseline, RCM analysis showed decreases in all epidermis, less compact stratum corneum (SC), more non-compact SC, decreases in coarse/huddled dermal fibers, and increases in fibrillar dermal fibers. At week 12 versus baseline, OCT analysis showed significant decreases in epidermal thickness (ET), moderate/many collagen fragments, collagen bundles, and significant increases in attenuation coefficient, collagen density, dermal-epidermal junction presence, and vessels at 300 and 500 microns (all p£0.0001). RET05 demonstrated significant improvements at week 12 versus baseline for all investigator efficacy parameters except perioral coarse lines (all p£0.02), and all FACE-Q parameters (all p£0.001).
CONCLUSIONS: This study was the first to utilize RCM and OCT to show cosmetic effects of a topical retinoid. Independent evaluation of RCM and OCT images showed similar decreases in ET and improvements in dermal fibers. Study results demonstrate that cosmetic effects with RET05 can be evaluated using RCM and OCT to further substantiate improvements in skin quality.

Abstract 04

Diamond tip dermabrasion combined with topical skincare provides immediate and long term clinical benefits in subjects with dry, hyperpigmented, photo-damaged, or acne/oily facial skin

Lisa Goberdhan, MSHS; Katie Schneider, BS, LE; Elizabeth Makino, BS, CCRA, MBA; Rahul C. Mehta, Ph.D.

BACKGROUND: Combining in-office procedures with take-home skincare has been shown to optimize overall patient outcomes. The in-office diamond tip dermabrasion device (DG) was designed to simultaneously exfoliate, extract, and infuse topical cosmetic serums onto the skin to improve the overall appearance of the skin.
OBJECTIVES: To assess the efficacy of a novel combination regimen (DGR) of DG and take-home cosmetic skincare, a 12 week, open-label, single-center study was conducted on subjects with facial dryness, hyperpigmentation, photodamage, or acne/oily skin.
METHODS: Sixteen subjects, aged 22 to 70 years with Fitzpatrick Skin Types I-V completed the 12-week study. Subjects were assigned to one of four groups: Dryness, Hyperpigmentation, Photodamage, or Acne/Oily. All subjects received a series of six DG treatments every two weeks. Dry, hyperpigmented, photo-damaged, and acne/oily groups received hydrating, brightening, antioxidant, and pore clarifying serums respectively. Subjects began take-home skincare regimen after their first DG treatment and for the duration of the study. Study endpoints included investigator grading, photography, and questionnaires.

RESULTS: All groups demonstrated immediate, 72-hour long-term improvements after the use of the combination regimen. Immediately after DG, significant improvements in photodamage, dryness, radiance, fine lines, periocular coarse lines, and texture were achieved (all p£0.04). At 72-hours, significant improvements continued in all these parameters except fine/coarse lines (all p£0.04). DGR provided significant long-term improvements at week 12 vs. baseline for hyperpigmentation, photodamage, dryness, skin tone unevenness, radiance, periocular/perioral fine lines, and texture (all p£0.005).

CONCLUSIONS: These results support how DGR can provide an effective combination of in-office and take-home treatment for patients seeking facial rejuvenation.

Allergan Aesthetics, an AbbVie company-sponsored and provided financial support for the study

Abstract 05

Neck skin rejuvenation using a novel topical treatment: a randomized, double-blind, regimen-controlled study

Elizabeth T. Makino, BS, CCRA, MBA; Rahul C. Mehta, PhD

BACKGROUND: The neck has increasingly become a key aesthetic concern for patients seeking to rejuvenate their overall appearance. With age, dermal thickness decreases which result in a sagging appearance. In addition, other prominent signs of neck aging include coarse lines and dyspigmentation. A novel neck cream (NC) was developed with a blend of antioxidants, plant extracts, and peptides to address the various pathways involved in the signs of neck aging; plant extracts and peptides target the extracellular matrix to address the loss of elasticity and horizontal necklines, and the antioxidants protect against environmental factors contributing to dyspigmentation.

OBJECTIVES: To assess the efficacy and tolerability of NC in subjects with moderate to severe overall skin texture, a 12 week randomized, double-blind, regime-controlled study was conducted.

METHODS: 69 females aged 48-70, with Fitzpatrick Skin Types I-V, completed the study (Active: n=42, Control: n=27). Active applied NC twice daily, along with a basic skincare regimen. Control applied the same basic skincare regimen. Investigator grading, questionnaires, and photography were taken baseline and weeks 4, 8, and 12. Cutometer measurements for skin firmness and elasticity were taken at baseline and week 12.

RESULTS: NC demonstrated significant improvements over Control in laxity/sagging (all p≤0.006; Wilcoxon rank-sum) and global improvement in overall skin texture (all p≤0.009; Wilcoxon signed-rank) at weeks 8 and 12. Cutometer measurements in the active group showed significant improvements in skin firmness and elasticity at week 12 (all p≤0.04; paired t-test).

CONCLUSIONS: These results suggest that NC may provide patients with a treatment option for neck rejuvenation.

FUNDING SOURCE: Allergan Aesthetics, an AbbVie company sponsored and provided financial support for the study

Abstract 06

A survey of adult patients with Atopic Dermatitis reveals the need for better symptom control

Shari J. Dermer, Ph.D.; Piyali Chatterjee-Shin, BS; Pan Chen, Ph.D.; Katie S. Lucero, Ph.D.

INTRODUCTION: Atopic dermatitis (AD) is a chronic inflammatory skin disease that affects children and adults. Although the majority of patients affected are children, AD persists into adulthood for approximately 2% to 3% of adults in the United States.[NEA 2019] Among adults there is a high disease burden and impact on the quality of life associated with AD.[Chiesa Fuxench ZC, et al. J Invest Dermatol 2019] This study examined patient-reported concerns, satisfaction with treatment, and therapeutic goals among patients with AD.

METHODS: WebMD conducted a consumer survey from October 2, 2019, to April 2, 2020. [WebMD 2020] Data were collected anonymously via a pop-up from the WebMD page. The study was exempt from institutional review board approval. Respondents included in this study were from the United States, were age 18 years or older, and were diagnosed with atopic dermatitis (AD) or eczema (or were the caregiver for someone with AD).

RESULTS: Of the N=382 patients who self-reported having AD, 25% were male, and 75% were female. The majority of patients (41%) reported being diagnosed with AD for ten years or more, and 35% and 19% reported having moderate or severe AD, respectively. The three most problematic symptoms were very bad itching (70%), dry sensitive skin (49%), and peeling or flaking skin (42%). Inadequate symptom control was noted as a concern among 43% of respondents. Sleep (45%), self-confidence (45%), and mood/irritability/happiness (42%) were areas that most impact life according to respondents. Among those who responded, AD always or often impacts patients' lives (45%), causes frustration (51%), and causes embarrassment about appearance (40%). 41% of patients reported currently being treated for AD; however, only 37% report being satisfied or very satisfied with their current treatment. Moreover, 70% reported that their symptoms are moderately controlled at best with current therapy. Lastly, 42% of patients reported that the most important goal for AD treatment is the immediate and sustained reduction in pain and itch.

CONCLUSIONS: Our study confirms the substantial burden of AD on patients and emphasizes the need for better use of available effective therapies in the right patients to improve control of AD symptoms.

FUNDING SOURCE: Supported by an educational grant from Sanofi Genzyme and Regeneron Pharmaceuticals.

REFERENCES

1. National Eczema Association (NEA). What is Eczema? http://nationaleczema.org/eczema/. Updated 2019. Accessed April 5, 2019.

2. Chiesa Fuxench ZC, Block JK, Boguniewicz M, et al. Atopic Dermatitis in America Study: A Cross-Sectional Study Examining the Prevalence and Disease Burden of Atopic Dermatitis in the US Adult Population. *J Invest Dermatol.* 2019 Mar; 139(3):583-90.

3. WebMD. Eczema Severity Survey: Are You Satisfied With Your Current Treatment. *WebMD Outcomes Data.* Data on file. Accessed July 8, 2020.

Abstract 07

Clinical tailoring of Baricitinib 2-mg in Atopic Dermatitis: baseline body surface area and rapid onset of action identifies response at week 16

Silverberg JI[1], MD, Ph.D., MPH; Boguniewicz M[2], MD; Waibel J[3], MD; Weisman J[4], MD; Strowd L[5], MD; Sun L[6], Ph.D.; Ding Y[6], Ph.D.; Goldblum O[7],[*] MD; Nunes FP[6], MD; Simpson EL[8], MD, MCR

[1]George Washington University School of Medicine, Washington DC, USA; [2]Division of Allergy-Immunology, Department of Pediatrics, National Jewish Health and University of Colorado School of Medicine, Denver, USA; [3]Miami Dermatology and Laser Institute, Miami, USA; [4]Medical Dermatology Specialists, Atlanta, USA; [5]Wake Forest University School of Medicine, Winston-Salem, USA; [6]Eli Lilly and Company, Indianapolis, USA; [7]Formerly with Eli Lilly and Company, Indianapolis, USA; [8]Oregon Health and Science University, Portland, USA

[*]Employed with Eli Lilly and Company at the time of study

BACKGROUND: Baricitinib, an oral Janus kinase (JAK) 1/JAK2 inhibitor improved disease in moderate-to-severe atopic dermatitis (AD) in 5 randomized, placebo-controlled, Phase 3 trials. Here, we present results from a post-hoc analysis aiming to identify responders to baricitinib 2-mg, with a proposed clinical tailoring approach based on baseline body surface area affected (BSA), and early clinical improvement from Phase 3 monotherapy trial BREEZE-AD5 (NCT03435081).

METHODS: Classification and regression trees were applied to baseline patient demographics and disease characteristics to identify a patient population most likely to benefit from baricitinib 2-mg therapy. Two-by-two contingency tables evaluated the association between speed of onset on improvement in skin inflammation or itch (assessed at Week 4 or 8) and response at Week 16 for the proportion of patients achieving ≥75% improvement in Eczema Area and Severity Index (EASI75), validated Investigator Global Assessment for AD (vIGA-AD™) score of 0 or 1, or ≥4-point improvement in Itch (Itch≥4). Missing data due to rescue or treatment discontinuation were imputed as non-responders.

RESULTS: Baseline BSA of 10-50% was associated with improved clinical response to baricitinib 2-mg. At Week 16, EASI75 was achieved by 37.5% of baricitinib 2-mg-treated patients with baseline BSA 10-50% vs. 9.5% patients with BSA>50%. Similarly, at Week 16, vIGA-AD (0, 1) was achieved by 31.7% of baricitinib 2-mg-treated patients with baseline BSA 10-50% vs. 4.8% patients with BSA>50%. The early meaningful response, defined as ≥50% improvement in BSA or ≥3-point improvement in itch from baseline at Week 4 or 8, was able to further refine which patients were most likely to benefit from baricitinib 2-mg therapy. Early response in skin inflammation or itch at Week 4 was associated with corresponding EASI75, vIGA-AD (0,1), and Itch≥4 of 55.4%, 48.2%, and 39.3% at Week 16. Assessment of early response at Week 8 was associated with EASI75, vIGA-AD (0,1), and Itch≥4 of 66.7%, 56.1%, and 42.1% at Week 16.

CONCLUSIONS: This analysis suggests that patients with moderate-to-severe AD affecting 10-50% BSA account for the majority of responders to baricitinib 2-mg. In addition, due to rapid onset of response, clinical assessment of patients after 4 or 8 weeks of initiation of baricitinib 2-mg treatment showed a meaningful clinical benefit to patients, providing positive feedback to patients who are likely to benefit from long-term therapy and allowing for a rapid decision on discontinuation of treatment in those who are not likely to benefit from baricitinib 2-mg.

FUNDING SOURCE: The study was sponsored by Eli Lilly and Company, under license from Incyte Corporation. Abstract previously presented at RAD 2020.

Corresponding author information:

Silverberg JI[1], MD, Ph.D., MPH, jonathanisilverberg@gmail.com
Boguniewicz M2, MD, boguniewiczm@njhealth.org
Waibel J3, MD, jwaibelmd@miamidermlaser.com
Weisman J4, MD, jweisman317@gmail.com
Strowd L5, MD, lchaney@wakehealth.edu
Sun L6, Ph.D., sun_luna@lilly.com
Ding Y6, Ph.D., ding_yuxin@lilly.com
Goldblum O7,* MD, ogoldblum@gmail.com
Nunes FP6, MD, nunes_fabio_p@lilly.com
Simpson EL8, MD, MCR, simpsone@ohsu.edu

Abstract 08

Dupilumab provides early and sustained clinically meaningful responses in a Phase 3 Trial in adolescents with inadequately controlled moderate-to-severe atopic dermatitis: results from the overall population and in a subgroup of patients not achieving IGA scores of 0/1

Eric L. Simpson[1]; Andrew Blauvelt[2]; Emma Guttman-Yassky[3]; Melinda Gooderham[4, 5]; Iftikhar Hussain[6]; Zhen Chen[7], Jingdong Chao[7]; Ana B. Rossi[8]; Ashish Bansal[7]

[1]Oregon Health & Science University, Portland, OR, USA; [2]Oregon Medical Research Center, Portland, OR, USA; [3]Icahn School of Medicine at Mount Sinai Medical Center, New York, NY, USA; [4]SKiN Centre for Dermatology, Peterborough, ON, Canada; [5]Queen's University, Kingston, ON, Canada; [6]Vital Prospects Clinical Research Institute, PC, Tulsa, OK, USA; [7]Regeneron Pharmaceuticals Inc., Tarrytown, NY, USA; [8]Sanofi Genzyme, Cambridge, MA, USA

BACKGROUND: A potentially useful evaluation of the effectiveness of treatment for inadequately controlled moderateto-severe atopic dermatitis (AD) may include clinically relevant improvement in various domains of AD including signs, symptoms, and health-related quality of life (QoL).

OBJECTIVES: To determine the proportion of patients with a clinically meaningful response in AD signs, symptoms, and QoL following 16-week dupilumab treatment in the overall adolescent population, and in a subgroup not achieving Investigator's Global Assessment (IGA) scores of 0/1 (clear/almost clear) at Week 16 (Wk16) in a randomized, double-blinded, placebo-controlled, phase 3 trial (LIBERTY AD ADOL: NCT03054428).

METHODS: Adolescents ≥12 to <18 years with inadequately controlled moderateto-severe AD were randomized 1:1:1 to subcutaneous dupilumab every 4 weeks (q4w; 300mg), every 2 weeks (q2w; 200/300mg), or placebo for 16 weeks. Clinically meaningful responses were defined as ≥50% improvement in Eczema Area and Severity Index, or ≥3-point improvement in weekly-averaged Peak daily Pruritus Numerical Rating Scale (NRS), or ≥6-point improvement in Children's Dermatology Life Quality Index from baseline through Wk16. A composite endpoint was defined as a clinically meaningful response in ≥1 of the above 3 endpoints.

RESULTS: Overall, 251 patients were randomized to dupilumab q4w (n=84), dupilumab q2w (n=82), and placebo (n=85). At Wk16, significantly more patients receiving dupilumab achieved the composite endpoint vs. placebo (q4w/q2w vs. placebo: 63.1%/80.5% vs. 23.5% [P<0.0001 for both]). Among randomized patients, 82.1% (q4w), 75.6% (q2w), and 97.6% (placebo) patients did not achieve IGA 0/1 at Wk16 (IGA >1 subgroup). In this subgroup, significantly more patients receiving dupilumab achieved the composite endpoint vs. placebo (q4w/q2w vs. placebo: 55.1%/74.2% vs. 21.7% [P<0.0001 for both]) at Wk16. Clinically meaningful responses in both populations were seen as early as Week 2 after the first dose. Compared with placebo, NRS scores (least-squares mean percent change) improved as early as Day 5 for q2w (P=0.0265) and Day 6 for q4w (P=0.0095) in the overall population, and as early as Day 3 for q2w (P=0.0265) and q4w (P=0.0219) in the IGA >1 subgroup. Dupilumab was generally well tolerated with an acceptable safety profile similar to that seen in the adult AD population.

CONCLUSIONS: A majority of adolescents treated with dupilumab, including those with IGA >1 at Wk16, demonstrated early, progressive, and sustained clinically meaningful responses in ≥1 key AD domain (signs, symptoms, and QoL) compared with placebo.

ACKNOWLEDGMENTS: Data first presented at the 2021 Winter Clinical Dermatology Conference, January 15-24, 2021; virtual meeting. Research sponsored by Sanofi and Regeneron Pharmaceuticals, Inc. ClinicalTrials.gov identifier: NCT03054428 (LIBERTY AD ADOL). Medical writing/editorial assistance provided by Raj Menon, Ph.D., of Excerpta Medica, funded by Sanofi Genzyme and Regeneron Pharmaceuticals, Inc.

DISCLOSURES: Simpson EL: AbbVie, Eli Lilly, Galderma, Kyowa Hakko Kirin, LEO Pharma, Merck, Pfizer, Regeneron Pharmaceuticals, Inc. – investigator; AbbVie, Boehringer Ingelheim, Dermavant, Eli Lilly, Forte Bio, Incyte, LEO Pharma, Menlo Therapeutics, Pfizer, Pierre Fabre Dermo Cosmétique, Regeneron Pharmaceuticals, Inc., Sanofi Genzyme, Valeant – consultants honorarium.

Blauvelt A: AbbVie, Aclaris, Almirall, Arena, Athenex, Boehringer Ingelheim, Bristol-Myers Squibb, Dermavant, Dermira, Eli Lilly, FLX Bio, Forte, Galderma, Janssen, LEO Pharma, Novartis, Ortho Derm, Pfizer, Regeneron Pharmaceuticals, Inc., Sandoz, Sanofi Genzyme, Sun Pharma, UCB – scientific adviser, clinical study investigator; AbbVie – paid speaker.

Guttman-Yassky E: AbbVie, Celgene, Eli Lilly, Galderma, Glenmark, GSK, LEO Pharma, Pfizer, Regeneron Pharmaceuticals, Inc., Sanofi – investigator; AbbVie, Anacor, Asana Biosciences, Daiichi Sankyo, DBV, Dermira, Eli Lilly, Galderma, Glenmark, GSK, Kiniksa Pharmaceuticals, Kyowa, LEO Pharma, Menlo Therapeutics, Novartis, Pfizer, Realm, Regeneron Pharmaceuticals, Inc., Sanofi – consultant; AbbVie, Celgene, Dermira, Galderma, Innovaderm, Janssen, LEO Pharma, Novartis, Pfizer, Regeneron Pharmaceuticals, Inc., Sanofi – research grants.

Gooderham M: AbbVie, Akros, Amgen, Arcutis Antiobix, Bristol-Myers Squibb, Boehringer Ingelheim, Celgene, Coherus BioSciences, Dermavant, Dermira, Eli Lilly, Galderma, GSK, Janssen, Kyowa Kirin, Merck, Novartis, Pfizer, Regeneron Pharmaceuticals, Inc., Roche, Sanofi Genzyme, Sun Pharma, UCB, Valeant – investigator, advisor, and/or speaker.

Hussain I: CSL Behring, Genentech, Optinose, Pfizer – advisory board member; AbbVie, AnaptysBio, Asana Biosciences, AstraZeneca, CSL Behring, Genentech, Gossamer Bio, GSK, HAL Allergy, Kiniksa Pharmaceuticals, LEO Pharma, Menlo Therapeutics, Merck, Novartis, Optinose, Pfizer, Regeneron Pharmaceuticals, Inc., Roche, Shire, Vanda Pharmaceuticals – Principal Investigator.

Chen Z, Chao JD, Bansal A: Regeneron Pharmaceuticals, Inc. – employees and shareholders.

Rossi AB: Sanofi Genzyme – employee, may hold stock and/or stock options in the company.

Corresponding author information:
Ana B. Rossi
Sanofi Genzyme
ana.rossi@sanofi.com
Cc: z.montvai@excerptamedica.com

Abstract 09

Dupilumab provides early and sustained improvement in sleep in adolescents and adults with moderate-to-severe Atopic Dermatitis

Eric L. Simpson[1]; Marjolein de Bruin-Weller[2]; Andreas Wollenberg[3]; Yoko Kataoka[4]; Sébastien Barbarot[5]; Ashish Bansal[6]; Zhen Chen[6]; Jingdong Chao[6]; Randy Prescilla[7]

[1]Oregon Health & Science University, Portland, OR, USA; [2]University Medical Center, Utrecht, Netherlands; [3]Ludwig-Maximilian University, Munich, Germany; [4]Osaka Habikino Medical Center, Osaka, Japan; [5]Centre Hospitalier Universitaire de Nantes, Nantes, France; [6]Regeneron Pharmaceuticals Inc., Tarrytown, NY, USA; [7]Sanofi Genzyme, Cambridge, MA, USA

BACKGROUND: Patients with moderate-to-severe atopic dermatitis (AD) report reduced quality of life, primarily driven by pruritus and sleep disturbance.

OBJECTIVE: To evaluate the effect of dupilumab on sleep in adolescents and adults with moderate-to-severe AD in three

randomized, double-blinded, placebo-controlled, phase 3 trials (LIBERTY AD ADOL: NCT03054428, LIBERTY AD SOLO 1/2: NCT02277743/NCT02277769).

METHODS: In the LIBERTY AD ADOL trial, adolescents aged ≥12 to <18 years were randomized 1:1:1 to subcutaneous dupilumab every 2 weeks (q2w; 200/300mg), every 4 weeks (q4w; 300mg), or placebo q2w for 16 weeks. In the identically designed LIBERTY AD SOLO 1/2 trials, adults were randomized 1:1:1 to subcutaneous dupilumab 300mg once weekly (qw), q2w, or placebo qw for 16 weeks. Sleep was assessed using SCORing Atopic Dermatitis (SCORAD) sleep loss component (Visual Analog Scale [VAS]), scored 0–10, "no sleeplessness" to "worst imaginable sleeplessness," and Patient-Oriented Eczema Measure (POEM) disturbed-sleep item.

RESULTS: Among 251 adolescents who were randomized to dupilumab q4w (n=84), dupilumab q2w (n=82), or placebo (n=85), mean (standard deviation [SD]) baseline SCORAD VAS sleep loss scores were 5.42 (3.34)/5.93 (3.20)/5.62 (3.09) in the q2w/q4w/placebo groups. At Week 16, dupilumab groups showed greater improvement in SCORAD VAS sleep loss scores than the placebo group; least squares (LS) mean change (standard error [SE]) from baseline was −3.62 (0.32)/−3.04 (0.32)/−1.12 (0.36) in the q2w/q4w/placebo groups (P<0.0001/P=0.0001 for q2w/q4w vs placebo). Groups reported no sleep disturbance on the POEM disturbed-sleep item; 45.1%/42.9%/21.2% in the q2w/q4w/placebo groups at Week 16 (P=0.0067/P=0.0196 for q2w/q4w vs placebo). Among 1,379 adults who received dupilumab q2w (n=457), dupilumab qw (n=462), or placebo (n=460), mean (SD) baseline SCORAD VAS sleep loss scores were 5.24 (3.20)/5.59 (3.09)/5.41 (3.25). At Week 16, dupilumab groups showed greater improvement in SCORAD VAS sleep loss scores than the placebo group; LS mean change (SE) from baseline was −3.30 (0.14)/−3.40 (0.14)/−0.82 (0.14) in the q2w/qw/placebo groups (P<0.0001 for q2w and qw vs placebo). Based on POEM disturbed-sleep item, 60.8%/53.0%/32.6% in the q2w/qw/placebo groups reported no sleep disturbance at Week 16 (P<0.0001 for q2w and qw vs placebo). Significant sleep improvement with q2w vs placebo was seen as early as Week 1 in adolescents (P=0.0009) and adults (P<0.0001) based on SCORAD VAS sleep scores. Dupilumab was generally well tolerated with a similar acceptable safety profile in adolescents and adults.

CONCLUSIONS: Dupilumab provided early and sustained significant improvement in sleep in adolescents and adults with moderate-to-severe AD.

ACKNOWLEDGMENTS: Data first presented at the International Symposium on Atopic Dermatitis. Research sponsored by Sanofi and Regeneron Pharmaceuticals, Inc. ClinicalTrials.gov identifier NCT03054428 (LIBERTY AD ADOL), NCT02277743 (LIBERTY AD SOLO 1), and NCT02277769 (LIBERTY AD SOLO 2). Medical writing/editorial assistance provided by Raj Menon, Ph.D., of Excerpta Medica, funded by Sanofi Genzyme and Regeneron Pharmaceuticals, Inc.

DISCLOSURES: Simpson EL: AbbVie, Eli Lilly, Galderma, Kyowa Hakko Kirin, LEO Pharma, Merck, Pfizer, Regeneron Pharmaceuticals, Inc. – investigator; AbbVie, Boehringer Ingelheim, Dermavant, Eli Lilly, Forte Bio, Incyte, LEO Pharma, Menlo Therapeutics, Pfizer, Pierre Fabre Dermo Cosmétique, Regeneron Pharmaceuticals, Inc., Sanofi Genzyme, Valeant – consultants honorarium.

de Bruin-Weller M: Regeneron Pharmaceuticals, Inc., Sanofi Genzyme – Principal Investigator, advisory board member, consultant; AbbVie, Pfizer – Principal Investigator, advisory board member; Eli Lilly, UCB – advisory board member.

Wollenberg A: Eli Lilly, Galderma, LEO Pharma, MedImmune, Novartis, Pfizer, Regeneron Pharmaceuticals, Inc., Sanofi Genzyme – investigator; Almirall, Anacor, Eli Lilly, Galderma, LEO Pharma, MedImmune, Novartis, Pfizer, Regeneron Pharmaceuticals, Inc., Sanofi Genzyme – consultant; Beiersdorf, LEO Pharma, Pierre Fabre – research grants.

Kataoka Y: Sanofi – research grants, honoraria for lectures.

Barbarot S: Pierre Fabre Dermo Cosmétique – research grants; Bioderma, Ferring, La Roche Posay, Novalac, Sanofi Genzyme – personal fees; AbbVie, Janssen, Novartis – non-financial support.

Bansal A, Chen Z, Chao JD: Regeneron Pharmaceuticals, Inc. – employees and shareholders.

Prescilla R: Sanofi Genzyme – employee, may hold stock and/or stock options in the company.

Corresponding author information:
Ana B. Rossi
Sanofi Genzyme
ana.rossi@sanofi.com
Cc: z.montvai@excerptamedica.com

Abstract 10

Title: Dupilumab treatment provides improvements in signs of Atopic Dermatitis (AD) at week 100 in adult patients with moderate-to-severe AD who did not achieve ≥75% reduction in Eczema area and severity index at week 16

Authors: April Armstrong[1]; Andrew Blauvelt[2]; Eric L Simpson[3]; Zhen Chen[4]; Marius Ardeleanu[4]; Ana B. Rossi[5]; Paul Tomondy[5]

Keck School of Medicine, University of Southern California, Los Angeles, CA; [2]Oregon Medical Research Center, Portland, OR; [3]Oregon Health and Science University, Portland, OR; [4]Regeneron Pharmaceuticals, Inc., Tarrytown, NY; [5]Sanofi Genzyme, Cambridge, MA; USA

BACKGROUND: Atopic dermatitis (AD) is a chronic inflammatory skin disease that may require long-term management. Here, we report dupilumab efficacy up to Week 100 in an open-label extension (OLE) study (NCT01949311) of adult patients with moderate-to-severe AD who did not have an improvement of ≥ 75% in Eczema Area and Severity Index (EASI-75) or an Investigator's Global Assessment (IGA) of 0/1 at Week 16 during their parent study.

METHODS: Patients included in this analysis participated in parent studies LIBERTY AD SOLO 1 or 2 (SOLO1&2;

NCT02277743, NCT02277769) and were subsequently enrolled in LIBERTY AD OLE, assessing long-term safety and efficacy, where all patients received dupilumab 300 mg weekly (qw). Included in this analysis are patients who previously received dupilumab in SOLO 1&2, and subsequently enrolled in OLE, who did not achieve either EASI-75 or IGA 0/1 at Week 16 of SOLO1&2.

RESULTS: 460/457/462 patients enrolled in SOLO 1&2 in the placebo, dupilumab 300 mg q2w, and dupilumab 300 mg qw groups, respectively. Most patients who achieved the primary endpoints of SOLO 1&2 continued into SOLO-CONTINUE (NCT02395133); most patients who did not achieve the primary endpoints of SOLO 1&2 entered OLE. 213/178 patients entered OLE from SOLO 1&2 (receiving dupilumab 300 mg q2w and dupilumab 300 mg qw in SOLO 1&2, respectively). ≥ 91.5% of these patients did not achieve either EASI-75 or IGA 0/1 at Week 16 of SOLO 1&2 and were included in this analysis. Proportions of patients with EASI-75 at Week 100 of the OLE were 91.0%, and 91.1% for the SOLO1&2 dupilumab 300 mg q2w and dupilumab 300 mg qw treatment groups, respectively. Similarly, at Week 100 of the OLE, proportions of patients with IGA scores of 0 or 1 were 44.8% and 49.0% for the patients who received dupilumab 300 mg q2w and dupilumab 300 mg qw, respectively, in SOLO1&2.

CONCLUSIONS: Among patients with moderate-to-severe AD not achieving EASI-75 or IGA 0/1 at Week 16 in SOLO 1&2, a large proportion achieved these respective endpoints after continued treatment with dupilumab 300 mg qw. These OLE data suggest that long-term treatment with dupilumab improves AD signs in patients who do not respond optimally in the short term, independent of parent-study treatment dose.

ACKNOWLEDGMENTS: Data first presented at the Annual Meeting of the Spanish Academy of Dermatology and Venereology (AEDV), virtual meeting; November 19-21, 2020. Research sponsored by Sanofi and Regeneron Pharmaceuticals, Inc. ClinicalTrials.gov Identifier: NCT01949311. Medical writing/editorial assistance provided by Luke Shelton, PhD, of Excerpta Medica, funded by Sanofi Genzyme and Regeneron Pharmaceuticals, Inc.

DISCLOSURES: Armstrong A: University of Southern California – employee; AbbVie, Bristol-Myers Squibb, Dermavant, Dermira, Janssen, Eli Lilly, LEO Pharma, Modernizing Medicine, Ortho Dermatologics, Regeneron Pharmaceuticals, Inc., Sanofi Genzyme, Science 37, UCB – investigator and/or consultant

Blauvelt A: AbbVie, Aclaris, Almirall, Arena, Athenex, Boehringer Ingelheim, Bristol-Myers Squibb, Dermavant, Dermira, Eli Lilly, FLX Bio, Forte, Galderma, Janssen, LEO Pharma, Novartis, Ortho Derm, Pfizer, Regeneron Pharmaceuticals, Inc., Sandoz, Sanofi Genzyme, Sun Pharma, UCB – scientific adviser, clinical study investigator; AbbVie – paid speaker.

Simpson EL: AbbVie, Eli Lilly, Galderma, Kyowa Hakko Kirin, LEO Pharma, Merck, Pfizer, Regeneron Pharmaceuticals, Inc. – investigator; AbbVie, Boehringer Ingelheim, Dermavant, Eli Lilly, Forte Bio, Incyte, LEO Pharma, Menlo Therapeutics, Pfizer, Pierre Fabre Dermo Cosmétique, Regeneron Pharmaceuticals, Inc., Sanofi Genzyme, Valeant – consultants honorarium.

Chen Z, Ardeleanu M: Employee and shareholder of Regeneron Pharmaceuticals, Inc.

Rossi AB, Tomondy P: Sanofi Genzyme – employees, may hold stock and/or stock options in the company.

Corresponding author information:
Ana B. Rossi
Sanofi Genzyme
ana.rossi@sanofi.com
Cc: z.montvai@excerptamedica.com

Abstract 11

Early and sustained improvements in patient-reported outcomes with tralokinumab in combination with topical corticosteroids as needed in moderate-to-severe atopic dermatitis

Boni E. Elewski;[1] Sonja Ständer;[2] Matthew Zirwas;[3] Juan Francisco Silvestre;[4] Sunil Kalia;[5,6] Jan Gutermuth;[7] Thomas Mark;[8] Ann-Marie Tindberg;[8] Karen Veverka;[9] Jonathan I. Silverberg[10]

[1]The University of Alabama at Birmingham, Birmingham, AL, USA; [2]Department of Dermatology and Interdisciplinary Competence Center Chronic Pruritus (KCP), University Hospital Münster, Münster, Germany; [3]Probity Medical Research, Columbus, OH, USA; [4]Dermatology Department, Hospital General Universitario de Alicante, Alicante, Spain; [5]Department of Dermatology and Skin Science, University of British Columbia, Vancouver, British Columbia, Canada; [6]Vancouver Coastal Health & BC Children's Hospital Research Institutes, Vancouver, British Columbia, Canada; [7]Department of Dermatology, Universitair Ziekenhuis Brussel and Vrije Universiteit Brussel, Brussels, Belgium; [8]LEO Pharma A/S, Ballerup, Denmark; [9]LEO Pharma, Madison, NJ, USA; [10]Department of Dermatology, The George Washington University School of Medicine and Health Sciences, Washington, DC, USA

BACKGROUND: Atopic dermatitis (AD) is a chronic, inflammatory skin disease characterized by eczematous skin lesions associated with intense itch, sleep loss, impaired quality of life (QoL), anxiety, and depression. Tralokinumab, a fully human anti-IL-13 monoclonal antibody, binds to and neutralizes IL-13, a key cytokine in the pathogenesis of AD. The randomized, placebo-controlled, double-blind, phase 3 ECZTRA 3 trial (NCT03363854) investigated the efficacy and safety of tralokinumab plus topical corticosteroids (TCS) as needed in adults with moderate-to-severe AD.

OBJECTIVE: This post hoc analysis assessed the effects of treatment with tralokinumab plus TCS as needed on patient-reported outcomes over 32 weeks.

METHODS: Adults with moderate-to-severe AD were randomized 2:1 to subcutaneous tralokinumab 300 mg q2w plus TCS (mometasone furoate 0.1% cream applied qd to active lesions as needed; n=252) or placebo + TCS (n=126) for 16 weeks. Tralokinumab-treated patients continued on either q2w or q4w + TCS for an additional 16 weeks. Worst daily pruritus Numeric Rating Scale (NRS) and eczema-related sleep interference NRS were recorded daily via eDiary, and Patient-Oriented Eczema Measure (POEM), Dermatology Life Quality Index (DLQI), and Hospital Anxiety and Depression Scale (HADS) were recorded during scheduled

visits. Week 16-32 data were analyzed by pooling all patients who were randomized to tralokinumab in the initial treatment period, irrespective of tralokinumab dosing regimen beyond week 16.

RESULTS: At week 16, mean worst daily pruritus NRS (weekly average) improved by –4.1 vs. baseline with tralokinumab q2w plus TCS and by –3.0 with placebo plus TCS (P<0.001), mean eczema-related sleep interference NRS improved by –4.4 with tralokinumab q2w plus TCS vs. –3.2 with placebo plus TCS (P<0.001), and mean POEM improved by –11.8 with tralokinumab q2w plus TCS vs. –7.8 with placebo plus TCS (P<0.001). The least-square mean (standard error [SE]) HADS total score improved from 11.6 (0.3) at baseline to 7.2 (0.3) at week 16 with tralokinumab q2w vs. 9.2 (0.4) with placebo plus TCS (P<0.001). The least-square mean DLQI total score was reduced from 17.4 (0.3) at baseline to 5.6 (0.3) at week 16 with tralokinumab q2w plus TCS vs. 8.3 (0.5) with placebo plus TCS (P<0.001). Early separation in all patient-reported outcomes between tralokinumab plus TCS and placebo plus TCS was observed from week 2 or 3 onward. At weeks 15–16, tralokinumab-treated patients used approximately 50% less TCS vs placebo-treated patients (P=0.002). Continued tralokinumab q2w/q4w + TCS was associated with sustained improvements.

CONCLUSIONS: Patients with moderate-to-severe AD receiving tralokinumab plus TCS as needed reported early and sustained improvements in itch, sleep interference, POEM, anxiety, depression, and QoL.

FUNDING SOURCE: The ECZTRA 3 trial was sponsored by LEO Pharma A/S, Ballerup, Denmark.

Corresponding author information:

Boni E. Elewski
belewski@uabmc.edu

Sonja Ständer
Sonja.Staender@ukmuenster.de

Matthew Zirwas
matt.zirwas@gmail.com

Juan Francisco Silvestre
silvestre.jfr@gmail.com

Sunil Kalia
sunil.kalia@ubc.ca

Jan Gutermuth
Jan.Gutermuth@uzbrussel.be

Thomas Mark
ZHODK@leo-pharma.com

Ann-Marie Tindberg
ZETDK@leo-pharma.com

Karen Veverka
KNVUS@leo-pharma.com

Jonathan I. Silverberg
jonathanisilverberg@gmail.com

Abstract 12

Efficacy and safety of Ruxolitinib cream for the treatment of Atopic Dermatitis: a pooled analysis of two, phase 3 randomized, double-blind studies

Kim Papp, MD, Ph.D.;[1] Jacek C. Szepietowski, MD, Ph.D.;[2] Leon Kircik, MD;[3] Darryl Toth, MD;[4] Michael E. Kuligowski, MD, Ph.D., MBA;[5] May E. Venturanza, MD;[5] Kang Sun, Ph.D.;[5] Eric L. Simpson, MD, MCR[6]

[1]K. Papp Clinical Research and Probity Medical Research, Waterloo, ON, Canada, kapapp@probitymedical.com; [2]Department of Dermatology, Venereology and Allergology, Wroclaw Medical University, Wroclaw, Poland, jacek.szepietowski@umed.wroc.pl; [3]Icahn School of Medicine at Mount Sinai, New York, NY, USA, wedoderm@yahoo.com; [4]XLR8 Medical Research and Probity Medical Research, Windsor, ON, Canada, dtoth@jet2.net; [5]Incyte Corporation, Wilmington, DE, USA, mkuligowski@incyte.com, mventuranza@incyte.com, ksun@incyte.com; [6]Oregon Health & Science University, Portland, OR, USA, simpsone@ohsu.edu

BACKGROUND: Atopic dermatitis (AD) is a chronic, inflammatory skin dermatosis (Langan SM, et al. Lancet 2020). Janus kinases (JAKs) act downstream of proinflammatory cytokines and itch mediators involved in AD pathogenesis. Ruxolitinib cream selectively inhibits JAK1 and JAK2.

OBJECTIVES: To report the 8-week efficacy and safety of ruxolitinib cream using pooled data from two, phase 3 studies in adolescent and adult patients with AD.

METHODS: Two identical studies (TRuE-AD1 [NCT03745638] and TRuE-AD2 [NCT03745651]) enrolled patients aged ≥12 years with AD for ≥2 years, an Investigator's Global Assessment (IGA) score of 2/3, and 3%–20% affected body surface area. In both studies, patients were randomized (2:2:1) to twice-daily 0.75% ruxolitinib cream, 1.5% ruxolitinib cream, or vehicle for 8 weeks of double-blind treatment. The primary endpoint was IGA treatment success (TS) at Week 8 (IGA of 0/1 and ≥2-grade improvement from baseline). Secondary endpoints at Week 8 vs. baseline included ≥75% improvement in Eczema Area and Severity Index (EASI-75), ≥4-point improvement in itch Numerical Rating Scale score (NRS4), ≥6-point improvement in the Patient-Reported Outcomes Measurement Information System (PROMIS) Short Form – Sleep Disturbance (8b) score (24-hour recall), and safety.

RESULTS: Of 1249 randomized patients (median [range] age, 32.0 [12–85] years), 130 (10.4%) discontinued treatment. Significantly more patients treated with either ruxolitinib cream regimen achieved IGA-TS at Week 8 (44.7%/52.6% for 0.75%/1.5% ruxolitinib) vs. vehicle (11.5%; both P<0.0001). EASI-75 at Week 8 was achieved by 53.8%/62.0% of patients who applied 0.75%/1.5% ruxolitinib vs. 19.7% on a vehicle (both P<0.0001). Substantially greater itch reduction was observed within 12 hours of first ruxolitinib application (mean change from baseline, –0.4/–0.5 for 0.75%/1.5% ruxolitinib) vs. vehicle (–0.1; both P<0.02). At Week 8, more patients who applied ruxolitinib achieved NRS4 (41.5%/51.5% for 0.75%/1.5% ruxolitinib) vs vehicle (15.8%; both P<0.0001). Considerable

improvement in PROMIS 8b was achieved with both ruxolitinib regimens at Week 8 (20.9%/23.8% for 0.75%/1.5% ruxolitinib) vs vehicle (14.2%; both $P<0.05$). Treatment-related adverse events (AEs) were reported in 4.7% of patients who applied ruxolitinib cream (combined) vs. vehicle (11.2%). No AEs indicative of the systemic activity of ruxolitinib was observed. No serious AEs related to ruxolitinib was reported.

CONCLUSIONS: Ruxolitinib cream showed dual anti-inflammatory and antipruritic effects with superior efficacy vs. vehicle for IGA-TS, EASI-75, itch NRS4, and PROMIS 8b. The AE profile was similar to the vehicle; the rate of application site reactions was low. These results demonstrate the potential of ruxolitinib cream as an effective and well-tolerated topical treatment for AD.

DISCLOSURES: Kim Papp has received honoraria or clinical research grants as a consultant, speaker, scientific officer, advisory board member, and/or steering committee member for AbbVie, Akros, Amgen, Anacor, Arcutis, Astellas, Bausch Health/Valeant, Baxalta, Boehringer Ingelheim, Bristol Myers Squibb, Can-Fite, Celgene, Coherus, Dermira, Dow Pharmaceuticals, Eli

Lilly, Galderma, Genentech, Gilead, GSK, Incyte Corporation, InflaRx, Janssen, Kyowa Hakko Kirin, LEO Pharma, MedImmune, Meiji Seika Pharma, Merck (MSD), Merck Serono, Mitsubishi Pharma, Moberg Pharma, Novartis, Pfizer, PRCL Research, Regeneron, Roche, Sanofi-Aventis/Genzyme, Sun Pharmaceuticals, Takeda, and UCB.

Jacek C. Szepietowski has served as an advisor for AbbVie, LEO Pharma, Novartis, Pierre Fabre, Menlo Therapeutics, and Trevi; has received speaker honoraria from AbbVie, Janssen-Cilag, LEO Pharma, Novartis, Sanofi-Genzyme, Sun Pharma, and Eli Lilly; and has received clinical trial funding from AbbVie, Almirall, Amgen, Galapagos, Holm, Incyte Corporation, InflaRX, Janssen-Cilag, Menlo Therapeutics, Merck, Novartis, Pfizer, Regeneron, Trevi, and UCB.

Leon Kircik has served as an investigator, consultant, or speaker for AbbVie, Amgen, Anaptys, Arcutis, Dermavant, Eli Lilly, Glenmark, Incyte Corporation, Kamedis, LEO Pharma, L'Oreal, Menlo, Novartis, Ortho Dermatologics, Pfizer, Regeneron, Sanofi, Sun Pharma, and Taro.

Darryl Toth has served as an investigator for AbbVie, Avillion, Amgen, Arcutis, Astellas, Astion, Boehringer Ingelheim, Celgene, Dermira, DS BioPharma, Dow Pharmaceuticals, Eli Lilly, F.

Hoffmann-La Roche Ltd, Galderma, GlaxoSmithKline, Incyte Corporation, Isotechnika, Janssen, LEO Pharma, Merck, Novartis, Pfizer, Regeneron, and UCB Biopharma.

Michael E. Kuligowski, May E. Venturanza, and Kang Sun are employees and shareholders of Incyte Corporation.

FUNDING SOURCE: ELS is an investigator for AbbVie, Eli Lilly, Galderma, Kyowa Hakko Kirin, LEO Pharma, Merck, Pfizer, and Regeneron and is a consultant with honorarium for AbbVie, Eli Lilly, Forte Bio, Galderma, Incyte Corporation, LEO Pharma, Menlo Therapeutics, Novartis, Pfizer, Regeneron, Sanofi Genzyme, and Valeant.

Corresponding author information: May E. Venturanza, Incyte Corporation, 1801 Augustine Cut-Off, Wilmington, DE, USA 19803; tel: +1-302-498-6862; email: mventuranza@incyte.com

Abstract 13

Efficacy and safety of tralokinumab in a United States subpopulation of patients with moderate-to-severe atopic dermatitis: sub-analysis of ECZTRA 1 and 2, two-phase 3, randomized, double-blinded, placebo-controlled trials

Andrew Blauvelt;[1] Neil J. Korman;[2] Nitin N. Bhatia;[3] Karen Veverka;[4] John Zoidis;[4] Alexandra Kuznetsova;[5] Eric L. Simpson[6]

[1]Oregon Medical Research Center, Portland, OR, USA; [2]Department of Dermatology, Case Western Reserve University, Cleveland, OH, USA; [3]Therapeutics Clinical Research, San Diego, CA, USA; [4]LEO Pharma, Madison, NJ, USA; [5]LEO Pharma A/S, Ballerup, Denmark; [6]Department of Dermatology, Oregon Health & Science University, Portland, OR, USA

BACKGROUND: Tralokinumab is a fully human anti-interleukin (IL) -13 monoclonal antibody that binds and neutralizes IL-13, a key cytokine in the pathogenesis of atopic dermatitis. Atopic dermatitis treatment responses to targeted therapy may vary given the heterogeneity in disease endotypes observed between various ethnic and racial groups.

OBJECTIVES: To evaluate the efficacy and safety of tralokinumab in the diverse United States (US) subpopulation of patients with moderate-to-severe (Investigator's Global Assessment [IGA] 3/4) atopic dermatitis from two multinational, phase 3, monotherapy trials (ECZTRA 1, NCT03131648; ECZTRA 2, NCT03160885).

METHODS: Patients were randomized 3:1 to receive tralokinumab 300 mg or placebo every two weeks (q2w), after an initial 600 mg loading dose. Responders were defined as achieving an IGA score of 0 or 1 and/or a ≥75% improvement from baseline in Eczema Area and Severity Index (EASI-75), without the use of rescue medication. Tralokinumab responders at Week 16 were re-randomized 2:2:1 to tralokinumab 300 mg q2w or q4w, or placebo, for a 36-week maintenance treatment period. Efficacy endpoints and patient-reported outcomes at Week 16 were assessed in a pooled analysis of the US subpopulation from ECZTRA 1 and 2.

RESULTS: 1596 patients were randomized across the ECZTRA 1 and 2 trials; 369 were from the US (23.1% of the overall study population). Baseline demographics and disease characteristics were generally well balanced across treatment groups. The US subpopulation had a greater proportion of patients with moderate atopic dermatitis (IGA-3), compared to the overall study population (62.9% vs 49.9%).

At Week 16, the proportion of tralokinumab patients achieving IGA 0 or 1 was greater than that in the placebo group (24.9 % vs 20.0%; $P=0.30$), and significantly more tralokinumab patients achieved EASI-75 compared with placebo (39.9% vs 24.2%; $P=0.007$). Tralokinumab patients demonstrated significant improvements from baseline to Week 16 in SCORAD and DLQI compared to placebo. A numerically greater proportion of tralokinumab patients achieved a worst daily pruritus reduction of ≥4, compared with placebo. The percentage of patients experiencing an adverse event (AE) in the initial treatment period was similar between the tralokinumab and placebo groups (52.4%, rate 421.8 vs 52.6%, rate 434.7, respectively; the rate was

defined as the number of AEs/patient-years of exposure multiplied by 100); most were mild or moderate in severity.
CONCLUSIONS: Tralokinumab 300 mg q2w demonstrated improvements in the signs and symptoms of moderate-to-severe atopic dermatitis, with a good safety profile, in a pooled analysis of a diverse US subpopulation in the ECZTRA 1 and 2 studies.
FUNDING SOURCE: The ECZTRA 1 and 2 trials were sponsored by LEO Pharma A/S, Ballerup, Denmark.
Corresponding author information:
Andrew Blauvelt
ABlauvelt@oregonmedicalresearch.com

Neil J. Korman
Neil.Korman@UHhospitals.org

Nitin N. Bhatia
dsbconsulting37@gmail.com

Karen Veverka
KNVUS@leo-pharma.com

John Zoidis
JNZUS@leo-pharma.com

Alexandra Kuznetsova
DKXDK@leo-pharma.com

Eric L. Simpson
simpsone@ohsu.edu

Abstract 14

Efficacy and safety of tralokinumab in United States patients with moderate-to-severe atopic dermatitis: a subanalysis of ECZTRA 3, a phase 3, randomized, and double-blind, placebo-controlled study

Boni E. Elewski;[1] Matthew Zirwas;[2] Karen Veverka;[3] John Zoidis;[3] Azra Kurbasi;[4] Jonathan I. Silverberg[5]

[1]University of Alabama, Birmingham, AL; [2]Probity Medical Research, Columbus, OH; [3]LEO Pharma, Madison, NJ; [4]LEO Pharma A/S, Ballerup, Denmark; [5]The George Washington University School of Medicine and Health Sciences, Washington, DC

BACKGROUND: Tralokinumab, a fully human anti-IL-13 monoclonal antibody, binds to and neutralizes IL-13, a key cytokine in the pathogenesis of atopic dermatitis (AD). The efficacy and safety of tralokinumab were evaluated in patients with moderate (IGA-3) to severe (IGA-4) AD as part of a multinational, randomized, double-blind, placebo-controlled phase 3 study (ECZTRA 3, NCT03363854).
OBJECTIVES: To evaluate the efficacy and safety of tralokinumab in US patients with moderate-to-severe AD who participated in the ECZTRA 3 study.
METHODS: 380 adults were randomized in the overall study; 159 (41.8%) were from North America (NA), 100 (26.3% of the overall study population) from the United States (US). Patients were randomized 2:1 to receive tralokinumab 300 mg or placebo, plus topical corticosteroids (TCS) as needed, q2w after an initial 600-mg loading dose. The response was defined as having met at least one endpoint at Week 16: Investigator's Global Assessment (IGA) 0/1 and/or ≥75% improvement from baseline in Eczema Area-and severity index (EASI-75) without the use of rescue medication. Subjects with missing data were considered non-responders. Tralokinumab responders at Week 16 were re-randomized to continue in the study with tralokinumab plus TCS 300mg either q2w or q4w to Week 32. Efficacy, safety, and patient-reported outcomes (PROs) in the US subpopulation were assessed.
RESULTS: IGA scores at baseline indicated slightly more moderate disease for the US subpopulation (IGA-4=35.0%) vs overall study population (IGA-4=46.3%). However, mean baseline EASI scores confirmed a moderate-to-severe patient population across the overall study vs US (29% vs 26%, respectively). For the US patient population, EASI 75 and IGA 0/1 responses for tralokinumab 300 mg q2w plus TCS (56.3% and 40.8%, respectively) separated early from and were greater than those for placebo plus TCS (21.4% [*P*=0.004] and 10.7% [*P*=0.01%]) at Week 16. EASI mean % change from baseline at Week 16 showed 73.8% improvement in the tralokinumab-plus-TCS group vs 37.9% for placebo plus TCS. PRO measures including itch NRS, SCORAD, and DLQI were improved at Week 16 vs baseline, more so for tralokinumab plus TCS group. US patients who responded to tralokinumab 300 mg q2w plus TCS at Week 16 maintained (>90.0%) response with continued tralokinumab treatment to Week 32. The overall rate of adverse events (AEs) was similar between the US subpopulation and the overall study population, mostly reported as mild-to-moderate in severity.
CONCLUSIONS: Tralokinumab 300 mg q2w plus TCS improved signs and symptoms of moderate-to-severe AD, with acceptable safety in a post-hoc analysis of the US subpopulation from ECZTRA 3. Despite the US subpopulation being among the most diverse groups in the study with regard to baseline characteristics, tralokinumab plus TCS showed superior efficacy and similar safety to placebo plus TCS.
FUNDING SOURCES: The ECZTRA 3 trial was sponsored by LEO Pharma A/S, Ballerup, Denmark.
Corresponding author information:
Boni E. Elewski
belewski@uabmc.edu

Matthew Zirwas
matt.zirwas@gmail.com

Karen Veverka
KNVUS@leo-pharma.com

John Zoidis
JNZUS@leo-pharma.com

Azra Kurbasic
KUZDK@leo-pharma.com

Jonathan I. Silverberg
jonathanisilverberg@gmail.com

Abstract 15

Filling the void left by substance P antagonists with antagonists of Mrgprs: implications for itch and atopic dermatitis

Azimi E; Reddy VB; Shade K-TC; Anthony R; Talbot S; Pereira P; Lerner EA.

BACKGROUND: Substance P (SP) has long been implicated in atopic dermatitis (Steinhoff, Physiol rev 2014). SP is a neuropeptide and key mediator of histamine-independent itch. Neurokinin-1 receptor (NK1R) is the classical receptor for SP. NK1R antagonists have shown promising results for the treatment of itch and inflammation in animal models of atopic dermatitis and asthma. Unfortunately, NK1R antagonists were not effective in clinical trials of asthma or atopic dermatitis (Rod, Med Monatsschr pharm 2006). The discrepancy observed concerning NK1R antagonists in humans and rodents is important as it could potentially lead to novel treatments for itch and atopy (Azimi, JCI insight 2016). It is now clear that SP activates members of a family of GPCRs, known as Mrgprs, in addition to NK1R (Cevikbas, Physiol rev 2020). Mrgprs are GPCRs expressed on mast cells and dorsal root ganglia and are pivotal for histamine-independent itch and drug reactions (Cevikbas, Physiol rev 2020). We previously demonstrated that SP-induced itch and mast cell degranulation is mediated by Mrgprs (Azimi, JACI 2017).

Here we provide a novel explanation for the inefficacy of NK1R antagonists for treating itch and inflammation in humans. We demonstrate that NK1R antagonists have an off-target inhibitory effect on Mrgpr activation of SP in mice. We also show that human Mrgprs do not interact with NK1 antagonists. We propose that inhibition of Mrgprs by NK1R antagonists in mice mediates the anti-itch and anti-inflammatory effects of these agents in mice. Based on this hypothesis, we have identified an NK1 antagonist, QWF(Azimi, JCI insight 2016), that has inhibitory properties on the human Mrgpr activated by SP, MRGPRX2. Inhibitors of MRGPRX2 may have implications for treating itch and inflammation.

METHODS: Itch induced by SP was compared between NK1R knockout (KO) and wild-type mice. The interaction of SP and NK1R antagonists with Mrgprs were studied by heterologous expression in HeLa cells. The effect of NK1R antagonists was compared on SP-induced itch in mice. The effect of NK1R antagonists was compared on SP-induced mast degranulation in the human LAD2 mast cell line.

RESULTS: SP-induced itch is intact in NK1R KO mice. SP activates human MRGPRX2 and its mouse orthologue, MrgprB2. Classic NK1R antagonists such as L733060 and aprepitant are antagonists of mouse MrgprB2 but not human MrgprX2. QWF, a tripeptide NK1R antagonist, has inhibitory activity on both mouse MrgprB2 and human MRGPRX2. QWF not only inhibits SP-induced itch in WT mice but also inhibits SP-induced itch in NK1R KO mice. QWF inhibits SP-induced mast cell degranulation in human LAD2 mast cells, but aprepitant and L733060 do not.

CONCLUSIONS: Mrgprs are critical to SP-induced itch and mast cell degranulation. We show that SP is an endogenous ligand for human-MRGPRX2. We provide an explanation for the inefficacy of NK1R antagonists in the treatment of itch and inflammation in humans. The tripeptide MRGPRX2 antagonist that we have identified, or a derivative, has the potential to be a specific treatment for itch and inflammatory conditions such as atopic dermatitis asthma, and migraine that were successfully treated in animal models using NK1 antagonists that had an unknown off-target effect on mouse MrprB2.

Corresponding author information: Ehsan Azimi, M.D., Harvard combined dermatology residency program. Email: Ehsan.azimi@mgh.harvard.edu

Abstract 16

High incidence of treatment satisfaction with long-term dupilumab treatment in adult patients with moderate-to-severe atopic dermatitis (LIBERTY AD OLE)

Diamant Thaçi[1], Andrew Blauvelt[2], Iftikhar Hussain[3], Xian Sun[4], Jingdong Chao[4], Ana B. Rossi[5], Brad Shumel[4]

[1]University of Lübeck, Lübeck, Germany; [2]Oregon Medical Research Center, Portland, OR, USA; [3]Vital Prospects Clinical Research Institute, Tulsa, OK, USA; [4]Regeneron Pharmaceuticals, Inc., Tarrytown, NY, USA; [5]Sanofi Genzyme, Cambridge, MA, USA

OBJECTIVE: Atopic dermatitis (AD) is a chronic inflammatory skin disease requiring long-term management. Many treatments for AD are not recommended for continuous use due to safety concerns and lack of long-term efficacy. We report long-term safety, efficacy, and self-reported assessments of the effect of dupilumab in patients who participated in the LIBERTY AD open-label extension (OLE) study.

MATERIALS & METHODS: LIBERTY AD OLE is an ongoing study to assess the long-term safety and efficacy of dupilumab subcutaneous 300 mg weekly in adult patients with moderate-to-severe AD who had previously participated in controlled dupilumab clinical trials (parent studies). We report data from patients who received dupilumab for up to 148 weeks at data cutoff (December 1, 2018). Analyses include all observed data with no imputation.

RESULTS: 2,677 patients were treated in the OLE study; 347 (13.0%) had received up to 148 weeks of treatment at data cutoff. At Week 12, 87.4% of patients rated their treatment response using the Patient Global Assessment of Treatment Effect instrument as "Good," "Very Good," or "Excellent," (27.2% reporting "Excellent"). By Week 124, 49.6% of patients reported a treatment effect of "Excellent." The proportion of patients with a "Poor" or "Fair" treatment effect remained low (4.3%–12.6% during OLE).

At week 148, 74.1% and 94.8% of patients achieved an Investigator's Global Assessment score of ≤1 (almost clear) and ≤2 (mild), respectively. Mean percentage change in Eczema Area and Severity Index (EASI) from parent study

baseline to Week 148 was –95.4%, with 96.6% of patients achieving ≥a 75% reduction in EASI. Mean percentage change from parent study baseline to Week 148 in Peak Pruritus Numerical Rating Scale (NRS) was –65.4%, while 75.0% of patients achieved either ≥3-point improvement in Peak Pruritus NRS score or a score of 0. At Week 148, the mean EASI was 1.4, and the mean Peak Pruritus NRS score was 2.2.

84.6% patients experienced ≥1 treatment-emergent adverse event (TEAE); 9.6% a serious adverse event (SAE); 1.2% a treatment-related SAE; 9.2% a severe TEAE; and 3.5% a TEAE leading to treatment discontinuation. The most common TEAEs were nasopharyngitis (28.1%); conjunctivitis (19.5%; including the MedDRA Preferred Terms of conjunctivitis, conjunctivitis allergic/bacterial/viral, and atopic keratoconjunctivitis); AD exacerbation (16.4%); and upper respiratory tract infection (13.1%). Exposure-adjusted incidence rates of the most common TEAEs were lower in OLE than in the 52-week LIBERTY AD CHRONOS.

CONCLUSIONS: Long-term dupilumab treatment resulted in sustained improvement in AD signs and symptoms, with a high rate of treatment satisfaction as self-reported by adult patients with moderate-to-severe AD. The safety profile in this long-term OLE study was consistent with the known safety profile of dupilumab previously observed in controlled studies.

ACKNOWLEDGEMENTS: These data were first presented at the 29th Annual European Academy of Dermatology and Venereology Virtual Congress (EADV 2020), October 29-31, 2020. Research sponsored by Sanofi and Regeneron Pharmaceuticals, Inc. ClinicalTrials.gov Identifier: NCT01949311 (R668-AD-1225 LIBERTY AD OLE). Medical writing/editorial assistance provided by Toby Leigh Bartholomew, Ph.D., of Excerpta Medica, funded by Sanofi Genzyme and Regeneron Pharmaceuticals, Inc.

DISCLOSURES: Thaçi D: AbbVie, Almirall, Amgen, Beiersdorf, BMS, Boehringer Ingelheim, DS-Pharma, Eli Lilly, Galapagos, GSK, Janssen-Cilag, LEO Pharma, MorphoSys, Novartis, Pfizer, Regeneron Pharmaceuticals, Inc., Samsung, Sandoz, Sanofi, Sun Pharma, UCB – consultant, advisory board member, and/or investigator.

Blauvelt A: AbbVie, Aclaris, Almirall, Arena, Athenex, BMS, Boehringer Ingelheim, Dermavant, Dermira, Eli Lilly, Forte, Galderma, Janssen, LEO Pharma, Novartis, Ortho Derm, Pfizer, Pharma, Rapt, Regeneron Pharmaceuticals, Inc., Sandoz, Sanofi Genzyme, Sun Pharma, UCB – scientific adviser, clinical study investigator; AbbVie – paid speaker.

Hussain I: CSL Behring, Genentech, Optinose, Pfizer – advisory board member; AbbVie, AnaptysBio, Asana Biosciences, AstraZeneca, CSL Behring, Genentech, Gossamer Bio, GSK, HAL Allergy, Kiniksa Pharmaceuticals, LEO Pharma, Menlo Therapeutics, Merck, Novartis, Optinose, Pfizer, Regeneron Pharmaceuticals, Inc., Roche, Shire, Vanda – principal investigator.

Sun X, Chao J, Shumel B: Regeneron Pharmaceuticals, Inc. – employees and shareholders.

Rossi AB: Sanofi Genzyme – employee, may hold stock and/or stock options in the company.

Corresponding author information:
Ana B. Rossi
Sanofi Genzyme
ana.rossi@sanofi.com
Cc: z.montvai@excerptamedica.com

Abstract 17

Impact of Lebrikizumab on patient-reported outcomes in Atopic Dermatitis: prospective and post hoc analyses of a phase 2b clinical trial demonstrate clinically meaningful improvements

Guttman-Yassky E,[1] MD, Ph.D.; Blauvelt A,[2] MD, MBA; Eichenfield L,[3] MD; Paller A,[4] MD; Armstrong A,[5] MD; Drew J,[6] BS, MPH; Gopalan R,[6] Ph.D.; Simpson E,[7] MD

[1]Icahn School of Medicine at Mount Sinai, New York City, NY; [2]Oregon Medical Research Center, Portland, OR; [3]Rady Children's Hospital, University of California, San Diego, CA; [4]Northwestern University Feinberg School of Medicine, Chicago, IL; [5]Keck School of Medicine, University of Southern California, Los Angeles, CA; [6]Dermira, Inc., Menlo Park, CA; [7]Oregon Health & Science University, Portland, OR

BACKGROUND: Patient-reported outcomes are valuable measures of treatment impact in atopic dermatitis (AD). Lebrikizumab (LEB) is an investigational, high-affinity, monoclonal antibody targeting IL-13.

OBJECTIVES: The objective here was to evaluate the impact of LEB inhibition of IL-13 signaling on patient-reported outcomes using data from a randomized, double-blinded, placebo-controlled, dose-ranging, phase 2b study of LEB in moderate-to-severe AD (NCT03443024)

METHODS: Adults (Eczema Area and Severity Index [EASI] ≥16, Investigator's Global Assessment [IGA] ≥3, chronic AD ≥1 year) were randomized to subcutaneous LEB 125 mg every 4 weeks (Q4W; 250 mg loading dose [LD]; n=73), 250 mg Q4W (500 mg LD; n=80), 250 mg every 2 weeks (Q2W; 500 mg LD at Baseline and Week 2; n=75) or placebo (n=52). The primary endpoint was EASI mean percent change from Baseline (%cfB) at Week 16. Patient-reported outcomes included pruritus numeric rating scale (NRS; %cfB, ≥4-point improvement), sleep-loss NRS (%cfB), Patient-Oriented Eczema Measure (POEM) cfB, Dermatology Life Quality Index (DLQI) cfB, and DLQI 0/1. Post hoc analyses evaluated Hospital Anxiety and Depression Scale (HADS) total score cfB.

RESULTS: LEB arms showed dose-dependent, statistically significant improvement in the primary endpoint vs. placebo (125 mg Q4W, $P<0.05$; 250 mg Q4W, $P<0.01$; 250 mg Q2W, $P<0.001$). For patient-reported outcomes, LEB-treated patients showed improvements over placebo-treated patients, including a numerically greater reduction in pruritus severity by Day 2, with further improvement across LEB arms vs. placebo in pruritus NRS to Week 16 as assessed by %cfB (-36.9 [$P<0.01$]/-48.6 [$P<0.001$]/-61.8 [$P<0.0001$] vs. 6.8) or ≥4-point improvement (41.8%/47.4%/70.0% vs. 27.3% [$P<0.001$]). Reduction in sleep-loss was numerically

greater in LEB arms by week 1, with further improvement to Week 16 (sleep-loss NRS %cfB: -48.7/-53.0 [*P*<0.05]/-64.7 [*P*<0.01] vs. -20.2). By Week 16, LEB showed numerically greater improvements in disease severity (POEM cfB: -8.9/-11.4/-12.4 vs. -5.8) and dermatology health-related QoL vs. placebo (cfB: -7.9/-9.2/-9.7 vs. -5.9; DLQI 0/1: 13.6%/32.3%/39.0% vs. 16.7%). Post hoc exploratory analyses showed a numerically greater improvement in HADS total score cfB for LEB arms compared with placebo (-3.6/-3.8/-5.1 vs. -2.7).

CONCLUSIONS: Selective blockade of IL-13 with LEB improved AD symptoms and patient-reported outcomes, including pruritus and sleep-loss, in a rapid, clinically-meaningful, and dose-dependent manner, and post hoc analyses suggested a reduction in anxiety and depression.

FUNDING SOURCE: Dermira, Inc., a wholly-owned subsidiary of Eli Lilly and Company. Abstract presented at Maui Derm 2021.

Corresponding author information:
Guttman-Yassky E,[1] MD, Ph.D., emma.guttman@mountsinai.org
Blauvelt A,[2] MD, MBA, ABlauvelt@oregonmedicalresearch.com
Eichenfield L,[3] MD, leichenfield.rchsd@gmail.com
Paller A,[4] MD, apaller@northwestern.edu
Armstrong A,[5] MD, aprilarmstrong@post.harvard.edu
Drew J,[6] BS, MPH, janicedrew08@comcast.net
Gopalan R,[6] Ph.D., Ramanan.Gopalan@dermira.com
Simpson E,[7] MD, simpsone@ohsu.edu

Abstract 18

Impact of targeting interleukin-13 on Staphylococcus aureus colonization: results from a Phase 3, randomized, double-blind, placebo-controlled trial of tralokinumab in adult patients with atopic dermatitis

Thomas Bieber;[1] Lisa A Beck;[2] Andrew Pink;[3] Hidehisa Saeki;[4] Lawrence Eichenfield;[5] Thomas Werfel;[6] Anders Rosholm;[7] Mads Røepke;[7] Karen Veverka;[8] Amy Paller[9]

[1]Department of Dermatology and Allergy, University Hospital, Bonn, Germany; [2]Department of Dermatology, Medicine and Pathology, University of Rochester Medical Center, Rochester, NY, USA; [3]St. John's Institute of Dermatology, Guy's and St. Thomas' Hospitals, London, UK; [4]Department of Dermatology, Nippon Medical School, Tokyo, Japan; [5]Departments of Dermatology and Pediatrics, University of California San Diego School of Medicine, San Diego, CA, USA; [6]Department of Dermatology and Allergy, Hannover Medical School, Hannover, Germany; [7]LEO Pharma A/S, Ballerup, Denmark; [8]LEO Pharma, Madison, NJ, USA; [9]Department of Dermatology, Feinberg School of Medicine, Northwestern University, Chicago IL, USA

BACKGROUND: Atopic dermatitis (AD) is a chronic, inflammatory skin disease with a high disease burden. Pathogenesis is multifactorial, characterized mainly by increased levels of type 2 cytokines including interleukin (IL)-13, and skin barrier dysfunction, which collectively leads to microbial dysbiosis and Staphylococcus aureus colonization. This dysbiosis is associated with greater AD severity and correlates with AD flares. Tralokinumab, a fully human anti-IL-13 monoclonal antibody, binds to and neutralizes IL-13, a key cytokine in the pathogenesis of AD. In the phase 3 ECZTRA 1 trial (NCT03131648), treatment with tralokinumab led to significant improvements in Investigator Global Assessment (IGA) and Eczema Area and Severity Index (EASI) scores compared with placebo.

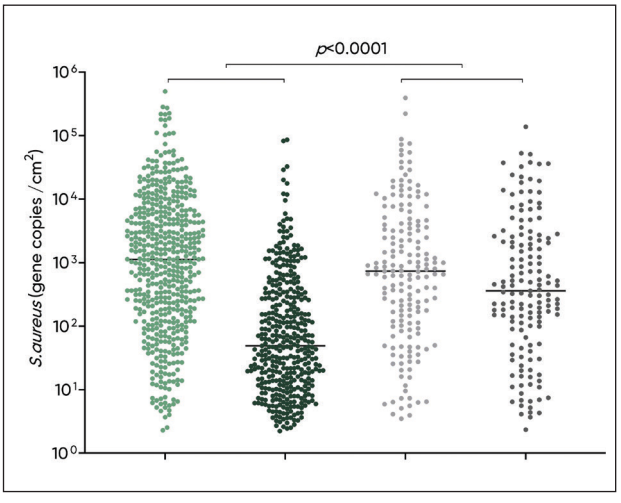
OBJECTIVES: To characterize the effect of tralokinumab treatment on eliminating S. aureus colonization.

METHODS: Patients with moderate-to-severe AD were randomized 3:1 to SC tralokinumab 300 mg or placebo every 2 weeks for an initial 16 weeks. Changes in skin colonization by S. aureus at week 16 in patients was an exploratory endpoint. The absolute abundance of S. aureus on lesional skin was assessed by rotation of sterile swabs on the skin, followed by quantitative polymerase chain reaction analysis of extracted DNA. Association of S. aureus colonization with disease severity and select serum or skin biomarkers was assessed. The ratio between treatment groups in relative reduction cutaneous S. aureus from baseline to week 16 was assessed by a t-test of changes in log-transformed values.

RESULTS: A total of 802 patients were randomized to either tralokinumab (603) or placebo (199); 50.7% had severe AD (IGA 4; 5-point scale) at baseline; mean EASI score was 32.4. S. aureus colonization correlated with disease severity (EASI score) at baseline and week 16. S. aureus colonization further correlated significantly with serum levels of biomarkers, including IL-13, IL-22, and human beta-defensin-2, at baseline and week 16. Median S. aureus abundance was reduced more from baseline to week 16 in patients treated with tralokinumab (n=555; from 969 to 22 gene copies/cm2) than in those who received placebo (n=184; from 649 to 238 gene copies/cm2), with a 10-fold greater reduction in the tralokinumab group compared with the placebo group (ratio=0.09; *P*<0.0001) [Figure].

CONCLUSIONS: Treatment with tralokinumab was associated with a significant reduction in S. aureus colonization in lesional skin compared with placebo in adults with moderate-to-severe AD. This supports previous studies (Guttman-Yassky E et al. EADV, September 12-16, 2018, Paris, France) and suggests that reduction of S. aureus colonization by neutralization of IL-13 contributes to the efficacy of tralokinumab in improving the clinical hallmarks of AD and breaking the cycle of itching, scratching, skin barrier dysfunction, and immune-mediated inflammation.

FUNDING SOURCE: The ECZTRA 1 trial was sponsored by LEO Pharma A/S, Ballerup, Denmark.



Corresponding author information:
Thomas Bieber
thomas.bieber@ukb.uni-bonn.de

Lisa A Beck
Lisa_Beck@URMC.Rochester.edu

Andrew Pink
andrew.pink@kcl.ac.uk, Andrew.Pink@gstt.nhs.uk

Hidehisa Saeki
h-saeki@nms.ac.jp

Lawrence Eichenfield
leichenfield@rchsd.org

Thomas Werfel
Werfel.Thomas@mh-hannover.de

Anders Rosholm
aro@orphazyme.com

Mads Røepke
MRKDK@leo-pharma.com

Karen Veverka
KNVUS@leo-pharma.com

Amy Paller
apaller@nm.org, apaller@northwestern.edu

Abstract 19

Laboratory safety of dupilumab in adolescent patients with Atopic Dermatitis: 52-Week laboratory safety findings from an open-label study (LIBERTY AD PED-OLE)

Michael J. Cork[1]; Benjamin Lockshin[2]; Andrew Blauvelt[3]; Zhen Chen[4]; Randy Prescilla[5]; Ashish Bansal[4]

[1]University of Sheffield, Sheffield, UK; [2]Georgetown University, Rockville, MD, USA; [3]Oregon Medical Research Center, Portland, OR, USA; [4]Regeneron Pharmaceuticals, Inc., Tarrytown, NY, USA; [5]Sanofi Genzyme, Cambridge, MA, USA

OBJECTIVE: Until recently, adolescents with moderate-to-severe atopic dermatitis (AD) inadequately controlled by topical therapies had limited treatment options. Here, we report laboratory outcomes from an open-label, long-term trial of dupilumab in AD patients aged ≥12 to <18 years (LIBERTY AD PED-OLE; NCT02612454).

METHODS: An ongoing, phase 3, open-label extension (OLE) study in patients aged ≥6 months to <18 years with AD who participated in previous dupilumab studies. The original dosing regimen of 2 mg/kg or 4 mg/kg weekly was changed to a fixed-dose regimen of 300 mg every 4 weeks; the dose could be up-titrated at the discretion of the investigators in case of inadequate clinical response at Week 16 as follows: patients <60 kg: 200 mg every 2 weeks (q2w); patients ≥60 kg: 300 mg q2w. The treatment period for patients enrolled in the original mg/kg dosing regimen was up to 104 weeks with the option of extending the treatment period until dupilumab regulatory approval. Patients enrolled in the fixed-dose group were treated until regulatory approval of dupilumab for their specific age group in their geographic region. Concomitant topical corticosteroids/calcineurin inhibitors were allowed without restriction; systemic AD medications were not permitted except as rescue treatment. Patients who had a sustained remission of AD, defined as maintenance of an Investigator's Global Assessment score of 0 or 1 continuously for a 12-week period after Week 40, discontinued dupilumab. We evaluated laboratory safety data for patients aged ≥12 to <18 years (Data cutoff date: December 15, 2018; N = 299; 105 patients completed up to Week 52).

RESULTS: Laboratory assessments were performed for patients at Week 0 (OLE baseline), Week 16, and Week 52. Mean eosinophil counts (x109/L) remained within the normal range up to Week 52 (Week 0: 0.7; Week 16: 0.7; Week 52: 0.6). Mean leukocytes (x109/L; Week 0: 7.5; Week 16: 7.3; Week 52: 7.4), neutrophils (x109/L; Week 0: 4.1; Week 16: 4.0; Week 52: 4.1), hemoglobin (g/L; Week 0: 139.0; Week 16: 140.9; Week 52: 139.7), and platelets (x109/L; Week 0: 292.5; Week 16: 284.0; Week 52: 139.7) also remained within normal range. No clinically relevant changes were observed for chemistry parameters (creatinine kinase, albumin, protein, bilirubin, potassium, ALP, creatinine, blood urea nitrogen, lactate dehydrogenase, and glucose). The safety profile was consistent with the known dupilumab safety profile.

CONCLUSIONS: No clinically meaningful changes in laboratory parameters occurred with 52 weeks of dupilumab treatment in adolescents with AD, similar to previous findings in adults. These findings indicate that routine laboratory monitoring for hematology and chemistry parameters is not required in this population before initiation or during treatment with dupilumab.

ACKNOWLEDGMENTS: Data first presented at the European Academy of Dermatology and Venereology, October 29-31. Research sponsored by Sanofi and Regeneron Pharmaceuticals, Inc. ClinicalTrials.gov Identifier: NCT02612454 (R668-AD-1434). Medical writing/editorial support provided by Luke Shelton, Ph.D., of Excerpta Medica, funded by Sanofi Genzyme and Regeneron Pharmaceuticals, Inc.

DISCLOSURES: Cork MJ: Almirall, Amgen, Astellas, Bayer, GSK, Johnson & Johnson, LEO Pharma, Novartis, Pfizer, Sanofi, Stiefel, Unilever – research grants, consulting, advisory board member; Regeneron Pharmaceuticals, Inc. – investigator.

Lockshin B: Eli Lilly, Regeneron Pharmaceuticals, Inc. – investigator, speaker; Anacor, Dermira, Franklin Bioscience, LEO Pharma – investigator; AbbVie – investigator, speaker, consultant.

Blauvelt A: AbbVie, Aclaris, Almirall, Arena, Athenex, Boehringer Ingelheim, Bristol-Myers Squibb, Dermavant, Dermira, Eli Lilly, FLX Bio, Forte, Galderma, Janssen, LEO Pharma, Novartis, Ortho Derm, Pfizer, Rapt, Regeneron Pharmaceuticals, Inc., Sandoz, Sanofi Genzyme, Sun Pharma, UCB – scientific adviser, clinical study investigator; AbbVie – paid speaker.

Chen Z, Bansal A: Regeneron Pharmaceuticals, Inc. – employees may hold stock and/or stock options in the company. Prescilla R: Sanofi Genzyme – employees may hold stock and/or stock options in the company.

Prescilla R: Sanofi Genzyme – employee may hold stock and/or stock options in the company.

Corresponding author information:
Ana B. Rossi
Sanofi Genzyme
ana.rossi@sanofi.com
Cc: z.montvai@excerptamedica.com

Abstract 20

Laboratory safety of Dupilumab in pediatric patients aged ≥6 to <12 years with severe Atopic Dermatitis: results from a phase 3 trial (LIBERTY AD PEDS)

Andreas Wollenberg[1]; Diamant Thaçi[2]; Michael J. Cork[3]; Peter D. Arkwright4; Melinda Gooderham[5]; Xian Sun[6]; John T. O'Malley[7]; Faisal A. Khokhar6; Ashish Bansal[6]; Brad Shumel[6]

[1]Ludwig-Maximilian University, Munich, Germany; [2]University of Lübeck, Lubeck, Germany; [3]University of Sheffield, Sheffield, UK; [4]University of Manchester, Manchester, UK; [5]SKiN Centre for Dermatology, and Queen's University, Kingston, ON, Canada; [6]Regeneron Pharmaceuticals, Inc., Tarrytown, NY, USA; [7]Sanofi, Cambridge, MA, USA

BACKGROUND: Most current systemic treatments for moderate-to-severe atopic dermatitis (AD) require serial laboratory assessments to ensure patient safety. Dupilumab has demonstrated significant clinical improvement with a favorable risk–benefit profile in adults and adolescents with moderate-to-severe AD inadequately controlled with topical medications and in children aged ≥6 to <12 years with severe AD. Moreover, no clinically important changes in hematology, serum chemistry, and urinalysis parameters have been reported for dupilumab-treated adults and adolescents. The impact of dupilumab treatment on laboratory values in children aged ≥6 to <12 years with severe AD is not known.

METHODS: In LIBERTY AD PEDS (NCT03345914), a multicenter, phase 3 trial, 367 patients aged ≥6 to <12 years were randomized 1:1:1 to subcutaneous dupilumab every 2 weeks (q2w; 100 mg if baseline weight <30 kg, 200 mg if ≥30 kg) or every 4 weeks (q4w; 300 mg), or placebo for 16 weeks. All patients received concomitant medium-potency topical corticosteroids. Laboratory values for hematology parameters and serum chemistry were assessed at baseline and Weeks 4, 8, and 16.

RESULTS: Safety was assessed in 362 patients (q2w/q4w/placebo: n=122/n=120/n=120). At baseline, treatment groups had similar demographic, clinical, and laboratory characteristics. Baseline mean eosinophil counts were 0.82/0.83/0.85 (x109/L) for q2w/q4w/placebo. Increases from baseline in mean eosinophil counts (x109/L) were observed in all groups, with the highest mean increase at Week 8 for placebo (+0.10) and dupilumab q4w (+0.17), and at Week 16 for dupilumab q2w (+0.25). No clinically treatment-related relevant events were associated with eosinophilia. There were no meaningful trends in mean changes from baseline in leukocyte counts (x109/L; q2w –0.10; q4w –0.19; placebo –0.14) or hemoglobin levels (g/L; q2w –1.5; q4w –1.6; placebo +0.4) at Week 16. Mean platelet values were lower in both dupilumab groups compared to baseline at Weeks 4/8/16 (x109/L, q2w –19.3; q4w –18.8; placebo +5.0 at Week 16), but remained within normal range. There were no clinically meaningful trends in mean changes from baseline in chemistry parameters in any group. Mean decreases from baseline in lactate dehydrogenase (LDH) were observed in both dupilumab groups up to Week 16 (U/L, q2w –42.2; q4w –39.4; placebo –0.4 at Week 16).

CONCLUSIONS: There were no clinically important changes in laboratory parameters attributable to dupilumab treatment in children aged ≥6 to <12 years with severe AD in LIBERTY AD PEDS. Consistent with a reduction in systemic inflammation, decreases in platelet counts and LDH levels – both considered acute-phase reactants – were observed in both the dupilumab q2w and q4w groups.

ACKNOWLEDGMENTS: Data first presented at the 29th Annual European Academy of Dermatology and Venereology Conference (EADV 2020); October 29-31, 2020, Virtual Conference. Research sponsored by Sanofi and Regeneron Pharmaceuticals, Inc. ClinicalTrials.gov Identifier: NCT03345914. Medical writing/editorial support provided by Julian J. Freen-van Heeren, PhD, of Excerpta Medica, funded by Sanofi Genzyme and Regeneron Pharmaceuticals, Inc.

DISCLOSURES: Wollenberg A: Beiersdorf, Eli Lilly, Galderma, LEO Pharma, MedImmune, Novartis, Pfizer, Regeneron Pharmaceuticals, Inc., Sanofi Genzyme – investigator; AbbVie, Almirall, Anacor, Eli Lilly, Galapagos, Galderma, LEO Pharma, MedImmune, Novartis, Pfizer, Regeneron Pharmaceuticals, Inc., Sanofi Genzyme – consultant; Beiersdorf, LEO Pharma, Pierre Fabre – research grants.

Thaçi D: AbbVie, Almirall, Amgen, Beiersdorf, BMS, Boehringer Ingelheim, Dermira, DS-Pharma, Eli Lilly, Galapagos, Galderma, GSK, Janssen-Cilag, LEO Pharma, MorphoSys, Novartis, Pfizer, Regeneron Pharmaceuticals, Inc., Samsung, Sandoz, Sanofi, UCB – consultant, advisory board member, and/or investigator.

Cork MJ: Almirall, Amgen, Astellas, Bayer, GSK, Johnson & Johnson, LEO Pharma, Novartis, Pfizer, Sanofi, Stiefel, Unilever – research grants, consulting, and/or advisory board member; Regeneron Pharmaceuticals, Inc. – investigator.

Arkwright PD: Regeneron Pharmaceuticals, Inc. – investigator; Sanofi Genzyme – research grant, advisor.

Gooderham M: AbbVie, Akros, Amgen, Arcutis Antiobix, Boehringer Ingelheim, Bristol Myers Squibb, Celgene, Coherus BioSciences, Dermira, Eli Lilly, Galderma, GSK, Janssen, Kyowa Kirin, LEO Pharma, MedImmune, Merck, Novartis, Pfizer, Regeneron Pharmaceuticals, Inc., Roche, Sanofi Genzyme, Sun Pharma, UCB, Valeant/Bausch – investigator, advisor, and/or speaker.

Sun X, Khokhar FA, Bansal A, Shumel B: Regeneron Pharmaceuticals, Inc. – employees and shareholders.

O'Malley JT: Sanofi – employee, may hold stock and/or stock options in the company.

Corresponding author information:
Ana B. Rossi
Sanofi Genzyme
ana.rossi@sanofi.com
Cc: z.montvai@excerptamedica.com

Abstract 21

Lebrikizumab, a high-affinity IL-13 inhibitor, improves moderate-to-severe Atopic Dermatitis regardless of patient race: a post-hoc analysis from a phase 2b study.

Armstrong A,[1] MD; Schlesinger TE,[2] MD; Gopalan R,[3] Ph.D.; Drew J,[3] BS, MPH; Weisman J,[4] MD; Guttman-Yassky E;[5] MD, Ph.D.

[1]Keck School of Medicine, University of Southern California, Los Angeles, CA; [2]Clinical Research Center of the Carolinas, Charleston, SC; [3]Dermira, Inc., Menlo Park, CA; [4]Atlanta Medical Dermatology Specialists, Atlanta, GA; [5]Icahn School of Medicine at Mount Sinai, New York, NY

BACKGROUND: Lebrikizumab (LEB) is a novel, high-affinity monoclonal antibody targeting IL-13, a central pathogenic mediator driving multiple features of atopic dermatitis (AD).

OBJECTIVES: This post-hoc analysis assessed the impact of race on LEB efficacy and safety from a randomized, double-blinded, placebo-controlled study in moderate-to-severe AD (NCT03443024).

METHODS: Adults were randomized 3:3:3:2 to subcutaneous LEB 125mg every 4 weeks (Q4W) (250mg loading dose [LD] [n=73)]); 250mg Q4W (500mg LD [n=80]); 250mg Q2W (500mg LD at Week (W) 0 and 2 [n=75]); or placebo Q2W (n=52) for 16W with a 16W safety follow-up. The primary endpoint was the %change in EASI from baseline to W16. Secondary endpoints included: %patients achieving EASI50, EASI75, EASI90 (≥50%/75%/90% improvement from baseline), IGA score 0 or 1, and pruritus numeric rating scale (NRS) change ≥4 points at W16. Endpoints were assessed by subgroup (White, Black/African American [B/AA], Other), with no statistical comparison of subgroups. Safety included treatment-emergent adverse events (TEAEs).

RESULTS: Race distribution for LEB 125mg Q4W, 250mg Q4W, 250mg Q2W vs. placebo-treated patients was White: 37, 42, 40 vs. 26; B/AA: 26, 28, 23 vs. 16; Other: 10, 10, 12 vs. 10. Baseline EASI and IGA scores were similar between subgroups and the overall population. All LEB groups showed dose-dependent, statistically significant improvement in mean %change in EASI vs. placebo at W16 (LEB 125mg Q4W [-61.5%; $P<0.05$]; 250mg Q4W [-69.7%, $P<0.01$]; 250mg Q2W [-72.8%, $P<0.001$] vs. placebo [-40.6%]). Similar responses generally were observed across subgroups (White: -69.8%, -68.7%, -73.6% vs. -47.4%; B/AA: -48.4%, -69.3%, -73.0% vs. -34.8%; other: -65.2%, -74.6%, -69.4% vs. -32.3%). Comparable efficacy was observed across subgroups for: EASI50 (White: 78.3%, 75.2%, 83.1% vs. 50.2%; B/AA: 46.5%, 76.7%, 77.4% vs. 43.9%; Other: 74.2%, 85.6%, 80.9% vs. 37.3%); EASI75 (White: 50.5%, 52.9%, 63.2% vs. 27.7%; B/AA: 34.4%, 58.3%, 60.0% vs. 16.5%; Other: 40.2%, 62.9%, 53.5% vs 27.9%); EASI90 (White: 37.5%, 33.2%, 46.6%, vs. 13.0%; B/AA: 16.2%, 42.3%, 35.8% vs. 9.8%; Other: 10.1%, 31.2%, 51.4% vs. 15.0%); and IGA 0/1 (White: 33.0%, 29.5%, 48.4% vs. 20.9%; B/AA: 20.1%, 40.5%, 33.6% vs. 9.5%; Other: 20.0%, 32.0%, 53.0% vs. 15.0%); pruritus NRS change ≥4 points (White: 46.1%, 39.2%, 67.1% vs. 38.6%; B/AA: 40.9%, 48.9%, 72.5% vs. 43.8%; other: 40.6%, 67.7%, 57.3% vs. 34.0%). TEAEs were reported in: White: 54.1%, 50.0%, 67.5% vs. 57.7%; B/AA: 65.4%, 46.4%, 43.5% vs. 31.3%; other: 50.0%, 50.0%, 75.0% vs. 40.0%; most were mild/moderate and did not lead to discontinuation.

CONCLUSIONS: LEB improved skin lesion and itch measures versus placebo in patients with moderate-to-severe AD regardless of race and was well tolerated across race subgroups.

FUNDING SOURCE

Dermira, Inc., a wholly-owned subsidiary of Eli Lilly and Company. Abstract presented at Maui Derm 2021.

Corresponding author information:

Armstrong A, 1 MD, aprilarmstrong@post.harvard.edu
Schlesinger TE, 2 MD, skindoc@dermandlaser.com
Gopalan R, 3 Ph.D., Ramanan.Gopalan@dermira.com
Drew J, 3 BS, MPH, janicedrew08@comcast.net
Weisman J, 4 MD, jweisman317@gmail.com
Guttman-Yassky E, 5 MD, Ph.D., emma.guttman@mountsinai.org

Abstract 22

Progressive and sustained improvements in the extent and severity of atopic dermatitis in patients with moderate-to-severe disease treated with tralokinumab in combination with topical corticosteroids as needed

Andrew F. Alexis;[1] Matthew Zirwas;[2] Andreas Pinter;[3] David N. Adam;[4,5] Andrea Chiricozzi;[6,7] Andrew E. Pink;[8] Thomas Mark;[9] Ann-Marie Tindberg;[9] Karen Veverka;[10] Jonathan I. Silverberg[11]

[1]Department of Dermatology, Icahn School of Medicine at Mount Sinai, New York, NY, USA; [2]Probity Medical Research, Columbus, OH, USA; [3]Clinic for Dermatology, Venereology and Allergology, University Hospital Frankfurt am Main, Frankfurt, Germany; [4]CCA Medical Research, Ajax, Ontario, Canada; [5]Temerty Faculty of Medicine, Division of Dermatology, University of Toronto, Toronto, Ontario, Canada; [6]Dermatologia, Dipartimento Scienze Mediche e Chirurgiche, Fondazione Policlinico Universitario A. Gemelli IRCCS, Rome, Italy; [7]Dermatologia, Università Cattolica del Sacro Cuore, Rome, Italy; [8]St. John's Institute of Dermatology, Guy's and St. Thomas' Hospitals, London, UK; [9]LEO Pharma A/S, Ballerup, Denmark; [10]LEO Pharma, Madison, NJ, USA; [11]Department of Dermatology, The George Washington University School of Medicine and Health Sciences, Washington, DC, USA

BACKGROUND: Tralokinumab, a fully human anti-IL-13 monoclonal antibody, binds to and neutralizes IL-13, a key cytokine in the pathogenesis of atopic dermatitis (AD). The phase 3, randomized, double-blind, placebo-controlled ECZTRA 3 trial (NCT03363854) investigated the efficacy and safety of tralokinumab + topical corticosteroids (TCS) as needed in adults with moderate-to-severe AD.

OBJECTIVES: The objective of this analysis was to assess the effects of tralokinumab + TCS as needed on extent and severity of AD over 32 weeks.

METHODS: Adult patients with AD for ≥1 year who were candidates for systemic therapy were randomized 2:1 to subcutaneous tralokinumab 300 mg q2w + TCS (mometasone furoate 0.1% cream applied once daily to active lesions as needed) or placebo + TCS for an initial treatment period of 16 weeks. Thereafter, tralokinumab-treated patients continued with either q2w or q4w dosing + TCS for an additional

16-week continuation period. Post hoc analyses of week 16-32 data were conducted by pooling all patients who were randomized to tralokinumab in the initial treatment period (week 0-16; n=252) irrespective of what dosing regimen (q2w/q4w) they received beyond week 16.

RESULTS: At week 16, significantly more patients achieved 50% improvement in Eczema Area and Severity Index (EASI-50: 79.4% vs 57.9%; difference of 21.3%; *P*<0.001), EASI-75 (56.0% vs 35.7%; difference of 20.2%; *P*<0.001), and EASI-90 (32.9% vs 21.4%; difference of 11.4%; *P*=0.022) with tralokinumab q2w + TCS vs placebo + TCS. EASI-50 response rate was sustained through week 32 (81.0%; 204/252); EASI-75 response rate increased progressively to 69.0% (174/252) at week 24 and was sustained through week 32 (70.2%; 177/252); and EASI-90 response rate increased progressively throughout the continuation period to 50.4% (127/252) at week 32. At week 16, least square mean EASI scores were reduced from 29.0 at baseline to 8.0 with tralokinumab q2w + TCS vs 13.0 with placebo + TCS (*P*<0.001), and mean (SE) SCORing AD (SCORAD) was reduced from 67.3 at baseline to 29.2 with tralokinumab q2w + TCS vs 39.5 with placebo + TCS (*P*<0.001). At week 32, further improvements were seen with continued tralokinumab + TCS in EASI (estimated mean of 4.6) and SCORAD (estimated mean of 21.8), corresponding to mean changes from baseline of 84% (EASI) and 68% (SCORAD). Cumulative use of TCS at the end of the initial treatment period (week 16) was lower in the tralokinumab group vs the placebo group (mean 134.9g vs 193.5g; *P*=0.004). At weeks 15-16, tralokinumab-treated patients used approximately 50% less TCS vs placebo-treated patients (*P*=0.002), and 53% of tralokinumab-treated patients used no or very limited amounts (0-5 g) of TCS.

CONCLUSIONS: Tralokinumab + TCS as needed provided significant improvements in the extent and severity of AD compared with placebo + TCS as needed at week 16 in patients with moderate-to-severe AD.

FUNDING SOURCE: The ECZTRA 3 trial was sponsored by LEO Pharma A/S, Ballerup, Denmark.

Corresponding author information:

Andrew F. Alexis
alexisderm@yahoo.com, Alexis, Andrew.Alexis@mountsinai.org

Matthew Zirwas
matt.zirwas@gmail.com

Andreas Pinter
andreas.pinter@kgu.de

David N. Adam
dnadam@gmail.com

Andrea Chiricozzi
chiricozziandrea@gmail.com

Andrew E. Pink
andrew.pink@kcl.ac.uk, Andrew.Pink@gstt.nhs.uk

Thomas Mark
ZHODK@leo-pharma.com

Ann-Marie Tindberg
ZETDK@leo-pharma.com

Karen Veverka
KNVUS@leo-pharma.com

Jonathan I. Silverberg
jonathanisilverberg@gmail.com

Abstract 23

Rapid itch improvement in children with severe Atopic Dermatitis treated with dupilumab: a phase 3 subset analysis

Gil Yosipovitch[1]; Jonathan I. Silverberg[2]; Jashin J. Wu[3]; Zhen Chen4; Randy Prescilla[5]; Ana B. Rossi[5]; Dimitri Delevry[4]

[1]University of Miami Miller School of Medicine, Miami, FL; [2]George Washington University School of Medicine and Health Sciences, Washington, DC; [3]Dermatology Research and Education Foundation, Irvine, CA; [4]Regeneron Pharmaceuticals, Inc, Tarrytown, NY; [5]Sanofi Genzyme, Cambridge, MA, USA.

BACKGROUND: In LIBERTY AD PEDS (NCT03345914), a 16-week double-blind, placebo-controlled, phase 3 trial, dupilumab significantly improved atopic dermatitis (AD) signs and symptoms in children with severe AD. Here, we assess the time to onset of pruritus improvement in children with severe AD treated with dupilumab FDA-approved doses.

METHODS: Children aged ≥6–<12 years were randomized to dupilumab 300mg every 4 weeks (300q4w, baseline weight <30kg; 600mg loading dose), 200mg every 2 weeks (200q2w, baseline weight ≥30kg; 400mg loading dose), or placebo. All patients received concomitant medium-potency topical corticosteroids (TCS). We report change from baseline in daily Peak Pruritus Numerical Rating Scale (NRS) scores and proportion of patients who achieved ≥4-point improvement from baseline in Peak Pruritus NRS.

RESULTS: 243 patients were included in this post hoc analysis (300q4w+TCS/ placebo+TCS<30kg/ 200q2w+TCS/ placebo+TCS≥30kg, n=61/61/59/62). Mean percent change from baseline (standard error) in daily Peak Pruritus NRS decreased after a single dose of dupilumab, as early as day 8 in the dupilumab 300q4w group vs control (–13.8% [2.9] vs –5.1% [2.9]; *P*<0.05) and Day 16 for children treated with dupilumab 200q2w vs control (–22.1% [3.4] vs –12.6% [3.3]; *P*<0.05). A higher proportion of dupilumab-treated patients showed a clinically meaningful response (≥4-point improvement) in Peak Pruritus NRS vs control, as early as Week 3 in the dupilumab 300q4w group (14.8% vs 3.3%; *P*<0.05) and Week 5 in the dupilumab 200q2w group (28.1% vs 12.9%; *P*<0.05).

CONCLUSIONS: Dupilumab+TCS treatment provided rapid and clinically meaningful improvement in intensity and frequency of itch in children with severe AD

ACKNOWLEDGMENTS AND FUNDING SOURCES

Data first presented at the Pediatric Dermatology Research Alliance virtual meeting (PeDRA), October 22-23, 2020. Research sponsored by Sanofi and Regeneron Pharmaceuticals, Inc. ClinicalTrials.gov identifier: NCT03345914. Medical writing/editorial assistance provided by Alexandre Houzelle, Ph.D., of Excerpta Medica, funded by Sanofi Genzyme and Regeneron Pharmaceuticals, Inc.

DISCLOSURES: Yosipovitch G: Eli Lilly, Galderma, Kiniksa Pharmaceuticals, Menlo Therapeutics, Novartis, Pfizer, Regeneron Pharmaceuticals, Inc., Sanofi, Sienna, Trevi Therapeutics – advisory board member; Kiniksa Pharmaceuticals, LEO Pharma, Novartis, Pfizer, Sun Pharmaceutical – grants/research funding.

Silverberg JI: AbbVie, Bluefin, BMS, Boehringer-Ingelheim, Dermavant, Dermira, Eli Lilly, Galderma, GSK, Incyte, Kiniksa Pharmaceuticals, LEO Pharma, MedImmune (AstraZeneca), Menlo Therapeutics, Novartis, Ortho-Dermatologics, Pfizer, RAPT, Regeneron Pharmaceuticals, Inc., Sanofi-Genzyme – consultant; Regeneron Pharmaceuticals, Inc., Sanofi-Genzyme – speaker.

Wu JJ: AbbVie, Amgen, Eli Lilly, Janssen, Novartis – investigator; AbbVie, Almirall, Amgen, Arcutis, Boehringer Ingelheim, BMS, Dermavant, Dermira, Dr. Reddy's Laboratories, Eli Lilly, Janssen, LEO Pharma, Novartis, Regeneron Pharmaceuticals, Inc., Sanofi Genzyme, Sun Pharmaceutical, UCB, Valeant Pharmaceuticals North America – consultant; AbbVie, Amgen, BMS, Novartis, Regeneron Pharmaceuticals, Inc., Sanofi Genzyme, Sun Pharmaceutical, UCB, Valeant Pharmaceuticals North America – speaker.

Chen Z, Delevry D: Regeneron Pharmaceuticals, Inc. – employees and shareholders.

Prescilla R, Rossi AB: Sanofi Genzyme – employees, may hold stock and/or stock options in the company.

Corresponding author information:
Ana B. Rossi
Sanofi Genzyme
ana.rossi@sanofi.com
Cc: z.montvai@excerptamedica.com

Abstract 24

Risk of venous thromboembolism among patients with Atopic Dermatitis: A cohort study in a US administrative claims database

Meyers K[1], Ph.D., MPH; Goodloe R[1]; Pierce E[1], Ph.D.; Rueda MJ[1], MD; Silverberg JI[2], MD, Ph.D., MPH; Deberdt W[1], MD; Brinker D[1], PharmD, MS;

[1]Eli Lilly and Company, Indianapolis, United States; [2]George Washington University, Washington, United States

INTRODUCTION: JAK inhibitors (JAKi) such as baricitinib, tofacitinib, and upadacitinib have been approved for the treatment of rheumatoid arthritis and select JAKi are currently in development for the treatment of moderate-to-severe atopic dermatitis (AD). Venous thromboembolism (VTE), including deep vein thrombosis (DVT) and pulmonary embolism (PE), is included as an adverse drug reaction in labels for multiple JAKi. Yet, the background risk of VTE in patients with AD is unknown. This study was conducted to understand the risk of VTE among these patients and compare the risk with a matched general population.

MATERIALS AND METHODS: A retrospective cohort study was conducted using data from MarketScan, an administrative claims database from the US. Patients were included if enrolled in the database between 01 January 2012 and 31 October 2017, ≥18 years old, diagnosed with AD by a dermatologist, and enrolled for ≥365 days prior to the date of first qualifying AD diagnosis. Patients with prior history of VTE or who received anticoagulation therapy in the 1 year prior to the index were excluded. VTE incidence rates (IR)/100 patient-years at risk were reported in the overall AD cohort (cohort-1), sub-cohort with moderate-to-severe AD (cohort-2), and the general population that was age-sex-calendar time matched to cohort-1. Cohort-2 was selected based on the use of medications such as high-or ultra-high potency topical corticosteroids, systemic corticosteroids, phototherapies, or systemic immunosuppressant's. Cox proportional hazards regression was used to estimate hazard ratios (HR) of VTE in AD cohorts 1 and 2, compared to the general population adjusting for VTE risk factors.

RESULTS: Of 198,699 patients in the overall AD cohort, 113,927 (57%) patients had moderate-to-severe AD. After 1:1 matching on age category, gender, and calendar time, there was a total of 198,685 patients in each of the cohort-1 and the general population. Crude IRs for VTE were 0.24, 0.31 and 0.25 in cohort-1, cohort-2 and general population. The risk of VTE did not differ between cohort-1 and the general population (crude HR 0.98, 95%CI 0.90-1.06). The risk of VTE was greater in cohort-2 vs. the general population (crude HR 1.30, 95%CI 1.18-1.42). However, there was no difference in risk after adjusting for VTE risk factors (adjusted HR 0.97, 95%CI 0.87-1.08).

CONCLUSIONS: In this retrospective cohort study conducted within an administrative claims database, AD was not an independent risk factor for VTE, and baseline risk of VTE among patients with AD was low. The apparent increased risk of VTE among patients with moderate-to-severe AD is explained in part by comorbidities and medications that are risk factors for VTE.

The study was sponsored by Eli Lilly and Company, under license from Incyte Corporation. Previously presented at EADV 2020.

Corresponding author information:
Meyers K1, Ph.D., MPH, meyers_kristin_joy@lilly.com
Goodloe R1, goodloe_robert_j@lilly.com
Pierce E1, Ph.D., evangeline.pierce@lilly.com
Rueda MJ1, MD, rueda_maria_jose@lilly.com
Silverberg JI2, MD, Ph.D., MPH, jonathanisilverberg@gmail.com
Deberdt W1, MD, deberdt_walter@lilly.com
Brinker D1, PharmD, MS, brinker_dennis@lilly.com

Abstract 25

Tralokinumab prevents flares in moderate-to-severe atopic dermatitis: post hoc analyses of a randomized phase 3 clinical trial (ECZTRA 3)

Jonathan I. Silverberg;[1] Sebastien Barbarot;[2] Julia Welzel;[3] Mahreen Ameen;[4] Jacob P. Thyssen;[5] Mark Lomaga;[6] Christina Kurre Olsen;[7] Thomas Mark;[7] Karen Veverka;[8] Joshua Corriveau;[8] Joseph F. Merola[9]

[1]George Washington University School of Medicine and Health Sciences, Washington, DC, USA; 2Centre Hospitalier Universitaire de Nantes, France; [3]General Hospital Augsburg, Germany; [4]Royal Free NHS Foundation Trust, London, UK; [5]Bispebjerg Hospital, Copenhagen, Denmark; [6]DermEdge Research, Mississauga, Ontario, Canada; [7]LEO Pharma A/S, Ballerup, Denmark; [8]LEO Pharma, Madison, NJ, USA; [9]Harvard Medical School, Brigham and Women's Hospital, Boston, MA, USA

BACKGROUND: Atopic dermatitis (AD) is a chronic, inflammatory skin disease characterized by periods of acute symptomatic worsening (flares). Flare prevention is a primary therapeutic goal for long-term control of AD. Tralokinumab, a fully human anti-IL-13 monoclonal antibody, binds to and neutralizes IL-13, a key cytokine in the pathogenesis of AD.
OBJECTIVE: We assessed the impact of tralokinumab treatment on flare prevention in adults with moderate-to-severe AD.
METHODS: ECZTRA 3 (NCT03363854) was a randomized, double-blind, placebo-controlled phase 3 clinical trial in adults with moderate-to-severe AD (NCT03363854). Patients were treated with tralokinumab 300 mg (n=252) or placebo (n=126) q2w in combination with TCS (mometasone furoate 0.1% cream applied on lesional skin as needed) for an initial 16 weeks. Thereafter, tralokinumab-treated patients continued on tralokinumab (q2w or q4w) +TCS for an additional 16 weeks. AD flares, defined as worsening of the disease that required escalation/intensification of AD treatment including initiation or intensification of the supplied TCS ('per protocol flare'), were measured throughout the trial (32 weeks).
RESULTS: Overall, 7 patients (2.8%) reported a 'rescue flare' in the tralokinumab + TCS group, compared with 13 (10%) in the placebo + TCS group during the first 16 weeks, corresponding to a 74% risk reduction with tralokinumab (P=0.004). Similarly, 6 patients (2.4%) reported an 'adverse event (AE) flare' in the tralokinumab + TCS group vs 14 (11%) with placebo + TCS during the first 16 weeks, corresponding to an 80% risk reduction with tralokinumab (P=0.001). The risk of a 'rescue flare' or 'AE flare' (whichever occurred first) was 77% lower with tralokinumab (P<0.001). The proportion of patients with a 'per protocol flare' during the initial 16-week treatment period was numerically lower in the tralokinumab + TCS group (28%, 70/252) than in the placebo + TCS group. Among patients who received tralokinumab + TCS during the entire 32-week treatment period, 65% (163/252) did not report a 'per protocol flare', and nearly all (96%, 241/252) did not report a 'rescue flare' or an 'AE flare' (94%, 236/252) during the 32 weeks. The cumulative amount of TCS used was approximately 30% lower in tralokinumab + TCS group than in the placebo + TCS group, both in the overall population and among patients who reported a 'per protocol flare' between Week 0 and 16.
CONCLUSIONS: Tralokinumab treatment reduced the risk of "rescue flares" by 74% relative to placebo when used in combination with TCS in adults with moderate-to-severe AD. Nearly all patients (96%) remained free of "rescue flares" with tralokinumab + TCS during the entire 32-week treatment period. We propose "rescue flares" as a clinically relevant outcome measure in moderate-to-severe AD that highlights flares for which moderate-potency TCS is not considered sufficient.

FUNDING SOURCE
The ECZTRA 3 trial was sponsored by LEO Pharma A/S, Ballerup, Denmark.

Corresponding author information:
Jonathan I. Silverberg
jonathanisilverberg@gmail.com

Sebastien Barbarot
sebastien.barbarot@chu-nantes.fr

Julia Welzel
julia.welzel@uk-augsburg.de

Mahreen Ameen
mahreenameen@hotmail.com, m.ameen@nhs.net

Jacob P. Thyssen
jacob.pontoppidan.thyssen@regionh.dk

Mark Lomaga
drlomaga@dermedge.com

Christina Kurre Olsen
OKIDK@leo-pharma.com

Thomas Mark
ZHODK@leo-pharma.com

Karen Veverka
KNVUS@leo-pharma.com

Joshua Corriveau
JQCUS@leo-pharma.com

Joseph F. Merola
JFMEROLA@BWH.HARVARD.EDU

Abstract 26

Cemiplimab improves health-related quality of life (HRQoL) and reduces pain in patients with advanced cutaneous squamous cell carcinoma (CSCC): results from a post hoc exploratory analysis of a Phase 2 clinical trial

Michael R. Migden;[1] Danny Rischin;[2] Medha Sasane;[3] Vera Mastey;[4] Anna Pavlick;[5] Chrysalyne D. Schmults;[6] Zhen Chen;[4] Alexander Guminski;[7] Axel Hauschild;[8] Denise Bury;[9] Stacie Hudgens;[10] Anne Lynn S. Chang;[11] Guilherme Rabinowits;[12] Sherrif Ibrahim;[13] Matthew G. Fury;[4] Israel Lowy;[4] Siyu Li;[14] Chieh-I Chen[4]

[1]University of Texas, MDACC, Houston, TX; [2]Peter MacCallum Cancer Centre, Melbourne, Australia; [3]Sanofi, Bridgewater, NJ; [4]Regeneron Pharmaceuticals,

Inc., Tarrytown, NY; [5]New York University Langone Medical Center, New York, NY; [6]Brigham and Women's Hospital, Boston, MA; [7]Royal North Shore Hospital, Sydney, Australia; [8]Schleswig-Holstein University Hospital, Kiel, Germany; [9]Sanofi, Cambridge, MA; [10]Clinical Outcomes Solutions, Tucson, AZ; [11]Stanford University School of Medicine, Redwood City, CA; [12]Miami Cancer Institute/Baptist Health South Florida, Miami, FL; [13]Rochester Medical Center, New York, NY; [14]Regeneron Pharmaceuticals, Inc., Tarrytown, NJ

BACKGROUND: Cemiplimab is indicated for the treatment of patients with metastatic (m) CSCC or locally advanced (la) CSCC not eligible for curative surgery/radiation.

OBJECTIVE: This post hoc analysis explored the effects of cemiplimab on HRQoL and pain using EORTC QLQ-C30 data from a single-arm Phase 2 clinical trial (NCT02760498) that reported a RECIST objective response rate of 46.1%.

METHODS: Adults with advanced CSCC received intravenous cemiplimab 3 mg/kg Q2W (mCSCC n=59; laCSCC n=78) or 350 mg Q3W (mCSCC n=56). At baseline and day 1 of each treatment cycle (Cn), patients were administered the QLQ-C30. Mixed-effects repeated measures models estimated mean change from baseline to Cn on all QLQ-C30 scales. For patients with data from baseline to C6 and C12, proportions with clinically meaningful (CM; ≥10 points) improvement or worsening, or stability (<10-point change) on each scale was determined. Kaplan–Meier analysis was used to estimate time to first CM change in QLQ-C30 pain score and its relationship to tumor response (time to first tumor response and progression-free survival); medication use was also captured over treatment duration.

RESULTS: Baseline scores showed moderate to high levels of function and low symptom burden. Statistically significant improvements from baseline in pain, insomnia, appetite loss, nausea/vomiting and constipation, and emotional and social function were observed at C3 (all $P<0.05$). At C6, 68–95% of patients reported CM improvement or stability on each QLQ-C30 scale, and 74–95% showed CM improvement or stabilization at C12 on each scale. CM pain improvement at C3 was complemented by a reduction in opioid use and was maintained at C12. The median time to first CM pain improvement in all patients was 2.1 months, which approximated median time to first tumor response (2.0 months) among clinical responders; median time to first CM deterioration in pain (14.8 months) approximate median progression-free survival (18.4 months).

CONCLUSIONS: These results support cemiplimab as a standard of care option for treatment of advanced CSCC, with sustained CM benefits on HRQoL and CM reductions in pain that appear independent of opioid use and may correlate with tumor response.

ACKNOWLEDGMENTS: Editorial writing support provided by Jay Bienen, Ph.D., and funded by Regeneron Pharmaceuticals, Inc. and Sanofi.

DISCLOSURES: Michael R. Migden: honoraria and travel expenses from Regeneron Pharmaceuticals, Inc., Sanofi, Novartis, Genentech, Eli Lilly, and Sun Pharma; and institutional research funding from Regeneron Pharmaceuticals, Inc., Novartis, Genentech, and Eli Lilly.

Danny Rischin: institutional research grant and funding from Regeneron Pharmaceuticals, Inc., Roche, Merck Sharp & Dohme, Bristol-Myers Squibb, and GlaxoSmithKline; uncompensated scientific committee and advisory board from Merck Sharp & Dohme, Regeneron Pharmaceuticals, Inc., Sanofi, GlaxoSmithKline, and Bristol-Myers Squibb; and travel and accommodation from Merck Sharp & Dohme and GlaxoSmithKline.

Stacie Hudgens: consulting fees from Regeneron Pharmaceuticals, Inc.

Chrysalyne D. Schmults: steering committee member for Castle Biosciences; a steering committee member and consultant for Regeneron Pharmaceuticals, Inc.; a consultant for Sanofi; has received research funding from Castle Biosciences, Regeneron Pharmaceuticals, Inc., Novartis, Genentech, and Merck; and is a chair for the National Comprehensive Cancer Network.

Anna Pavlick: honoraria and consulting or advisory roles at Bristol-Myers Squibb, Merck, Regeneron Pharmaceuticals, Inc., Array, Novartis, Seattle Genetics, and Amgen; research funding from Bristol-Myers Squibb, Merck, Regeneron Pharmaceuticals, Inc., Celldex, and Forance; and travel, accommodation, expenses from Regeneron Pharmaceuticals, Inc., Array, and Seattle Genetics.

Alexander Guminski: personal fees and non-financial support (advisory board and travel support) from Bristol-Myers Squibb and Sun Pharma; personal fees (advisory board) from Merck KGaA, Eisai, and Pfizer; non-financial (travel) support from Astellas; and clinical trial unit support from PPD Australia.

Axel Hauschild: institutional grants, speaker's honoraria, and consultancy fees from Amgen, Bristol-Myers Squibb, Merck Sharp & Dohme /Merck, Pierre Fabre, Provectus, Roche, and Novartis; institutional grants and consultancy fees from Merck Serono, Philogen, and Regeneron Pharmaceuticals, Inc.; and consultancy fees from OncoSec.

Chieh-I Chen, Zhen Chen, Vera Mastey, Israel Lowy, Matthew G. Fury, and Siyu Li: employees and shareholders of Regeneron Pharmaceuticals, Inc.

Anne Lynn S. Chang: consulting and advisory roles at Regeneron Pharmaceuticals, Inc. and Merck; and research funding from Regeneron Pharmaceuticals, Inc., Novartis, Galderma, and Merck.

Guilherme Rabinowits: consulting and advisory roles for EMD Serono Pfizer, Sanofi, Regeneron Pharmaceuticals Inc., Merck, and Castle; and stock/other ownership interests from Syros Pharmaceuticals and Regeneron Pharmaceuticals, Inc.

Sherrif Ibrahim: research funding from Regeneron Pharmaceuticals, Inc. and Castle; speakers' bureau from Genentech; and travel and accommodation expenses from Regeneron Pharmaceuticals, Inc. and Genentech.

Denise Bury and Medha Sasane: employees and shareholders of Sanofi.

FUNDING SOURCE: Regeneron Pharmaceuticals, Inc. and Sanofi.

SUBMISSION INFORMATION: Previously submitted and accepted for presentation at Winter Clinical Dermatology Conference 2021, Migden et al. Reused with permission.

Presenting author:
Michael R. Migden, MD

Department/Institution: Departments of Dermatology and Head and Neck Surgery, University of Texas MD Anderson Cancer Center, Houston, TX, USA
Address: The University of Texas MD Anderson Cancer Center, 1400 Presler St 1452,
City/state/zip/country: Houston, TX 77030
Phone: 713-563-1665 email: mrmigden@mdanderson.org
Abstract type: Encore of Winter Clinical poster presentation

Abstract 27

Demographics, prior therapies, and reasons for cemiplimab treatment: prospective CemiplimAb-rwlc Survivorship and Epidemiology (C.A.S.E.) study in patients with advanced cutaneous squamous cell carcinoma (CSCC)

Guilherme Rabinowits;[1] Jade Homsi;[2] Mina Nikanjam;[3] Rhonda Gentry;[4], John Strasswimmer;[5] Suraj Venna;[6] Michael R. Migden;[7] Sunandana Chandra;[8] Emily Ruiz;[9] Haixin R. Zhang;[10] Jennifer McGinniss;[10] Alex Seluzhytsky;[11] Jigar Desai[10]

[1]Miami Cancer Institute/Baptist Health South Florida, FL, USA; [2]University of Texas Southwestern Medical Center, TX, USA; [3]University of California San Diego; CA, USA; [4]CARTI Cancer Center, AR, USA; [5]College of Medicine and College of Sciences, Florida Atlantic University, FL, USA; [6]Inova Schar Cancer Institute Melanoma Center, VA, USA; [7]University of Texas MD Anderson Cancer Center, TX, USA; [8]Northwestern University Feinberg School of Medicine, IL, USA; [9]Brigham and Women's Hospital, MA, USA; [10]Regeneron Pharmaceuticals, Inc., NY, USA; [11]Sanofi, MA, USA.

BACKGROUND: Limited data exist on the clinical characteristics, management, disease progression, and survivorship of patients with advanced CSCC in real-world clinical practice.
OBJECTIVE: We describe baseline demographics for the first set of patients enrolled in the C.A.S.E. study.
METHODS: C.A.S.E. is a prospective, multicenter, longitudinal study (NCT03836105; the study is still recruiting) evaluating the efficacy, safety, disease evolution, survivorship, and quality of life in patients with advanced CSCC who initiate treatment with cemiplimab. Key endpoints include the effectiveness of cemiplimab treatment, safety, patient-reported outcomes, treatment adherence, and health resource utilization.
RESULTS: As of January 31, 2020, 61 patients were enrolled (median age: 78 years [interquartile range: 70–86]; 74% male; 97% Caucasian; and 21% immunocompromised or immunosuppressed including 5% who had a solid organ transplant). 56% of patients had locally advanced CSCC, 44% had metastatic CSCC, 69% had a head and neck primary CSCC tumor location, 54% had multidisciplinary input in their advanced CSCC management, 75% had prior CSCC-related surgery, and 41% received CSCC-related radiotherapy (RT). CSCC tumors were classified histologically as well-differentiated (23%), moderately differentiated (38%), poorly differentiated (20%), and unknown (20%). 21% of tumors had perineural invasion and 8% had histological heterogeneity. The most common reasons for cemiplimab treatment were locally advanced CSCC that is not a candidate for curative surgery or curative RT (34%), not a candidate for curative surgery (30%), local-regional disease (23%), metastatic disease (23%), and patient preference (15%).
CONCLUSIONS: This initial demographic analysis of patients with advanced CSCC receiving cemiplimab in real-world practice indicates that most patients were male, elderly, with 21% being immunosuppressed or immunocompromised to varying degrees. Only 54% of cases had multidisciplinary input in their disease management. These data also suggest there are varying factors affecting treatment decisions in a realworld clinical setting.
FUNDING SOURCE: Regeneron Pharmaceuticals, Inc. and Sanofi.
DISCLOSURES: Guilherme Rabinowits reports consulting/advisory role for EMD Serono Pfizer, Sanofi, Regeneron Pharmaceuticals Inc., Merck and Castle, and stock/other ownership interests from Syros Pharmaceuticals and Regeneron Pharmaceuticals, Inc.

Jade Homsi reports personal fees from Sanofi, Novartis, and Regeneron Pharmaceuticals, Inc.

Mina Nikinjam reports support for running clinical trials from Regeneron Pharmaceuticals, Inc., and support for running industry sponsored clinical trials for Idera Pharmaceuticals, BMS, Novartis, and Immunocore.

Rhonda Gentry is a Principal Investigator for the CASE Registry.

John Strasswimmer reports a grant as an investigator for the clinical trial.

Suraj Venna declares no conflict of interest.

Michael R. Migden reports honoraria from Regeneron Pharmaceuticals, Inc., Sanofi, Novartis, Genentech, Eli Lilly, and Sun Pharma.

Sunandana Chandra reports institutional research funding from Bristol-Myers Squibb; consulting/advisory roles for Bristol-Myers Squibb, EMD Serono, Biodesix, Array BioPharma, Novartis, and Regeneron Pharmaceuticals, Inc., and other conflicts with Bristol-Myers Squibb, EMD Serono, Biodesix, and Regeneron Pharmaceuticals, Inc.

Emily Ruiz reports consulting fees from Regeneron Pharmaceuticals, Inc., Leo Pharma, Checkpoint Therapeutics, and Pellepharma.

Haixin R. Zhang is an employee and stockholder of Regeneron Pharmaceuticals, Inc.

Jennifer McGinniss is an employee and stockholder of Regeneron Pharmaceuticals, Inc.

Alex Seluzhytsky is an employee of Sanofi Genzyme.

Jigar Desai is an employee and stockholder of Regeneron Pharmaceuticals, Inc.

ACKNOWLEDGMENTS: Previously presented at ESMO Congress 2020, FPN 1094P, Guilherme Rabinowits et al. Reused with permission. Editorial writing support was provided by Jenna Lee, of Prime, Knutsford, UK, funded by Regeneron Pharmaceuticals, Inc. and Sanofi.
SUBMISSION INFORMATION: Presenting author:
Name: Guilherme Rabinowits, MD
Department/Institution: Head and Neck and Cutaneous Medical Oncology, Miami Cancer Institute
Address: 8900 N. Kendall Dr.
City/state/zip/country: Miami, FL 33176

Phone: 786-596-2000; fax: 786-814-4348;
email: GuilhermeR@baptisthealth.net
Abstract type: Encore from ESMO 2020

Abstract 28

Interim analysis of phase 2 results for cemiplimab in patients (pts) with metastatic basal cell carcinoma (mBCC) who progressed on or are intolerant to hedgehog inhibitors (HHIs)

Karl D. Lewis;[1] Ketty Peris;[2] Aleksandar Sekulic;[3] Alexander J. Stratigos;[4] Lara Dunn;[5] Zeynep Eroglu;[6] Anne Lynn S. Chang;[7] Michael R. Migden;[8] Siyu Li;[9] Kosalai Mohan;[9] Ebony Coates;[9] Emmanuel Okoye;[9] Jean-François Baurain;[10] Oliver Bechter;[11] Axel Hauschild;[12] Marcus O. Butler;[13] Leonel Hernandez-Aya;[14] Lisa Licitra;[15] Rogerio I. Neves;[16] Emily S. Ruiz;[17] Frank Seebach;[9] Israel Lowy;[9] Timothy Bowler;[9] Matthew G. Fury[9]

[1]University of Colorado Hospital, USA; [2]Catholic University of the Sacred Heart, Italy and Gemelli University Hospital, Italy; [3]Arizona Mayo Clinic, USA; [4]Andreas Sygros Hospital-University of Athens, Greece; [5]Memorial Sloan Kettering Cancer Center, USA; [6]Moffitt Cancer Center, USA; [7]Stanford University School of Medicine, USA; [8]University of Texas MD Anderson Cancer Center, USA; [9]Regeneron Pharmaceuticals, Inc., USA; [10]University Catholic of Louvain, Belgium; [11]University Hospitals, Belgium; [12]Schleswig-Holstein University Hospital, Germany; [13]Princess Margaret Cancer Centre, Canada; [14]Washington University School of Medicine, USA; [15]Istituto Nazionale dei Tumori, Italy; [16]Penn State Cancer Institute, USA; [17]Dana-Farber Cancer Institute, USA

BACKGROUND: HHIs are approved to treat pts w/mBCC or locally advanced (la) BCC who are not candidates for surgery/radiation; there is no approved option for pts after disease progression on/intolerance to HHIs. Cemiplimab is a programmed cell death-1 monoclonal antibody approved to treat pts w/metastatic or la cutaneous squamous cell carcinoma who are not candidates for curative surgery/radiation.
OBJECTIVES: This prespecified interim analysis is of mBCC pts from the pivotal Phase 2, non-randomized, multi-center study of cemiplimab in pts w/advanced BCC who discontinued HHI therapy (NCT03132636).
METHODS: mBCC pts received cemiplimab 350 mg intravenously Q3W; the interim analysis included pts who could be followed for ~57 weeks. Primary endpoint: objective response rate (ORR) per independent central review (ICR). Secondary objectives: assessment of safety and tolerability, duration of response (DOR), progression-free survival (PFS), and overall survival (OS).
RESULTS: Of 28 pts (82.1% males; median age: 65.5 years [range 38–90]), 6 pts had partial response. ORR per ICR: 21.4% (95% CI, 8.3, 41.0). ORR per investigator assessment: 28.6% (95% CI, 13.2, 48.7). Observed DOR among responders: 9–23 months. The median time to response per ICR: 3.2 months (range, 2.1–10.5). Median Kaplan–Meier estimation of PFS and OS: 8.3 and 25.7 months, respectively. Median DOR had not been reached. Disease control rate: 67.9% (95% CI, 47.6, 84.1). Most common treatment-emergent adverse events (TEAEs) regardless of attribution: fatigue (50.0%), diarrhea (35.7%), pruritus (25.0%), and constipation (25.0%). Hypertension (n=2) was the only Grade ≥3 TEAE regardless of attribution occurring in ≥2 pts. TEAEs leading to death occurred in 1 (3.6%) pt who died from staphylococcal pneumonia, considered unrelated to study treatment.
CONCLUSIONS: Cemiplimab is the first agent to provide clinically meaningful antitumor activity in pts w/mBCC after disease progression on/intolerance to HHIs.
FUNDING SOURCE: Regeneron Pharmaceuticals, Inc. and Sanofi.

EDITORIAL ACKNOWLEDGMENTS

Medical writing support was provided by Jenna Lee of Prime, Knutsford, UK, funded by Regeneron Pharmaceuticals, Inc. and Sanofi.

DISCLOSURES: Dr. Lewis reports personal fees from Regeneron Pharmaceuticals, Inc. and grants, and/or personal fees from Array BioPharma, Merck, Roche, Incyte, Nektar, Iovance Biotherapeutics, and Bristol-Myers Squibb.

Dr. Peris reports advisory board roles with Abbvie, LEO Pharma, Janssen, Almirall, Lilly, Galderma, Novartis, Pierre Fabre, and Sanofi.

Dr. Sekulic reports advisory role with Regeneron Pharmaceuticals, Inc. and Roche.

Dr. Stratigos reports advisory board or steering committee roles with Janssen CILAG, Regeneron Pharmaceuticals, Inc., and Sanofi, and research support from Abbvie, Bristol-Myers Squibb, Genesis Pharma, and Novartis.

Dr. Dunn reports research funding from Eisai, Regeneron Pharmaceuticals, Inc., and CUE Biopharma, and advisory board payments from Regeneron Pharmaceuticals, Inc., CUE Biopharma, and Merck.

Dr. Eroglu reports advisory roles with Array BioPharma, Regeneron Pharmaceuticals, Inc., Novartis, Genetech, and SunPharma, and has received research funding from Novartis.

Dr. Chang reports advisory roles with Regeneron Pharmaceuticals, Inc. and Merck, and research funding from Regeneron Pharmaceuticals, Inc., Merck, Novartis, and Galderma.

Dr. Migden reports advisory roles with and travel fees from Regeneron Pharmaceuticals, Inc. and Sun Pharmaceuticals, an advisory role with Rakuten Medical, and research funding from Regeneron Pharmaceuticals, Inc. and Pelle Pharm.

Dr. Li, Yoo, Mohan, Coates, Okoye, Seebach, Weinreich, Yancopoulos, Lowy, Bowler, and Fury are shareholders and employees of Regeneron Pharmaceuticals, Inc.

Dr. Baurain and Bechter have nothing to disclose.

Dr. Hauschild reports institutional funding and personal fees from Amgen, Bristol-Myers Squibb, MerckSerono, MSD/Merck, Philogen, Pierre Fabre, Provectus, Regeneron Pharmaceuticals, Inc., Roche, Sanofi-Genzyme, and Novartis, and consultancy fees from OncoSec and Sun Pharma.

Dr. Butler reports advisory roles with Sanofi-Genzyme, Novartis, Sun Pharmaceuticals, Pfizer, Merck, Immunocore, Turnstone, Bristol-Myers Squibb, and research funding from Merck and Takara Bio.

Dr. Hernandez-Aya reports an advisory role with Massive Bio, personal fees from Regeneron Pharmaceuticals,

Inc., Sanofi, and Bristol-Myers Squibb, and research funding from Immunocore, Merck Sharp & Dohme, Polynoma, Corvus Pharmaceuticals, Roche, Merck Serono, Amgen, MedImmune, and Takeda.

Dr. Licitra reports funding (for institution) for clinical studies and research from AstraZeneca, Boehringer Ingelheim, Eisai, Merck Serono, MSD, Novartis, and Roche, has received compensation for service as a consultant/advisor and/or for lectures from AstraZeneca, Bayer, Bristol-Myers Squibb, Boehringer Ingelheim, Debiopharm, Eisai, Merck Serono, MSD, Novartis, Roche, and Sobi, and has received travel coverage for medical meetings from Bayer, Bristol-Myers Squibb, Debiopharm, Merck Serono, MSD, and Sobi.

Dr. Neves reports an advisory role with Novartis, Sanofi-Genzyme, Castle Biosciences, and Roche, and research funding from Castle Biosciences and Regeneron Pharmaceuticals, Inc.

Dr. Ruiz reports an advisory role with Pellepharm, Inc.

Submission information: This abstract was accepted and previously presented at the 2020 SITC Annual Meeting. Reused with permission.

Presenting author: : Name: Karl D. Lewis, MD
Department/Institution: Division of Medical Oncology, University of Colorado Hospital, CO, USA
Address: 12605 E. 16th Street
City/state/zip/country: Aurora, CO 80045, USA
Phone: 720.848.0637; fax: 720.848.0614;
email: Karl.Lewis@cuanschutz.edu
Abstract type: Encore (scientific research)

Abstract 29

Durability and safety of collagenase clostridium histolyticum-aaes treatment of cellulite in women: 6-month results of a 5-year phase 3b open-label extension study

Michael H. Gold, MD[1]; Michael P. McLane, Ph.D.[2]; Saji Vijayan, MBBS[2]; Qinfang Xiang, Ph.D.[2]; Joely Kaufman-Janette, MD[3]; Sabrina Guillen Fabi, MD[4]

[1]Gold Skin Care Center, Tennessee Clinical Research Center, Nashville, TN; [2]Endo Pharmaceuticals Inc., Malvern, PA; [3]Skin Associates of South Florida, Coral Gables, FL; [4]Cosmetic Laser Dermatology, San Diego, CA, and University of California-San Diego, San Diego, CA

BACKGROUND: Collagenase clostridium histolyticum-aaes (CCH) was approved in 2020 by the US Food and Drug Administration for the treatment of moderate to severe cellulite in the buttocks of adult women.

OBJECTIVES: To report Day 180 visit results of an ongoing 5-year, phase 3b, multicenter, open-label extension (OLE) study (clinicaltrials.gov identifier: NCT03526549) evaluating the durability of CCH injection treatment versus placebo effects in women with moderate to severe buttock cellulite, achieved during the phase 3 randomized, double-blind, placebo-controlled trial (RCT) RELEASE-1 or RELEASE-2. An additional objective was to assess the safety profile of CCH during the OLE study, up to the Day 180 visit.

METHODS: Women completing RCT RELEASE-1 or RELEASE-2 were eligible to participate in the OLE study. During the RCTs, left buttock and right buttock cellulite were treated with CCH 0.84 mg/buttock on Day 1 (baseline), 22, and 43 visits; Day 71 was the RCT end-of-study (RCT-EOS) visit. During the initial 180 days of the OLE study, participants/investigators remained blinded to RCT treatment. The durability of RCT CCH treatment efficacy was assessed at the OLE Day 180 visit using the Patient-Reported Photonumeric Cellulite Severity Scale (PR-PCSS) and Clinician Reported Photonumeric Cellulite Severity Scale (CR-PCSS).

RESULTS: Of 617 women completing RELEASE-1/-2 and screened for inclusion in the OLE study, 483 (CCH, n=243; placebo, n=240) completed the OLE Day 180 visit. For women treated with CCH during the RCT, mean changes in PR-PCSS score (negative change equates to improvement) from RCT baseline to RCT-EOS and to OLE Day 180 visits were -0.8 and -0.7 (left buttock) and -0.9 and -0.7 (right buttock), respectively; in women receiving placebo, changes in PR-PCSS score were -0.5 and -0.3 (left buttock) and -0.4 and -0.4 (right buttock). For CR-PCSS, mean changes in score from baseline to RCT-EOS and OLE Day 180 visits were -0.8 and -0.6 (left buttock) and -0.7 and -0.6 (right buttock) with CCH, respectively, and -0.3 and -0.4 (left buttock) and -0.3 and -0.4 (right buttock) with placebo. Safety assessments showed no long-term safety concerns.

CONCLUSIONS: Interim OLE study results showed that CCH-mediated improvement in buttock cellulite could still be observed 6-months after completion of the parent RCT, with no long-term safety concerns observed.

FUNDING SOURCE: Endo Pharmaceuticals Inc.

DISCLOSURES: Michael H. Gold reports serving as a clinical study investigator and consultant for Endo Pharmaceuticals Inc.

Michael P. McLane, Saji Vijayan, Qinfang Xiang are employees of Endo Pharmaceuticals Inc.

Joely Kaufman-Janette reports serving as a clinical study investigator and consultant for Endo Pharmaceuticals Inc.

Sabrina Guillen Fabi reports serving as a clinical study investigator and advisor for Endo Pharmaceuticals Inc.

SUBMISSION INFORMATION:

Presenting author: Sabrina Guillen Fabi, MD
Michael H. Gold, MD
E-mail: drgold@goldskincare.com

Michael P. McLane, Ph.D.
E-mail: McLane.Michael@endo.com

Saji Vijayan, MBBS
E-mail: Vijayan.Saji@endo.com

Qinfang Xiang, Ph.D.
E-mail: xiang.qinfang@endo.com

Joely Kaufman-Janette, MD
E-mail: jkaufman@sflskin.com

Sabrina Guillen Fabi, MD
E-mail: sfabi@clderm.com

Corresponding author information: Michael P. McLane, Ph.D., Endo Pharmaceuticals Inc., 1400 Atwater Drive, Malvern, PA 19355; P: 484.216.6768; E-mail: McLane.Michael@endo.com

Abstract 30

Patterns of hedgehog inhibitor (HHI) treatment interruptions and reinitiations among patients with basal cell carcinoma (BCC) in real-world clinical practice

Jessica J. Jalbert;[1] Chieh-I Chen;[1] Ning Wu;[1] Matthew G. Fury;[1] Emily Ruiz;[2] Wenzhen Ge[1]

[1]Regeneron Pharmaceuticals, Inc., Tarrytown, NY, USA; [2]Brigham and Women's Hospital, Boston, MA, USA

BACKGROUND: HHIs are oral target therapies approved for the treatment of advanced BCC but treatment-related adverse events may result in treatment interruptions or discontinuation.

OBJECTIVES: The objective of this study was to describe HHI treatment patterns among patients with BCC in real-world clinical practice.

METHODS: We conducted an observational cohort study using MarketScan Commercial/Medicare databases (01/01/2013–09/30/2018). We identified new users of HHIs (index date = date of the first dispensation) ≥18 years of age who were continuously enrolled for ≥6 months prior to the index date (i.e. baseline) with ≥1 baseline BCC diagnosis. Treatment interruptions (TI) were defined as a lack of dispensation following the exhaustion of days' supply and allotted grace period (GP). Reinitiation (RI) was defined as ≥1 HHI dispensation after TI. The Kaplan–Meier method was used to estimate risk and time to TI and, among patients with a TI, the incidence of RI. HHIs are generally dispensed in 30-day supplies and indicated as long as a patient derives a clinical benefit. Since TIs are commonly employed during HHI therapy, sensitivity analyses were conducted using GPs of 14, 30, 60, 90, and 120 days.

RESULTS: We identified 469 patients with a BCC diagnosis initiating HHIs. The mean (standard deviation) age was 67.6 (15.8) years, 64.2% were men, 51.2% were covered by commercial insurance, and 99.2% initiated vismodegib. Using GPs of 14, 30, 60, 90, and 120 days, the risk of TI was 79.2%, 68.8%, 60.0%, 55.4%, and 51.4% at 6 months and 94.8%, 91.3%, 88.2%, 83.2%, and 80.2% at 1 year, respectively. Median HHI treatment duration ranged from 94 days (95% confidence interval [CI]: 90–109) using a GP of 14 days to 173 days (95%CI: 156–194) using a GP of 120 days. At 6 months post-TI, incidence of RI was 35.8%, 19.8%, 11.3%, 6.9%, and 4.9% using GPs of 14, 30, 60, 90, and 120 days, respectively. The incidence of HHI RI at 1 year following TI ranged from 40.8% using a 14-day GP to 13.4% using a 120-day GP.

CONCLUSIONS: The Median HHI treatment duration was approximately 6 months, even after allowing for a 120-day GP. The Median treatment duration was considerably shorter than what has been reported in clinical trials. Our results suggest that long-term HHI therapy may be difficult in a real-world setting.

FUNDING SOURCE: Regeneron Pharmaceuticals, Inc. and Sanofi.

EDITORIAL ACKNOWLEDGMENTS: Editorial writing support was provided by Jenna Lee, of Prime, Knutsford, UK, funded by Regeneron Pharmaceuticals, Inc. and Sanofi.

DISCLOSURES

Jessica J. Jalbert, Ph.D. is an employee and shareholder of Regeneron Pharmaceuticals, Inc.

Chieh-I Chen is an employee and shareholder of Regeneron Pharmaceuticals, Inc.

Ning Wu, Ph.D. is an employee and shareholder of Regeneron Pharmaceuticals, Inc.

Matthew G. Fury, MD, Ph.D. is an employee and shareholder of Regeneron Pharmaceuticals, Inc. and reports patents, royalties, other intellectual property, and has received research funding from Regeneron Pharmaceuticals, Inc.

Emily Ruiz, MD, MPH has received consulting fees from PellePharm, Sanofi, Regeneron Pharmaceuticals, Inc., and Leo Pharmaceuticals, and is on the consulting and advisory board for Checkpoint Therapeutics.

Wenzhen Ge, Ph.D. is an employee and shareholder of Regeneron Pharmaceuticals, Inc.

SUBMISSION INFORMATION:
Presenting author: Jessica J. Jalbert
Department/Institution: Regeneron Pharmaceuticals, Inc.
Address: 777 Old Saw Mill River Rd, Tarrytown.
City/state/zip/country: NY 10591, United States
Email: jessica.jalbert@regeneron.com
Type: Encore from ASCO 2020

Abstract 31

Reduction in dimple volume in women with buttock cellulite treated with Collagenase Clostridium Histolyticum-aaes (CCH)

Lawrence S. Bass, MD[1]; Michael P. McLane, Ph.D.[2]; Elizabeth Rosenberg, FNP[3]; Jill Edgecombe, BS[3]; Saji Vijayan, MBBS, D.Diab[2]; Qinfang Xiang, Ph.D.[2]; Genzhou Liu, Ph.D.[2]; Michael S. Kaminer, MD[4]

[1]Bass Plastic Surgery, PLLC, New York, NY; [2]Endo Pharmaceuticals Inc., Malvern, PA; [3]Endo Aesthetics LLC, Malvern, PA; [4]SkinCare Physicians, Chestnut Hill, MA

BACKGROUND: Primary outcome measures in randomized, placebo-controlled trials (RCT) of CCH were changes in the global appearance of cellulite.

OBJECTIVES: To evaluate objectively CCH treatment on buttock cellulite dimple morphology.

METHODS: Dimple volume/depth was assessed before/after CCH treatment using 3D image analysis. Data were from 3 studies: a phase 1, open-label (OL), single-treatment study with a CCH dose of 0.023 mg/dimple (0.23 mg/buttock) with post-treatment volumetric assessment at Day 90; a phase 2, OL, study (3 treatment sessions, each separated by ~21 days) with a CCH dose of 0.07 mg/dimple (0.84 mg/buttock) and post-treatment volumetric assessment at Day 71; and a phase 2 RCT (3 treatment sessions, each separated by ~21 days) with a CCH dose of 0.07 mg/dimple (0.84 mg/buttock) and post-treatment volumetric assessment at Day 73. The analysis included

women who completed CCH treatment(s) at the specified dose and had image analysis of treated dimples. One a priori selected dimple per treatment area per patient was analyzed; dimples with a baseline volume <18 mm3 were excluded to reduce bias due to baseline imbalance. To bridge and affirm subjective with objective assessments, volumetric dimple data were analyzed in a subgroup of CCH-treated women with ≥l-level improvement from baseline in I-GAIS. To assess the effect of age, data were also grouped by age (18-40 y; >40 y).

RESULTS: 33 dimples were included. Overall, the mean ± SD improvement from baseline in volume for the 33 dimples was 31.4% ± 28.4%. For 19 dimples with baseline volume, ≥18 mm3 and ≤110 mm3, the mean ± SD % improvement from baseline in volume was 43.0% ± 27.8%; the median improvement was 44.4% (range, -23.1% to 75.9%). When these 19 dimples were subgrouped by age, the median improvement was 67.2% (13.3% to 75.9%) for women aged ≤40 y (n=10 dimples) and 35.5% (-23.1% to 59.5%) in those >40 y (n=9 dimples). For the 14 dimples with baseline volume >110 mm3, mean (SD) improvement was 15.8% ± 21.4%; median improvement was 18.9% (range, -13.1% to 61.8%). When these 14 dimples were subgrouped by age, the median improvement was 18.9% (-1.9% to 38.7%) in women aged ≤40 y (n=6 dimples) and 8.7% (-13.1% to 61.8%) in those >40 y (n=8 dimples). For a subgroup of CCH-treated women from the RCT included in the volumetric analysis and in whom the global appearance of cellulite was at least "improved" (n=7), mean ± SD improvement from baseline to Day 73 in dimple volume was 53.7% ± 25.7% (median, 71.5%; range, 19.0% to 75.9%) and in the dimple, depth was 50.3% ± 22.0% (median, 60.0%; range, 19.6% to 73.7%).

CONCLUSIONS: Buttock cellulite dimple volume and/or depth improved in women treated with CCH. Smaller-volume dimples (≤110 mm3) showed a greater improvement after CCH treatment than larger-volume dimples. Maximal improvement in larger-volume dimples may be hampered by underlying dermal atrophy and injection strategy. Also, patient age may be an important factor that impacts outcomes.

DISCLOSURES: Lawrence S. Bass reports being an advisory board participant for Endo Pharmaceuticals Inc.; serving as a consultant for Cynosure; and being a clinical investigator for Cynosure, Endo Pharmaceuticals Inc., and Merz North America, Inc.

Michael McLane is an employee of Endo Pharmaceuticals Inc.

Elizabeth Rosenberg is an employee of Endo Aesthetics LLC; and reports serving as a consultant for InMode Ltd.

Jill Edgecombe is an employee of Endo Aesthetics LLC.

Saji Vijayan, Qinfang Xiang; Genzhou Liu is an employee of Endo Pharmaceuticals Inc.

Michael S. Kaminer reports serving as a clinical investigator and consultant for Endo Pharmaceuticals Inc.; and serving as a consultant for Arctic Fox LLC, ExploraMed, and Soliton, Inc.

SUBMISSION INFORMATION

Presenting author: Michael S. Kaminer, MD
Lawrence S. Bass, MD
E-mail: drbass@drbass.net

Michael P. McLane, Ph.D.
E-mail: McLane.Michael@endo.com

Elizabeth Rosenberg, FNP
E-mail: Rosenberg.Elizabeth@endo.com

Jill Edgecombe, BS
E-mail: Edgecombe.Jill@endo.com

Saji Vijayan, MBBS
E-mail: Vijayan.Saji@endo.com

Qinfang Xiang, Ph.D.
E-mail: xiang.qinfang@endo.com

Genzhou Liu, Ph.D.
E-mail: Liu.Genzhou@endo.com

Michael S. Kaminer, MD
E-mail: MKaminer@skincarephysicians.net

Corresponding author information: Michael P. McLane, Ph.D., Endo Pharmaceuticals Inc., 1400 Atwater Drive, Malvern, PA 19355; P: 484.216.6768; E-mail: McLane.Michael@endo.com

Abstract 32

Phase 2 study of cemiplimab in patients (pts) with advanced cutaneous squamous cell carcinoma (CSCC): longer follow-up

Danny Rischin;[1] Nikhil I. Khushalani;[2] Chrysalyne D. Schmults;[3] Alexander Guminski;[4] Anne Lynn S. Chang;[5] Karl D. Lewis;[6] Annette M. Lim;[1] Leonel Hernandez-Aya;[7] Brett G.M. Hughes;[8] Dirk Schadendorf;[9] Axel Hauschild;[10] Elizabeth Stankevich;[11] Jocelyn Booth;[11] Siyu Li;[11] Zhen Chen;[11] Emmanuel Okoye;[12] Israel Lowy;[11] Matthew G. Fury;[11] Michael R. Migden[13]

[1]Peter MacCallum Cancer Centre, Australia; [2]Moffitt Cancer Center, USA; [3]Harvard Medical School, USA; [4]Royal North Shore Hospital, Australia; [5]Stanford University Medical School, USA; [6]University of Colorado, School of Medicine, USA; [7]Washington University School of Medicine, USA; [8]University of Queensland, Australia; [9]University Hospital Essen, Germany; [10]Schleswig-Holstein University Hospital, Germany; [11]Regeneron Pharmaceuticals, Inc., USA; [12]Regeneron Pharmaceuticals, Inc., UK; [13]University of Texas MD Anderson Cancer Center, USA.

BACKGROUND: Cemiplimab monotherapy achieves clinically meaningful activity in pts with advanced (metastatic [m] or locally advanced [la] not amenable to curative surgery or curative radiation) CSCC and has a safety profile consistent with other anti-programmed-death-1 agents. Based on initial data (median follow-up of 9.4 months in the pivotal study, NCT02760498), cemiplimab (cemiplimab-rwlc in the USA) was approved for the treatment of advanced CSCC.

OBJECTIVES: We present ~1-year additional follow-up from the largest prospective data set in advanced CSCC.

METHODS: Pts received cemiplimab 3 mg/kg Q2W (Group [Gp] 1; mCSCC; Gp 2, laCSCC) or 350 mg Q3W (Gp 3, mCSCC). The primary endpoint was objective response rate (ORR; complete response + partial response) per independent central review (ICR). Data presented here are per investigator review (INV); ICR data will be available at the meeting.

RESULTS: 193 pts were enrolled (Gp 1, n=59; Gp 2, n=78; Gp 3, n=56). 128 pts had received no prior anti-cancer systemic therapy; 65 were previously treated. As of Oct 11, 2019 (data cut-off), median duration of follow-up was 15.7 months (range: 0.6–36.1) among all pts; 18.5 months (1.1–36.1) for Gp 1, 15.5 months (0.8–35.0) for Gp 2, and 17.3 months (0.6–26.3) for Gp 3. ORR per INV was 54.4% (95% CI: 47.1–61.6) for all pts; 50.8% (37.5–64.1) for Gp 1, 56.4% (44.7–67.6) for Gp 2, and 55.4% (41.5–68.7) for Gp 3. ORR per INV was 57.8% (95% CI: 48.8–66.5) among treatment-naïve pts and 47.7% (35.1–60.5) among previously treated pts. The Median observed duration of response (DOR) range was 1.8–34.2 months. In responding pts, the estimated proportion with the ongoing response at 24 months was 76.0% (95% CI: 64.1–84.4). Estimated OS at 24 months was 73.3% (95% CI: 66.1–79.2). The most common treatment-emergent adverse events (TEAEs) by any grade were fatigue (34.7%), diarrhea (27.5%), and nausea (23.8%). The most common Grade ≥3 TEAEs were hypertension (4.7%) and anemia and cellulitis (each 4.1%).

CONCLUSIONS: For pts with advanced CSCC, cemiplimab achieves ORRs, DOR, and survival superior to what has been reported with other agents.

FUNDING SOURCE: Regeneron Pharmaceuticals, Inc. and Sanofi.

DISCLOSURES: Danny Rischin: institutional research grant and funding from Regeneron Pharmaceuticals, Inc., Roche, Merck Sharp & Dohme, Bristol-Myers Squibb, and GlaxoSmithKline; uncompensated scientific committee and advisory board from Merck Sharp & Dohme, Regeneron Pharmaceuticals, Inc., Sanofi, GlaxoSmithKline, and Bristol-Myers Squibb; travel and accommodation from Merck Sharp & Dohme and GlaxoSmithKline.

Nikhil I. Khushalani: grants from Regeneron Pharmaceuticals, Inc.; grants and advisory board fees from Bristol-Myers Squibb and HUYA Bioscience International; advisory board fees from EMD Serono, Regeneron Pharmaceuticals, Inc., Genentech, AstraZeneca (data safety monitoring committee), Merck, ARRAY Biopharma, Jounce Therapeutics, and Immunocore; grants from Merck, Novartis, GlaxoSmithKline, Cellgene, and Amgen; honorarium from Sanofi; and common stock ownership of Bellicum Pharmaceuticals, Mazor Robotics, Amarin, and Transenetrix. Chrysalyne D. Schmults: steering committee member for Castle Biosciences; a steering committee member and consultant for Regeneron Pharmaceuticals, Inc.; a consultant for Sanofi; has received research funding from Castle Biosciences, Regeneron Pharmaceuticals, Inc., Novartis, Genentech, and Merck, and is a chair for the National Comprehensive Cancer Network.

Alexander Guminski: personal fees and non-financial support (advisory board and travel support) from Bristol-Myers Squibb and Sun Pharma; personal fees (advisory board) from Merck KGaA, Eisai, and Pfizer; non-financial (travel) support from Astellas; and clinical trial unit support from PPD Australia.

Anne Lynn S. Chang: consulting and advisory roles at Regeneron Pharmaceuticals, Inc., Merck; research funding from Regeneron Pharmaceuticals, Inc., Novartis, Galderma, and Merck.

Karl D. Lewis: grants and personal fees from Regeneron Pharmaceuticals, Inc. during the conduct of the study.

Annette M. Lim: uncompensated advisory board from Merck Sharp & Dohme and Bristol-Myers Squibb with travel and accommodation expenses.

Leonel Hernandez-Aya: performed consulting and advisory roles at Massive Bio; speakers' bureau roles at Sanofi and Regeneron Pharmaceuticals, Inc., and received travel, accommodations, and expenses from Regeneron Pharmaceuticals, Inc., Sanofi, and Bristol-Myers Squibb and research funding from Bristol-Myers Squibb, Regeneron Pharmaceuticals, Inc., Immunocore, Merck Sharp & Dohme, Polynoma, Corvus Pharmaceuticals, Roche, Merck Serono, Amgen, MedImmune, and Takeda.

Brett G.M. Hughes: consulting or advisory roles at Merck Sharp & Dohme, Bristol-Myers Squibb, AstraZeneca, Pfizer, Roche, Eisai, Merck, and institutional research funding from Amgen.

Dirk Schadendorf: institutional patients' fees from Regeneron Pharmaceuticals, Inc.; advisory board honorarium fees from Amgen and Leo Pharma; speaker fee from Boehringer Ingelheim; advisory board, speaker honorarium, and patients' fees from Roche, Novartis, Bristol-Myers Squibb, and Merck-EMD; advisory board and speaker honorarium fees from Incyte and Pierre Fabre; advisory board honorarium and patients' fees from MSD, steering committee honorarium fees from 4SC, advisory board fees from AstraZeneca, Pfizer, and Array; and advisory board and patients' fees from Philiogen.

Axel Hauschild: institutional grants, speaker's honoraria, and consultancy fees from Amgen, Bristol-Myers Squibb, Merck Sharp & Dohme /Merck, Pierre Fabre, Provectus, Roche, and Novartis; institutional grants and consultancy fees from Merck Serono, Philogen, and Regeneron Pharmaceuticals, Inc.; and consultancy fees from OncoSec.

Elizabeth Stankevich: employee and shareholder of Regeneron Pharmaceuticals, Inc.

Jocelyn Booth: employee and shareholder of Regeneron Pharmaceuticals, Inc.

Siyu Li: employee and shareholder of Regeneron Pharmaceuticals, Inc.

Zhen Chen: employee and shareholder of Regeneron Pharmaceuticals, Inc.

Emmanuel Okoye: employee and shareholder of Regeneron Pharmaceuticals, Inc.

Israel Lowy: employee and shareholder of Regeneron Pharmaceuticals, Inc.

Matthew G. Fury: employee and shareholder of Regeneron Pharmaceuticals, Inc.

Michael R. Migden: honoraria and travel expenses from Regeneron Pharmaceuticals, Inc., Sanofi, Novartis, Genentech, Eli Lilly, and Sun Pharma; and institutional research funding from Regeneron Pharmaceuticals, Inc., Novartis, Genentech, and Eli Lilly.

EDITIORIAL ACKNOWLEDGMENT: Editorial writing support was provided by Jenna Lee, of Prime, Knutsford, UK, funded by Regeneron Pharmaceuticals, Inc. and Sanofi.

SUBMISSION INFORMATION: Presenting author:
Name: Danny Rischin
Department/Institution: Department of Medical Oncology, Peter MacCallum Cancer Centre.
Address: 305 Grattan St, Melbourne
City/state/zip/country: Victoria 3000, Australia
Email: Danny.Rischin@petermac.org
Type: Encore from ASCO 2020

Abstract 33

Primary analysis of phase 2 results for cemiplimab in patients (pts) with locally advanced basal cell carcinoma (laBCC) who progress on or are intolerant to hedgehog inhibitors (HHIs)

Alexander J. Stratigos;[1] Aleksandar Sekulic;[2] Ketty Peris;[3] Oliver Bechter;[4] Martin Kaatz;[5] Karl D. Lewis;[6] Nicole Basset-Seguin;[7] Anne Lynn S. Chang;[8] Stéphane Dalle;[9] Almudena Fernandez Orland;[10] Lisa Licitra;[11] Caroline Robert;[12] Claas Ulrich;[13] Axel Hauschild;[14] Michael R. Migden;[15] Reinhard Dummer;[16] Siyu Li;[17] Timothy Bowler;[17] Matthew G. Fury[17]

[1]University of Athens, Greece; [2]Arizona Mayo Clinic, USA; [3]Catholic University of Milan and Gemelli University Hospital, Italy; [4]University Hospitals, Belgium; [5]SRH Wald-Klinikum Gera, Germany; [6]University of Colorado Hospital, USA; [7]Hôpital Saint-Louis, France; [8]Stanford Medical School, USA; [9]Centre Hospitalier Lyon-Sud, France; [10]Hospital Universitario Virgen Macarena, Spain; [11]Istituto Nazionale dei Tumori and University of Milan, Italy; [12]Gustave Roussy Cancer Center and Paris-Saclay University, France; [13]Charite-Universitiitsmedizin Berlin, Germany; [14]University of Kiel, Germany; [15]MD Anderson Cancer Center, USA; [16]University Hospital Zurich, Switzerland; [17]Regeneron Pharmaceuticals, Inc., USA

BACKGROUND: There is no approved therapeutic option post-HHI for pts with laBCC. Cemiplimab, an antibody to PD-1, is an established therapy approved for the treatment of advanced cutaneous squamous cell carcinoma (CSCC) in pts who are not candidates for curative surgery or curative radiation. Both BCC and CSCC are keratinocyte tumors with high mutational burden due to ultraviolet mutagenesis and are potentially amenable to immunotherapy.

OBJECTIVE: We present the primary analysis of the laBCC cohort from the pivotal Phase 2 study of cemiplimab in the second-line (or greater) setting.

METHODS: Pts with laBCC received cemiplimab 350 mg Q3W IV (for up to 93 weeks or until progression). The primary endpoint was objective response rate (ORR) by independent central review (ICR). Secondary objectives included assessment of safety and tolerability, estimation of duration of response (DOR), progression-free survival (PFS), and overall survival (OS). ORR included two responses confirmed after the data cut-off date of February 17, 2020.

RESULTS: 84 pts were enrolled; 66.7% male; median age was 70 years (range: 42–89). The Median follow-up was 15 months (range: 0.5–25). ORR per ICR was 31% (95% CI: 21–42), including five complete responses and 21 partial responses. Median DOR has not been reached; an estimated 85% of responses were ongoing at 12 months, per the Kaplan–Meier method. Median PFS and OS had not been reached. THE estimated PFS for all patients was 19 months. The most common adverse events (AEs) were fatigue (30%), diarrhea (24%), and pruritus (21%); 17% of patients discontinued treatment due to AEs. Median baseline tumor mutational burden (TMB) was 58.2 and 23.5 mutations/Mb among responding (n=18) and non-responding (n=38) pts, respectively, but responses occurred at all TMB levels. Exploratory biomarker analysis identified downregulation of major histocompatibility complex-I expression as a potential immune evasion mechanism in non-responding BCCs with high TMB.

CONCLUSIONS: Cemiplimab is the first agent to establish clinical benefit for pts with laBCC who progress on or are intolerant to HHI therapy, regardless of biomarker status.

ACKNOWLEDGMENTS

Medical writing support was provided by Jenna Lee of Prime, Knutsford, UK, funded by Regeneron Pharmaceuticals, Inc. and Sanofi.

DISCLOSURES: Dr. Sekulic reports advisory role with Regeneron Pharmaceuticals, Inc. and Roche.

Dr. Peris reports advisory board roles with Abbvie, LEO Pharma, Janssen, Almirall, Lilly, Galderma, Novartis, Pierre Fabre, and Sanofi outside the submitted work.

Dr. Bechter has advisory board roles with Novartis, BMS, MSD, Pierre Fabre, and Ultimovacs.

Dr. Kaatz has nothing to disclose.

Dr. Lewis reports grants from the University of Colorado and grants and personal fees from Regeneron Pharmaceuticals, Inc.

Dr. Basset-Seguin is an employee of Sun Pharmaceuticals, Inc. and reports honoraria from Galderma, Leo, Pierre Fabre, Novartis, and Roche; consulting fees from Galderma, Leo, Pierre Fabre, Novartis, and Roche; patents, royalties, or other intellectual property from Genentech/F. Hoffmann-La Roche, Ltd.; and travel, accommodations, or expenses from Galderma, Leo, and Roche.

Dr. Chang reports advisory roles with Regeneron Pharmaceuticals, Inc., Merck; research funding from Regeneron Pharmaceuticals, Inc., Merck, Novartis, and Galderma.

Dr. Dalle reports that his spouse is an employee of Sanofi.

Dr. Fernandez Orland has nothing to disclose.

Dr. Licitra reports funding (for institution) for clinical studies and research from AstraZeneca, Boehringer Ingelheim, Eisai, Merck Serono, MSD, Novartis, Regeneron Pharmaceuticals, Inc., and Roche; has received compensation for service as a consultant/advisor and/or for lectures from AstraZeneca, Bayer, Bristol-Myers Squibb, Boehringer Ingelheim, Debiopharm, Eisai, Merck Serono,

MSD, Novartis, Roche, and Sobi; and has received travel coverage for medical meetings from Bayer, Bristol-Myers Squibb, Debiopharm, Merck Serono, MSD, and Sobi.

Dr. Robert reports advisory board roles with BMS, Pierre Fabre, Novartis, Amgen, Merck, Roche, MSD, Sanofi, Biothera, and Ultimovacs.

Dr. Ulrich reports advisory board and speaker roles for Roche, Sanofi, Regeneron Pharmaceuticals, Inc., and Sun Pharma.

Dr. Hauschild reports institutional funding and personal fees from Amgen, BMS, MerckSerono, MSD/Merck, Philogen, Pierre Fabre, Provectus, Regeneron Pharmaceuticals, Inc., Roche, Sanofi-Genzyme, and Novartis; and consultancy fees from OncoSec and Sun Pharma.

Dr. Migden reports advisory roles with and travel fees from Regeneron Pharmaceuticals, Inc. and Sun Pharmaceuticals; advisory role with Rakuten Medical; and research funding from Regeneron Pharmaceuticals, Inc. and Pelle Pharm.

Dr. Dummer reports consultant or advisory roles with Novartis, Merck Sharp & Dhome (MSD), Bristol-Myers Squibb (BMS), Roche, Amgen, Takeda, Pierre Fabre, Sun Pharma, Sanofi, Catalym, Second Genome, Regeneron Pharmaceuticals, Inc., and Alligator, outside the submitted work.

Dr. Li, Bowler, and Fury are shareholders and employees of Regeneron Pharmaceuticals, Inc.

Dr. Fury is also a patent holder for Regeneron Pharmaceuticals, Inc.

FUNDING SOURCE: Regeneron Pharmaceuticals, Inc. and Sanofi. Clinical trial registration number: NCT03132636

SUBMISSION INFORMATION: Previously presented at ESMO 2020, FPN LBA47, Stratigos et al. reused with permission.

Presenting author:

Alexander J. Stratigos

Department/Institution: Department of Dermatology-Venereology/Andreas Sygros Hospital-National and Kapodistrian University of Athens

Address: 5 Ionos Dragoumi Street

City/state/zip/country: Athens, Greece

Phone: 30 2107231731; fax: 30 2107231731;

email: alstrat2@gmail.com

Abstract type: Encore late-breaking abstract from ESMO 2020

Abstract 34

A multicenter, randomized, double-blind, placebo-controlled trial of Nalbuphine ER tablets for Uremic Pruritus

Vandana S Mathur;[1] Thomas Sciascia[2]

[1]MathurConsulting, Woodside, CA, USA; [2]Trevi Therapeutics, New Haven, CT, USA

BACKGROUND: Pruritus is a distressing hallmark of the uremic condition. Despite modern-day dialytic management, 60% of dialysis patients experience itching, and approximately 30–45% experience moderate or severe/extreme pruritus. Abnormal endogenous opioid ligand activity at μ- and κ-opioid receptors has been postulated as a mechanism in uremic pruritus; specifically, κ-opioid agonism and μ-opioid antagonism reduce scratching behavior in animal models. Nalbuphine (a synthetic, dual-acting μ antagonist and κ agonist) has been shown to reduce morphine-related pruritus.
OBJECTIVE: To evaluate the safety and antipruritic efficacy of oral nalbuphine extended-release (NAL-ER) tablets in hemodialysis patients with uremic pruritis.
METHODS: In this Phase 2/3, multicenter, randomized, double-blind, placebo-controlled trial, 373 hemodialysis patients with moderate or severe uremic pruritus were randomized in a 1:1:1 ratio to nalbuphine extended-release tablets 108 mg (NAL 108)*, 54 mg (NAL 54)*, or placebo (PBO) and treated for 8 weeks and then followed for 2 weeks post-treatment. Patients with pruritus related to other conditions (e.g., hepatic, malignancy, primary dermatologic condition) were excluded. The primary endpoint was the comparison between NAL 108 vs. placebo at Weeks 7-8 (Evaluation Period) on itching intensity using a Worst Itching Intensity Numerical Rating Scale (NRS, 0 [no itching] – 10 [worst possible itching]). Quality of life-related secondary endpoints included change from day 1 to the Evaluation Period in itching-related quality of life and itching-related sleep disruption.
RESULTS: Three hundred seventy-one patients were analyzed for efficacy. In the NAL 108, NAL 54, and PBO groups, 65%, 58%, and 81% completed the 8-week treatment, respectively. From a baseline NRS (SD) of 6.9 (1.5), the mean NRS declined by 3.5 (2.4) in the NAL108 group, representing a 49% reduction in itch intensity, and by 2.8 (2.2) in the PBO group (p=0.017). Significant itch reduction was evident in the NAL 108 group as early as Week 3. There was no evidence of tolerance or rebound. A trend for less sleep disruption due to itching (p = 0.062, NAL 108 vs. PBO) was also observed. There were no significant differences between NAL 54 vs. PBO. The most common reason for discontinuing treatment in the active groups was opioid-type side effects (e.g., nausea and vomiting) that occurred during the forced titration period. One death occurred in the placebo group. The incidence of serious treatment-associated adverse events was 6.7%, 12.7%, and 15.4% in the NAL 108 mg, NAL 54 mg, and PBO groups respectively.
CONCLUSIONS: In this large randomized controlled trial in uremic pruritus, NAL 108 durably and significantly reduced the itching intensity among hemodialysis patients.
SUBMISSION INFORMATION: Previous publications used the molecular weight including salts, whereas this abstract uses the current FDA recommendations to use the molecular weight of just the active drug.

Abstract 35

Diet in Dermatology: review of diet's influence on the conditions of rosacea, hidradenitis suppurativa, herpes labialis, and vitiligo.

Marielle Jamgochian, MBS; [1] **Mahin Alamgir, MD;** [1,2] **Babar Rao, MD**[1,2]

[1]Rutgers, Robert Wood Johnson Medical School; [2]Rutgers, Robert Wood Johnson Medical School Department of Dermatology

BACKGROUND: The influence of dietary patterns on cutaneous disease has been an oft-posed question to providers by patients in a clinical setting. Similarly, the popularity of nutritional supplementation with vitamins, minerals, and nutraceutical blends has been increasing, as has the influence and popularity of a billion-dollar "wellness" industry. Evidence-based dietary recommendations have been established for certain dermatological conditions, for example, acne, psoriasis, melanoma, and non-melanoma skin cancers, and atopic dermatitis (Bronsnick et al, JAAD, 2014). However, there is a dearth of literature surrounding some other skin conditions.

OBJECTIVE: In this review, the modification of diet, including dietary exclusion and dietary supplementation for the treatment of rosacea, hidradenitis suppurativa (HS), herpes labialis, and vitiligo will be investigated. These conditions were chosen because they are either common (rosacea, herpes) or have a significant impact on well-being or quality of life (HS and vitiligo) and robust evidence-based recommendations are lacking.

METHODS: For each of the conditions listed, up-to-date literature will be reviewed, the available evidence will be graded, and informed recommendations will be made based on the data available. (See Table 1)

RESULTS: Literature searches found insufficient evidence for dietary supplementation or elimination for rosacea. For hidradenitis suppurativa, evidence suggests that zinc supplementation (Grade B, Level 2a evidence) and Vitamin D supplementation in deficient patients (Grade B, Level 2b evidence). For herpes labialis, L-lysine supplementation at 3g/day may be helpful for lesion prophylaxis but is not helpful for active lesions (Grade B, level 2b evidence). For vitiligo, Vitamin D supplementation may be helpful in deficient patients (Grade C, Level 4 evidence), and the use of Polypodium leucomotos may increase repigmentation when used in conjunction with phototherapy (Grade B, Level 2b).

CONCLUSIONS: Research on the effect of diet on cutaneous disease is in its infancy. There is an abundance of mechanistic rationale for supplementation or elimination of certain foods, vitamins, and minerals, but not much evidence for clinical use in the form of randomized controlled trials, both due to difficulty in designing such trials and the lack of funding for nutrition-based interventions. There exists a need for further research into the role of dietary supplementation or elimination in the treatment or management of a dermatologic disease. Dermatologists and other providers should be familiar with evidence-based dietary interventions and those that are more marketable than efficacious.

Corresponding author information:
Marielle Jamgochian, MBS
1 Worlds Fair Drive
Somerset, NJ 08873
mjamoch@rwjms.rutgers.edu
c. 2019564392

REFERENCES:

Bronsnick T, Murzaku EC, Rao BK. Diet in dermatology: Part I. Atopic dermatitis, acne, and nonmelanoma skin cancer. *Journal of the American Academy of Dermatology.* 2014;71(6):1039.e1-1039.e12. doi:10.1016/j.jaad.2014.06.015

Saragossi J. Research & Subject Guides: Evidence-Based Medicine: Levels of Evidence. Accessed October 16, 2020. https://guides.library.stonybrook.edu/evidence-based-medicine/levels_of_evidence

Cardenas D. Let not thy food be confused with thy medicine: The Hippocratic misquotation. *E-SPEN J.* 2013;8(6):e260-e262. doi:10.1016/j.clnme.2013.10.002

2019 CRN Consumer Survey on Dietary Supplements | Council for Responsible Nutrition. Accessed October 5, 2020. https://www.crnusa.org/2019survey/Topline-Infographic#more

TABLE 1: Grades of Recommendation (Saragossi J, 2021)

Grade of Recommendation	Level of Evidence	Type of Study
A	1a	Systematic review of (homogeneous) randomized controlled trials
A	1b	Individual randomized controlled trials (with narrow confidence intervals)
B	2a	Systematic review of (homogeneous) cohort studies of "exposed" and "unexposed" subjects
B	2b	Individual cohort study / low-quality randomized control studies
B	3a	Systematic review of (homogeneous) case-control studies
B	3b	Individual case-control studies
C	4	Case series, low-quality cohort or case-control studies
D	5	Expert opinions based on non-systematic reviews of results or mechanistic studies

Dietary Supplement Health and Education Act of 1994. Accessed October 1, 2020. https://ods.od.nih.gov/About/DSHEA_Wording.aspx

Newmaster SG, Grguric M, Shanmughanandhan D, Ramalingam S, Ragupathy S. DNA barcoding detects contamination and substitution in North American herbal products. *BMC Med.* 2013;11(1):222. doi:10.1186/1741-7015-11-222

Rainer BM, Kang S, Chien AL. Rosacea: Epidemiology, pathogenesis, and treatment. *Dermatoendocrinol.* 2017;9(1). doi:10.1080/19381980.2017.1361574

Maarouf M, Platto JF, Shi VY. The role of nutrition in inflammatory pilosebaceous disorders: Implication of the skin-gut axis. *Australas J Dermatol.* 2019;60(2):e90-e98. doi:10.1111/ajd.12909

Ekiz Ö, Balta İ, Şen BB, Dikilitaş MC, Özuğuz P, Rifaioğlu EN. Vitamin D status in patients with rosacea. *Cutan Ocul Toxicol.* 2014;33(1):60-62. doi:10.3109/15569527.2013.797907

Park BW, Ha JM, Cho EB, et al. A Study on Vitamin D and Cathelicidin Status in Patients with Rosacea: Serum Level and Tissue Expression. *Ann Dermatol.* 2018;30(2):136-142. doi:10.5021/ad.2018.30.2.136

Gupta M, Mahajan VK, Mehta KS, Chauhan PS. Zinc Therapy in Dermatology: A Review. *Dermatol Res Pract.* 2014;2014. doi:10.1155/2014/709152

Read SA, Obeid S, Ahlenstiel C, Ahlenstiel G. The Role of Zinc in Antiviral Immunity. *Adv Nutr.* 2019;10(4):696-710. doi:10.1093/advances/nmz013

Bamford JTM, Gessert CE, Haller IV, Kruger K, Johnson BP. Randomized, double-blind trial of 220 mg zinc sulfate twice daily in the treatment of rosacea. *Int J Dermatol.* 2012;51(4):459-462. doi:10.1111/j.1365-4632.2011.05353.x

Sharquie KE, Najim RA, Al-Salman HN. Oral zinc sulfate in the treatment of rosacea: a double-blind, placebo-controlled study. *Int J Dermatol.* 2006;45(7):857-861. doi:10.1111/j.1365-4632.2006.02944.x

Weiss E, Katta R. Diet and rosacea: the role of dietary change in the management of rosacea. *Dermatol Pract Concept.* 2017;7(4):31-37. doi:10.5826/dpc.0704a08

Drake L L. Hot Sauce, Wine and Tomatoes Cause Flare-ups, Survey Finds | Rosacea.org. Accessed January 22, 2021. https://www.rosacea.org/rosacea-review/2005/fall/hot-sauce-wine-and-tomatoes-cause-flare-ups-survey-finds

Choi F, Lehmer L, Ekelem C, Mesinkovska NA. Dietary and metabolic factors in the pathogenesis of hidradenitis suppurativa: a systematic review. *Int J Dermatol.* 2020;59(2):143-153. doi:10.1111/ijd.14691

Vilanova I, Hernández JL, Mata C, et al. Insulin resistance in hidradenitis suppurativa: a case–control study. *J Eur Acad Dermatol Venereol.* 2018;32(5):820-824. doi:10.1111/jdv.14894

Mozeika E, Pilmane M, Nürnberg BM, Jemec GBE. Tumour necrosis factor-alpha and matrix metalloproteinase-2 are expressed strongly in hidradenitis suppurativa. *Acta Derm Venereol.* 2013;93(3):301-304. doi:10.2340/00015555-1492

Sabat R, Jemec GBE, Matusiak Ł, Kimball AB, Prens E, Wolk K. Hidradenitis suppurativa. *Nat Rev Dis Primer.* 2020;6(1):1-20. doi:10.1038/s41572-020-0149-1

Kucharska A, Szmurło A, Sińska B. Significance of diet in treated and untreated acne vulgaris. *Adv Dermatol Allergol Dermatol Alergol.* 2016;33(2):81-86. doi:10.5114/ada.2016.59146

Kurzen H, Kurzen M. Secondary prevention of hidradenitis suppurativa. *Dermatol Rep.* 2019;11(2):8243. doi:10.4081/dr.2019.8243

Danby FW. Diet in the prevention of hidradenitis suppurativa (acne inversa). *J Am Acad Dermatol.* 2015;73(5, Supplement 1):S52-S54. doi:10.1016/j.jaad.2015.07.042

Monfrecola G, Balato A, Caiazzo G, et al. Mammalian target of rapamycin, insulin resistance and hidradenitis suppurativa: a possible metabolic loop. *J Eur Acad Dermatol Venereol.* 2016;30(9):1631-1633. doi:10.1111/jdv.13233

Akdogan N, Alli N, Uysal PI, Topcuoglu C, Candar T, Turhan T. Visfatin and insulin levels and cigarette smoking are independent risk factors for hidradenitis suppurativa: a case–control study. *Arch Dermatol Res.* 2018;310(10):785-793. doi:10.1007/s00403-018-1867-z

Cannistrà C, Finocchi V, Trivisonno A, Tambasco D. New perspectives in the treatment of hidradenitis suppurativa: Surgery and brewer's yeast–exclusion diet. *Surgery.* 2013;154(5):1126-1130. doi:10.1016/j.surg.2013.04.018

Colboc H, Fite C, Cannistra C. Interest of Brewer's Yeast-Exclusion Diet in the Management of Hidradenitis Suppurativa. *J Clin Exp Dermatol Res.* Published online January 1, 2016. doi:10.4172/2155-9554.1000371

Vinkel C, Thomsen SF. Hidradenitis Suppurativa: Causes, Features, and Current Treatments. *J Clin Aesthetic Dermatol.* 2018;11(10):17-23.

Kromann CB, Ibler KS, Kristiansen VB, Jemec GBE. The Influence of Body Weight on the Prevalence and Severity of Hidradenitis Suppurativa. *Acta Derm Venereol.* 2014;94(5):553-557. doi:10.2340/00015555-1800

Poveda I. Serum Zinc Levels in Hidradenitis Suppurativa: A Case–Control Study. :7.

Hessam S, Sand M, Meier NM, Gambichler T, Scholl L, Bechara FG. Combination of oral zinc gluconate and topical triclosan: An anti-inflammatory treatment modality for initial hidradenitis suppurativa. *J Dermatol Sci.* 2016;84(2):197-202. doi:10.1016/j.jdermsci.2016.08.010

Brocard A, Knol A-C, Khammari A, Dréno B. Hidradenitis suppurativa and zinc: a new therapeutic approach. A pilot study. *Dermatol Basel Switz.* 2007;214(4):325-327. doi:10.1159/000100883

Guillet A, Brocard A, Ngohou KB, et al. Verneuil's disease, innate immunity and vitamin D: a pilot study. *J Eur Acad Dermatol Venereol.* 2015;29(7):1347-1353. doi:10.1111/jdv.12857

Kelly G, Sweeney CM, Fitzgerald R, et al. Vitamin D status in hidradenitis suppurativa. *Br J Dermatol.* 2014;170(6):1379-1380. doi:10.1111/bjd.12900

Mailoo VJ, Rampes S. Lysine for Herpes Simplex Prophylaxis: A Review of the Evidence. *Integr Med Clin J.* 2017;16(3):42-46.

Opstelten W, Neven AK, Eekhof J. Treatment and prevention of herpes labialis. *Can Fam Physician.* 2008;54(12):1683-1687.

Bumpstead L. Long-term use of supplemental lysine--is it safe? *J Aust Tradit-Med Soc.* 2013;19(4):228-232.

Khozeimeh F, Jafari N, Attar AM, Jafari S, Ataie M. Comparative analysis of salivary zinc level in recurrent herpes labialis. *Dent Res J.* 2012;9(1):19-23. doi:10.4103/1735-3327.92922

Arens M, Travis S. Zinc Salts Inactivate Clinical Isolates of Herpes Simplex Virus In Vitro. *J Clin Microbiol.* 2000;38(5):1758-1762.

Gaby AR. Natural Remedies for Herpes simplex. 2006;11(2):9.

Speeckaert R, Dugardin J, Lambert J, et al. Critical appraisal of the oxidative stress pathway in vitiligo: a systematic review and meta-analysis. *J Eur Acad Dermatol Venereol.* 2018;32(7):1089-1098. doi:10.1111/jdv.14792

Don P, Iuga A, Dacko A, Hardick K. Treatment of vitiligo with broadband ultraviolet B and vitamins. *Int J Dermatol.* 2006;45(1):63-65. doi:10.1111/j.1365-4632.2005.02447.x

Sendrasoa FA, Ranaivo IM, Sata M, et al. Treatment responses in patients with vitiligo to very potent topical corticosteroids combined with vitaminotherapy in Madagascar. *Int J Dermatol.* 2019;58(8):908-911. doi:10.1111/ijd.14510

Finamor DC, Sinigaglia-Coimbra R, Neves LCM, et al. A pilot study assessing the effect of prolonged administration of high daily doses of vitamin D on the clinical course of vitiligo and psoriasis. *Dermatoendocrinol.* 2013;5(1):222-234. doi:10.4161/derm.24808

Pilz S, Zittermann A, Trummer C, et al. Vitamin D testing and treatment: a narrative review of current evidence. *Endocr Connect.* 2019;8(2):R27-R43. doi:10.1530/EC-18-0432

Elgoweini M, Din NNE. Response of Vitiligo to Narrowband Ultraviolet B and Oral Antioxidants. *J Clin Pharmacol.* 2009;49(7):852-855. doi:10.1177/0091270009335769

Dell'Anna ML, Mastrofrancesco A, Sala R, et al. Antioxidants and narrow band-UVB in the treatment of vitiligo: a double-blind placebo controlled trial. *Clin Exp Dermatol.* 2007;32(6):631-636. doi:10.1111/j.1365-2230.2007.02514.x

Cohen BE, Elbuluk N, Mu EW, Orlow SJ. Alternative Systemic Treatments for Vitiligo: A Review. *Am J Clin Dermatol.* 2015;16(6):463-474. doi:10.1007/s40257-015-0153-5

Nestor M, Bucay V, Callender V, Cohen JL, Sadick N, Waldorf H. Polypodium leucotomos as an Adjunct Treatment of Pigmentary Disorders. *J Clin Aesthetic Dermatol.* 2014;7(3):13-17.

Middelkamp-Hup MA, Bos JD, Rius-Diaz F, Gonzalez S, Westerhof W. Treatment of vitiligo vulgaris with narrow-band UVB and oral Polypodium leucotomos extract: a randomized double-blind placebo-controlled study. *J Eur Acad Dermatol Venereol.* 2007;21(7):942-950. doi:10.1111/j.1468-3083.2006.02132.x

Reyes E, Jaén P, de las Heras E, et al. Systemic immunomodulatory effects of Polypodium leucotomos as an adjuvant to PUVA therapy in generalized vitiligo: A pilot study. *J Dermatol Sci.* 2006;41(3):213-216. doi:10.1016/j.jdermsci.2005.12.006

Szczurko O, Shear N, Taddio A, Boon H. Ginkgo biloba for the treatment of vitilgo vulgaris: an open label pilot clinical trial. B*MC Complement Altern Med*. 2011;11:21. doi:10.1186/1472-6882-11-21

Parsad D, Pandhi R, Juneja A. Effectiveness of oral Ginkgo biloba in treating limited, slowly spreading vitiligo. C*lin Exp Dermatol.* 2003;28(3):285-287. doi:10.1046/j.1365-2230.2003.01207.x

Abstract 36

Efficacy and safety of Baricitinib in the treatment of patients with severe or very severe Alopecia Areata: phase 2 portion of BRAVE-AA1 randomized controlled trial

King B[1], MD, Ph.D.; Ko J[2], MD, MBA; Forman S[3], MD; Ohyama M[4], MD, Ph.D.; Mesinkovska N[5], MD, Ph.D.; Yu G[6], Ph.D.; McCollam J[6], PharmD; Gamalo M[6], Ph.D.; Janes J[6], FRCP, MFPM; Edson-Heredia E[6], BA, MPH; Holzwarth K[6], MD; Dutronc Y[6], MD

[1]Yale School of Medicine, US; [2]Stanford University, US; [3]ForCare Clinical Research, US; [4]Kyorin University Faculty of Medicine, Japan; [5]University of California, US; [6]Eli Lilly and Company, US.

INTRODUCTION: Alopecia Areata (AA) is an autoimmune disorder associated with poor quality of life and psychological comorbidities. There are currently no Food and Drug Administration-approved treatments for AA. BRAVE-AA1 trial will evaluate the efficacy and safety of baricitinib, an oral, reversible, and selective Janus kinase (JAK) 1&2 inhibitor, in patients with ≥50% scalp hair loss.

OBJECTIVE: To report efficacy and safety of baricitinib in the Phase 2 portion of the trial by conducting interim analyses.

METHODS: BRAVE-AA1 is an ongoing Phase 2/3 study with an adaptive, operationally seamless design. The Phase 2 portion was designed to identify up to 2 doses for the Phase 3 portion of the study. Eligibility criteria included a current episode of AA lasting for >6months to <8 years, Severity of Alopecia Tool (SALT) score≥of 50, and no spontaneous improvement over 6 months prior to screening. Other treatments for AA were prohibited during the study and patients with prior inadequate response to JAK inhibitor were excluded. In the Phase 2 portion, patients were randomized 1:1:1:1 to receive placebo (N=28), baricitinib 1-mg (N=28), 2-mg (N=27), or 4-mg (N=27) once daily. Interim analyses were conducted after patients completed 12 and 36 weeks of treatment, respectively. The primary outcome was the proportion of patients achieving SALT score ≤20 (clinically meaningful improvement) at Week 36. Logistic regression with non-responder imputation and analysis of covariance models with modified last observation carried forward imputation was used.

RESULTS: Week 12 interim analysis demonstrated numerical superiority of baricitinib 2-mg (29.6%), and 4-mg (33.3%) doses over 1-mg dose (17.9%), and placebo (10.7%) for ≥30% improvement from baseline in SALT score. Hence, 2-mg and 4-mg doses were selected for the Phase 3 program. At Week 36, proportion of patients achieving SALT ≤20 was significantly greater in baricitinib 2-mg (33.3%, p=0.016), and 4-mg (51.9%, p=0.001) groups compared to placebo (3.6%). The proportion of patients achieving a score of 0 (no hair loss)/1 (limited) on the PRO for scalp hair assessment, were significantly greater in 2-mg, and 4-mg groups compared to placebo (p<0.05). The proportion of patients achieving a score of 0 (full)/1 (minimal gaps and even distribution/spacing) on ClinRO and PRO measures for eyebrow and eyelash hair loss was significantly greater in the 4-mg group (p<0.05 versus placebo). The most common adverse event was upper respiratory tract infection which occurred in 17.9%, 11.1%, and 22.2% of patients in the placebo, 2-mg, and 4-mg groups, respectively. No serious adverse events, deaths, thrombotic events, or new safety concerns were reported.

CONCLUSIONS: These results support the potential of baricitinib in the treatment of patients with AA with ≥50% scalp hair loss.

FUNDING SOURCE: The study was sponsored by Eli Lilly and Company, under license from Incyte Corporation. Abstract previously presented at FALLCDC 2020.

Corresponding author information:

King B[1], MD, Ph.D., brett.king@yale.edu
Ko J[2], MD, MBA, jmko@stanford.edu
Forman S[3], MD, sforman@forcaremed.com
Ohyama M[4], MD, Ph.D., manabuohy@ks.kyorin-u.ac.jp
Mesinkovska N[5], MD, Ph.D., nmesinko@uci.edu
Yu G[6], Ph.D, yu_guanglei@lilly.com
McCollam J[6], PharmD, jmccollam@lilly.com
Gamalo M[6], Ph.D., meg.gamalo@yahoo.com
Janes J[6], FRCP, MFPM, janes_jonathan@lilly.com
Edson-Heredia E[6], BA, MPH, eheredia@lilly.com
Holzwarth K[6], MD, holzwarth_katrin@lilly.com
Dutronc Y[6], MD, dutronc_yves@lilly.com

Abstract 37

Efficacy and safety of oral Nalbuphine extended-release in Prurigo nodularis: results of phase 2 randomized controlled trial with an open-label extension phase

Elke Weisshaar, MD[1]; Thomas R. Sciascia, MD[2]; Sonja Ständer, MD[3]

[1]University Hospital, Heidelberg, Germany; [2]Trevi Therapeutics, New Haven, CT, USA; [3]University Hospital, Münster, Germany

BACKGROUND: Prurigo nodularis (PN) is a relatively rare, intensely pruritic dermatologic disease that develops from prolonged itching and scratching, with a high associated quality of life (QoL) impact. Treatment of PN remains challenging. Therapies such as calcineurin inhibitors, topical steroids, and systemic antihistamines have limited data to support their use. The synthetic opioid nalbuphine, a dual-acting μ antagonist and κ agonist has shown efficacy in morphine-induced pruritus and uremic pruritus, but an evaluation of the efficacy and safety of nalbuphine in PN is currently lacking.

OBJECTIVE: To evaluate efficacy and safety of oral nalbuphine extended-release (NAL-ER) tablets for the treatment of prurigo nodularis in Phase 2, multicenter, randomized, double-blind, placebo-controlled trial.

METHODS: Patients with moderate-to-severe PN (pruritus duration ≥6 weeks) were randomized 1:1:1 to receive either NAL-ER 81 mg (NAL-ER 81) or 162 mg (NAL-ER 162) tablets twice daily or placebo for 8 weeks of stable dosing following a 2-week titration period (for dose-escalation from 30 mg once-daily to the assigned target dose). Itch scores based on Worst Itch (WI) and average itch Numerical Rating Scale (NRS) with 24-hour recall were collected daily by electronic diary (DIARYpro®). The primary efficacy endpoint was the proportion of patients with a ≥30% reduction in 7-day mean WI-NRS from baseline to Week 10 for patients who completed double-blind treatment. The primary safety endpoint was the incidences of opioid type adverse events of nausea, vomiting, constipation, somnolence, sedation, dizziness, and vertigo in each treatment group.

RESULTS: Of 62 treated patients, 50 completed 10-week treatment. The primary efficacy endpoint of the percentage of responders with ≥a 30% reduction from baseline in 7-day WI intensity was not significant for the primary modified intent-to-treat analysis but was significant for NAL-ER 162 (75.0%) compared to placebo (40.0%; p=0.026) among completers. Treatment-emergent adverse events (TEAEs) occurred predominantly during the titration period in both studies. During double-blind, stable-dose treatment that followed titration, TEAE incidence was similar for both active treatment arms and placebo. Common TEAEs were nausea, dizziness, headache, and fatigue; the majority of these events were also considered treatment-related in all three arms. In the extension study, 34 patients reported 154 TEAEs, including 26 patients with ≥1 drug-related TEAE. TEAEs included nausea (n=9; 25.0%), and dizziness and fatigue (n=8 for each; 22.2%).

CONCLUSIONS: Results provide preliminary evidence for the efficacy of NAL-ER tablets in the treatment of PN.

Abstract 38

Efficacy of Secukinumab treatment in patients with early Psoriatic Arthritis: a pooled analysis of 4 phase 3 studies

Christopher Ritchlin, MD;[1] Alan J Kivitz, MD;[2] Peter Nash, MD;[3] Renato Calheiros, MD;[4] Xiangyi Meng, Ph.D.;[4] Corine Gaillez, MD;[5] Bruce Kirkham, MD;[6] Iain B McInnes, MD[7]

[1]Department of Medicine, University of Rochester Medical Center, Rochester, NY; [2]Altoona Center for Clinical Research/Altoona Arthritis and Osteoporosis Center, Duncansville, PA; [3]Department of Medicine, Griffith University, Brisbane, Queensland, Australia; [4]Novartis Pharmaceuticals Corporation, East Hanover, NJ; [5]Novartis Pharma AG, Basel, Switzerland; [6]Guy's & St Thomas' NHS Foundation Trust, London, UK; [7]Institute of Infection, Immunity, and Inflammation, University of Glasgow, Glasgow, UK

BACKGROUND: Psoriatic arthritis (PsA) can progress quickly and lead to irreversible damage within 2 years of initial assessment if not treated. Secukinumab (SEC), a selective interleukin 17A inhibitor, demonstrated rapid and sustained improvement in the signs and symptoms of PsA in the phase 3 FUTURE 1-5 studies; the meantime since PsA diagnosis (TSD) was 6 to 7 years in these studies.

OBJECTIVE: To better understand the effect of earlier treatment in patients (pts) with PsA, we evaluated SEC treatment in pts with a TSD of ≤ 1 year or > 2 years.

METHODS: Data from pts enrolled in FUTURE 2 (NCT01752634), 3 (NCT01989468), 4 (NCT02294227), and 5 (NCT02404350) were pooled and included in this hypothesis-generating analysis (N = 1803). Pts received SEC 300 or 150 mg with a subcutaneous loading dose (LD), 150 mg without LD, or placebo (PBO). Pts were classified into 2 groups according to TSD: ≤ 1 year or > 2 years. Response to treatment was assessed using multiple outcome measures, including ACR20/50/70, PASI75/90/100, and additional disease activity and quality of life (QOL) measures at week 16. Responses were calculated using nonresponder imputation. No adjustment was made for multiple comparisons.

RESULTS: Overall, 419 pts (23.2%) had a TSD ≤ 1 year; 1384 (76.8%) had a TSD > 2 years. At baseline, most pt characteristics were comparable between the 2 TSD groups. Dactylitis and prior treatment with TNF inhibitors were more common in pts with a TSD > 2 years at baseline; the mean tender joint count (TJC) was also higher in these pts. At week 16, ACR20/50/70 response rates were higher with SEC than with PBO, regardless of TSD (Figure 1). SEC 300 mg was associated with higher ACR response rates than SEC 150 mg. In general, ACR response rates were slightly numerically higher in pts with a TSD ≤ 1 year, especially in those treated with SEC 300 mg. SEC also led to higher response rates in other efficacy outcomes compared with PBO, including resolution of enthesitis and dactylitis and improvement of skin and nail psoriasis (Table 1). In SEC-treated pts, the proportion of pts with swollen joint count = 0, TJC = 0, CRP ≤ 10 mg/L, and

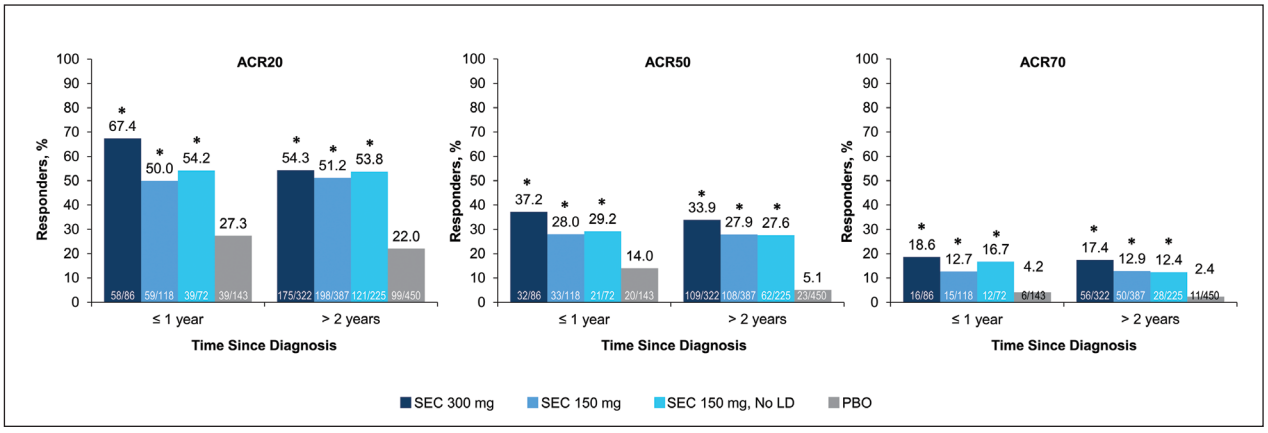


FIGURE 1. ACR Response at Week 16 by Treatment and Time Since Diagnosis

TABLE 1. Response in Additional Outcomes at Week 16[a]

Responders, n/n (%)	Time Since Diagnosis ≤ 1 Year				Time Since Diagnosis > 2 Years			
	SEC 300 mg (n = 86)	SEC 150 mg (n = 118)	SEC 150 mg, No LD (n = 72)	Placebo (n = 143)	SEC 300 mg (n = 322)	SEC 150 mg (n = 387)	SEC 150 mg, No LD (n = 225)	Placebo (n = 450)
Leeds enthesitis index, complete resolution	29/49 (59.2)	37/79 (46.8)	20/46 (43.5)	28/86 (32.6)	108/205 (52.7)	114/254 (44.9)	51/130 (39.2)	83/292 (28.4)
Leeds dactylitis index, complete resolution	14/26 (53.8)	11/32 (34.4)	13/26 (50.0)	13/47 (27.7)	73/128 (57.0)	70/136 (51.5)	43/96 (44.8)	49/161 (30.4)
TJC68 = 0	23/86 (26.7)	20/118 (16.9)	8/72 (11.1)	8/143 (5.6)	56/322 (17.4)	53/387 (13.7)	22/225 (9.8)	26/450 (5.8)
SJC66 = 0	39/86 (45.3)	40/118 (33.9)	16/72 (22.2)	21/143 (14.7)	95/322 (29.5)	95/387 (24.5)	59/225 (26.2)	68/450 (15.1)
CRP ≤ 10 mg/L	18/18 (100.0)	17/27 (63.0)	11/15 (73.3)	18/38 (47.4)	58/85 (68.2)	60/100 (60.0)	34/54 (63.0)	34/115 (29.6)
PASI90	22/42 (52.4)	26/57 (45.6)	12/37 (32.4)	8/70 (11.4)	73/148 (49.3)	68/210 (32.4)	32/116 (27.6)	14/209 (6.7)
PASI100	15/42 (35.7)	13/57 (22.8)	8/37 (21.6)	7/70 (10.0)	50/148 (33.8)	43/210 (20.5)	15/116 (12.9)	11/209 (5.3)
mNAPSI75	14/55 (25.5)	28/70 (40.0)	11/47 (23.4)	14/95 (14.7)	59/194 (30.4)	68/252 (27.0)	33/147 (22.4)	36/293 (12.3)
HAQ-DI, MCID ≥ 0.35	49/86 (57.0)	54/118 (45.8)	34/72 (47.2)	55/143 (38.5)	177/320 (55.3)	189/386 (49.0)	123/225 (54.7)	151/450 (33.6)
SF-36 MCS, MCID ≥ 2.5	45/86 (52.3)	64/118 (54.2)	42/72 (58.3)	57/143 (39.9)	149/322 (46.3)	182/387 (47.0)	110/225 (48.9)	181/450 (40.2)

LD, loading dose; PBO, placebo; SEC, secukinumab.

* $P < .05$ vs placebo.

CRP, C-reactive protein; HAQ-DI, Health Assessment Questionnaire–Disability Index; LD, loading dose; MCID, minimal clinically important difference; mNAPSI75, ≥ 75% improvement in the modified Nail Psoriasis Severity Index; PASI75, -90, and -100, ≥ 75%, ≥ 90%, and 100% improvement in the Psoriasis Area and Severity Index; PsA, psoriatic arthritis; SEC, secukinumab; SF-36 MCS, 36-Item Short Form Survey Mental Component Score; SJC66, swollen joint count assessed in 66 joints; TJC68, tender joint count assessed in 68 joints; VAS, visual analog scale. Bold response rates indicate statistical significance ($P < .05$) vs placebo.

improved SF-36 mental component score were numerically higher in pts with a TSD ≤ 1 year vs those with a TSD > 2 years. Common adverse events in SEC-treated pts (TSD ≤ 1 year/> 2 years) were nasopharyngitis (8.3%/6.1%), headache (6.2%/3.6%), and upper respiratory tract infection (5.1%/4.7%). Inflammatory bowel disease was reported in 4 pts (SEC, n = 3; PBO, n = 1), all in pts with a TSD > 2 years. Major adverse cardiovascular events occurred in 2 pts (SEC 300 mg, TSD > 2 years). No tuberculosis events were reported.

CONCLUSIONS: SEC treatment led to an improvement in clinical outcomes and QOL measures in pts with PsA regardless of TSD. Pts with a TSD of ≤ 1 year had higher clinical response rates in some outcome measures, suggesting that earlier treatment may lead to better outcomes in pts with PsA.

DISCLOSURES: C. Ritchlin has received consulting fees from AbbVie, Amgen, Janssen, Lilly, Pfizer, and UCB.

A.J. Kivitz has received consultancy fees from AbbVie, Boehringer Ingelheim, Genzyme, Janssen, Pfizer, Regeneron, Sanofi, Sun Pharma, and UCB; has received speaker fees from Celgene, Flexion, Genzyme, Horizon, Merck, Novartis, Pfizer, Regeneron, and Sanofi; and has stock ownership in Amgen, Gilead, Pfizer, and Sanofi.

P. Nash has received funding for research and clinical trials and honoraria for lectures and advice from AbbVie, Bristol Myers Squibb, Celgene, Janssen, Lilly, Novartis, Pfizer, Roche, Sanofi, and UCB.

R. Calheiros, X. Meng, and C. Gaillez are employees and stockholders of Novartis.

B. Kirkham has received personal fees from AbbVie, Gilead, Janssen, Lilly, Novartis, and UCB, and grants from Lilly, Novartis, and UCB.

I.B. McInnes has received personal fees from AbbVie, Bristol Myers Squibb, Celgene, Janssen, LEO Pharma, Lilly, Novartis, and UCB, and grants from AstraZeneca, Boehringer Ingelheim Bristol Myers Squibb, Janssen, and UCB.

FUNDING SOURCE: This study was funded by Novartis Pharmaceuticals Corporation, East Hanover, NJ.

Corresponding author information:
Renato Calheiros, MD, Novartis Pharmaceuticals Corporation, One Health Plaza, East Hanover, NJ 07936. Phone: 862-774-9260. Email: renato.calheiros@novartis.com.

Abstract 39

Modulation of the Mu and Kappa opioid axis for treatment of chronic pruritus

Sarina Elmariah, MD, Ph.D.[1]; Sarah Chisolm, MD[2]; Thomas Sciascia, MD[3]; Shawn G. Kwatra, MD[4]

[1]Massachusetts General Hospital, Boston, MA, USA; [2]Emory University Department of Dermatology, Atlanta, GA, USA; VA VISN 7, USA; [3]Trevi Therapeutics, New Haven, CT, USA; [4]Johns Hopkins University School of Medicine, Baltimore, MD, USA

INTRODUCTION: Patients with prurigo nodularis (PN) and many hemodialysis patients with end-stage renal disease have chronic pruritus, which negatively impacts the quality of life (QoL), sleep, and mood. Mu (μ) and kappa (κ) opioid receptor system imbalances in the skin or CNS are associated with severe chronic pruritus and are an active area of research for novel treatments.

METHODS: A narrative review of studies supporting opioid receptor agonists and/or antagonists in chronic pruritus were conducted.

RESULTS: Nalbuphine (NAL), a synthetic opioid, competitively antagonizes μ-receptors and simultaneously has agonist effects on κ-receptors. In a randomized phase 2/3 study (NCT02143648), hemodialysis patients with moderate-to-severe uremic pruritus (UP) receiving NAL 120 mg* extended-release (NAL-ER) tablets twice daily (BID) (n=120) demonstrated significant and durable itch-intensity reductions (primary endpoint) versus placebo (mean worst itch NRS [WI-NRS] reduction 3.5 vs. 2.8; p=0.017). In a subgroup with severe UP (n=179), sleep disruption due to itching significantly improved versus placebo (p=0.006). The most common reason for discontinuing treatment were gastrointestinal side effects (eg, nausea and vomiting) during titration. In phase 2 randomized trial and open-label extension (NCT02174419), patients with moderate-to-severe PN treated with NAL-ER 162 mg BID (n=18) had improved pruritus symptoms (≥30% and ≥50% reductions in 7-day WI-NRS scores), improvement in itch-related QoL, and healing of skin lesions. Most adverse events (AEs) were mild/moderate, occurred during titration, and consisted of nausea and dizziness (38.9%, n=7 each) and headache (27.8%, n=5). Butorphanol, an intranasal dual-acting μ-receptor antagonist and κ-receptor agonist, has demonstrated efficacy in chronic refractory pruritus. In a case series of 16 patients treated with butorphanol 10 mg/mL inhaler, 81% reported improvement based on WI-NRS scores or patients' reported improvement. Six patients with improved WI-NRS scores experienced a ≥4-point decrease in WI-NRS scores. Significant improvements in DLQI, Beck's Depression Inventory, and Skindex survey scores were observed. Three patients reported AEs (insomnia, lightheadedness, and lethargy). Nalfurafine, a single-target κ-opioid agonist, is approved in Japan for UP. The randomized phase 3 study demonstrated significant differences in visual analog scale (VAS; primary endpoint) with 2 -nalfurafine doses versus placebo (5 μg, p=0.0002; 2.5 μg, p=0.0001). The most frequent AE was insomnia. Naltrexone, a μ-opioid antagonist, demonstrated efficacy in older patients with an itch of varying etiologies including, PN. In an observational study, 13/18 patients (72.2%) demonstrated "much improved" symptoms and a 50% decrease in pruritus intensity based on VAS scores after receiving naltrexone 50 mg. Five patients (27.8%) reported AEs including, insomnia, fatigue, constipation, and anorexia.

CONCLUSIONS: These data suggest that agents modulating underlying neurologic components of pruritus through μ-antagonism/κ-agonism are safe and effective options to treat chronic pruritus.*Dose based on molecular weight including, active drug and salts.

Abstract 40
Neurocutaneous disorders: An updated pictorial review

Rachel Patel, BA[1]; Sneha Patel, MD[2]

[1]Department of Dermatology, Rutgers Robert Wood Johnson Medical School at 1 Robert Wood Johnson Place, New Brunswick, NJ 08901. [2]Department of Neuroradiology, William Beaumont Hospital at 3601 W 13 Mile Rd, Royal Oak, MI 48073.

BACKGROUND

Phakomatoses, also known as neurocutaneous disorders, are a heterogeneous group of multisystemic syndromes. These diseases primarily affect structures originating from the ectoderm such as CNS and skin, and they have often inherited conditions that generally present in childhood or adolescence. A greater understanding of imaging techniques can lead to better clinical characterization and diagnostic criteria, resulting in improved diagnosis. Well-known diseases, such as Sturge-Weber, Neurofibromatosis I/II, Tuberous Sclerosis, and von Hippel-Lindau have been well described in the literature. Rare diseases such as PHACE syndrome, Legius syndrome, Klippel-Trenauney, and neurocutaneous melanosis have less information regarding imaging and cutaneous findings. In this presentation, we examine both the imaging findings and cutaneous manifestations of each neurocutaneous disorder, as described in case reports and literature reviews, including those that have not been studied extensively.

OBJECTIVE: To assess the current state of the literature on neurocutaneous disorders and their imaging and cutaneous findings, as well as identifying knowledge gaps and areas of potential future research.

METHODS: A literature review was conducted with keywords "neurocutaneous disorders" and "imaging" was performed on PubMed and EMBASE including all dates for information. Review articles, case reports, systematic reviews, and meta-analyses were chosen based on relevance and date of publication. Imaging findings—radiologic and cutaneous—were obtained with permission as supplemental information.

RESULTS: Information regarding disease etiology, pathophysiology, clinical findings, radiologic imaging, and cutaneous manifestations was obtained for the following neurocutaneous disorders: Sturge-Weber, Neurofibromatosis type 1, Neurofibromatosis type 2, Tuberous Sclerosis, Von Hippel-Lindau, Ataxia telangiectasia, Legius syndrome, Incontinentia pigmenti, Xenoderma pigmentosum, Darier disease, Osler-Weber-Rendu syndrome, Wyburn-Mason syndrome, PHACE syndrome, Neurocutaneous melanosis, and Klippel-Trenaunay syndrome.

CONCLUSIONS: Neurocutaneous disorders are a diverse array of disorders that encompass skin, central nervous system, peripheral nervous system, and often multi-organ involvement. This review of the most commonly diagnosed neurocutaneous disorders is intended for practicing dermatologists to familiarize themselves with the typical and atypical cutaneous manifestations in conjunction with multimodal imaging and clinical findings. During the last five years, a variety of additional neurocutaneous diseases have been studied. This review summarizes recent advances in the knowledge of these diseases and the recent results obtained in clinical and scientific research. These findings will better prepare clinicians to diagnose neurocutaneous disorders.

Corresponding author information:
Rachel Patel, BA
Rp981@rwjms.rutgers.edu
Robert Wood Johnson Medical School
1 Robert Wood Johnson Place
New Brunswick, NJ 08901
Phone: (248) 497-6921

Abstract 41
Focal solar skin elastosis: a case report

Toufiq Sawid, MS[1]; Veena Pathangi, MD[1]

[1]St John Family Medicine Department

BACKGROUND: A cutaneous response to long-term sun exposure, solar elastosis is a common disorder resulting from the accumulation of abnormal tissue in the dermis. The common clinical presentation is yellow, thickened, coarsely wrinkled skin on sun-exposed areas. However, an atypical morphological presentation of popular solar elastosis may mimic more sinister skin pathologies including, basal cell carcinoma. Typically, the distinction between solar elastosis and a more malignant pathology is not possible without a biopsy, demonstrating the importance of investigating suspicious skin lesions.

CASE REPORT: A 58-year-old female patient of the continuity clinic in Family Medicine presented for evaluation of a cutaneous lesion on the face. The patient had a history of a 2-year asymptomatic lesion on the right cheek. The lesion was suspected to be a focal basal cell carcinoma. The patient was interested in having the lesion removed for cosmetic reasons. She had no history of similar lesions in the past. The personal and family history was non-contributory. The patient was not taking any medications.

PAST MEDICAL HISTORY: The patient had a past medical history of obesity, stress fracture of the metatarsal bone, and tobacco dependence syndrome.

PHYSICAL EXAM: Examination revealed a 2cm round papular lesion on the right cheek. The lesion was skin toned with no erythema, telangiectasia, or discoloration. There was a rounded, raised border on the periphery of the lesion. There was no tenderness on palpation. The remainder of the physical exam was within normal limits. The clinical impression was that of a basal cell carcinoma and a shave biopsy was obtained.

LABS: No labs were ordered at that time. A shave biopsy of the right cheek was submitted to the Department of Pathology.

PATHOLOGY REPORT: A 0.4cm tan smooth, irregular sample of a skin shave biopsy from the right cheek was submitted to pathology in formalin (10/18/2019). The specimen was inked and bisected in 1 cassette. The pathology report stated that the sample contained fragments of superficial skin showing dilated hair follicles containing Demodex mites with an associated inflammatory response. The histological diagnosis was focal solar elastosis.

DISCUSSION: The manifestation of solar elastosis in this case represents a common condition presenting in a rare clinicopathological form. Commonly seen in the Caucasian population, solar elastosis is a degenerative disease of the dermis associated with severe photodamage, hereditary pigmentation, smoking, aging, and exposure to sunlight and wind.[2] Severe forms of papular solar elastosis have been reported to mimic more severe pathologies including basal cell carcinoma, sebaceous hyperplasia, molluscum contagiosum, and actinic keratosis. Thus, obtaining a skin biopsy is necessary to distinguish this benign lesion from a more insidious cause.

First described by Kwittken in 2000, papular elastosis skin lesions were noted to be asymptomatic, shiny, smooth, firm papules, 1-10 mm in diameter.[4] The common clinical appearance is thickened, yellow, coarsely wrinkled skin and possibly telangiectasias and/or poikilodermatous changes.[5] Since the initial description of papular elastosis alongside two case presentations, there has been a scarcity of additional reports of this pathology in the literature.[3, 4] Also known as actinic elastosis or senile elastosis, there are several distinct entities of solar elastosis that have been described based on the combination of anatomic location, clinical appearance, and histopathological findings.[1] The following entities are recognized as solar elastotic syndromes: solar elastosis, nodular elastosis with cysts and comedones, elastic nodules of the ears, collagenous and elastotic plaques of the hands.[5] It is postulated that the cutaneous findings seen in solar elastosis are the result of degradation of the elastin and collagen fibers in combination with overactive sun-damaged fibroblasts that synthesize new elastic tissue creating an imbalance between degenerative and reactive processes.[6]

The predominant histological features of solar elastosis can be seen with H&E stain highlighting the basophilic degeneration of elastic fibers in the dermis. These fibers are separated from the epidermis by the grenz zone- a thin normal-appearing band of collagen alongside horizontally arranged bands of collagen.[7] Moderate forms present with a proliferation of elastic fibers in the papillary dermis.[8] More established or severe cases present with the papillary and upper reticular dermis replaced with thickened fibers forming basophilic tangled masses.[8] Although there is no specific treatment for solar elastosis, preventative measures such as the use of sunscreen, wide-brimmed hats, and UV protective clothing should be recommended to all patients.

REFERENCES

1. Khaitan T, Pachigola R, Kabiraj A, Ginjupally U. Solar elastosis: Case report and review. Journal of Indian Academy of Oral Medicine and Radiology. 2016 Apr 1;28(2):215.

2. Morita A. Tobacco smoke causes premature skin aging. Journal of dermatological science. 2007 Dec 1;48(3):169-75.

3. Heng JK, Aw DC, Tan KB. Solar elastosis in its papular form: uncommon, mistakable. Case reports in dermatology. 2014;6(1):124-8.

4. Kwittken *J. Papular elastosis.* Cutis. 2000 Jul;66(1):81-3.

5. Patterson JW. Weedon's Skin Pathology E-Book. Elsevier Health Sciences; 2014 Dec 7.

6. Calderone DC, Fenske NA. The clinical spectrum of actinic elastosis. Journal of the American Academy of Dermatology. 1995 Jun 1;32(6):1016-24.

7. Lewis KG, Bercovitch L, Dill SW, Robinson-Bostom L. Acquired disorders of elastic tissue: part I. Increased elastic tissue and solar elastotic syndromes. Journal of the American Academy of Dermatology. 2004 Jul 1;51(1):1-21.

8. Braverman IM, Fonferko E. Studies in cutaneous aging: 1. The elastic fiber network. *J Invest Dermatol* 1982;78:434–443.

Abstract 42

Safety and efficacy of VP-102 (Cantharidin, 0.7% w/v) in the treatment of Molluscum Contagiosum by the body, region, and visit

Lawrence F. Eichenfield[1]; Albert Yan[2]; Pearl Kwong[3]; Mercedes E. Gonzalez[4]; Pieter d'Arnaud[5]; Patrick Burnett[6]; Melissa Olivadoti[6]*

[1]UC San Diego and Rady Children's Hospital, San Diego, CA; [2]Children's Hospital of Philadelphia and Perelman School of Medicine at the University of Philadelphia, Philadelphia, PA; [3]Solutions Through Advanced Research, Jacksonville, FL; [4]Skin Research Institute, Coral Gables, FL;[5]Instat Consulting, Inc., Chatham, NJ; [6]Verrica Pharmaceuticals Inc., West Chester, PA

BACKGROUND: VP-102 is a proprietary drug-device combination product containing a controlled topical formulation with cantharidin (0.7% w/v) and has completed Phase 3 trials for the treatment of molluscum contagiosum (molluscum). Post-hoc analyses determined the pooled safety and efficacy of VP-102 at each visit by molluscum lesion body region where lesions were present at baseline, segmented by head/neck, chest/abdomen, upper extremities, back/buttocks, groin, and lower extremities.

OBJECTIVES: Subjects ≥ 2 years of age with a clinical diagnosis of molluscum were enrolled in two Phase 3 trials with identical protocols and randomized in a 3:2 ratio to topical administration of VP-102 or vehicle applied to all baseline and new molluscum lesions once every 21 days until clear, or up to a maximum of 4 applications. Lesion counts and body regions were recorded at days 1 (baseline), 21, 42, 63, and 84 (the end of study (EOS) visit). The efficacy population included subjects with lesions in the specific body regions at baseline. Efficacy was measured by the percentage of subjects with complete clearance of lesions in each location by visit. Lesions could be present in more than one body region, and individual lesions were not tracked. Targeted adverse events (AEs) were documented throughout the study with a focus on local skin reactions. The safety population included subjects who received at least one treatment of study drug.

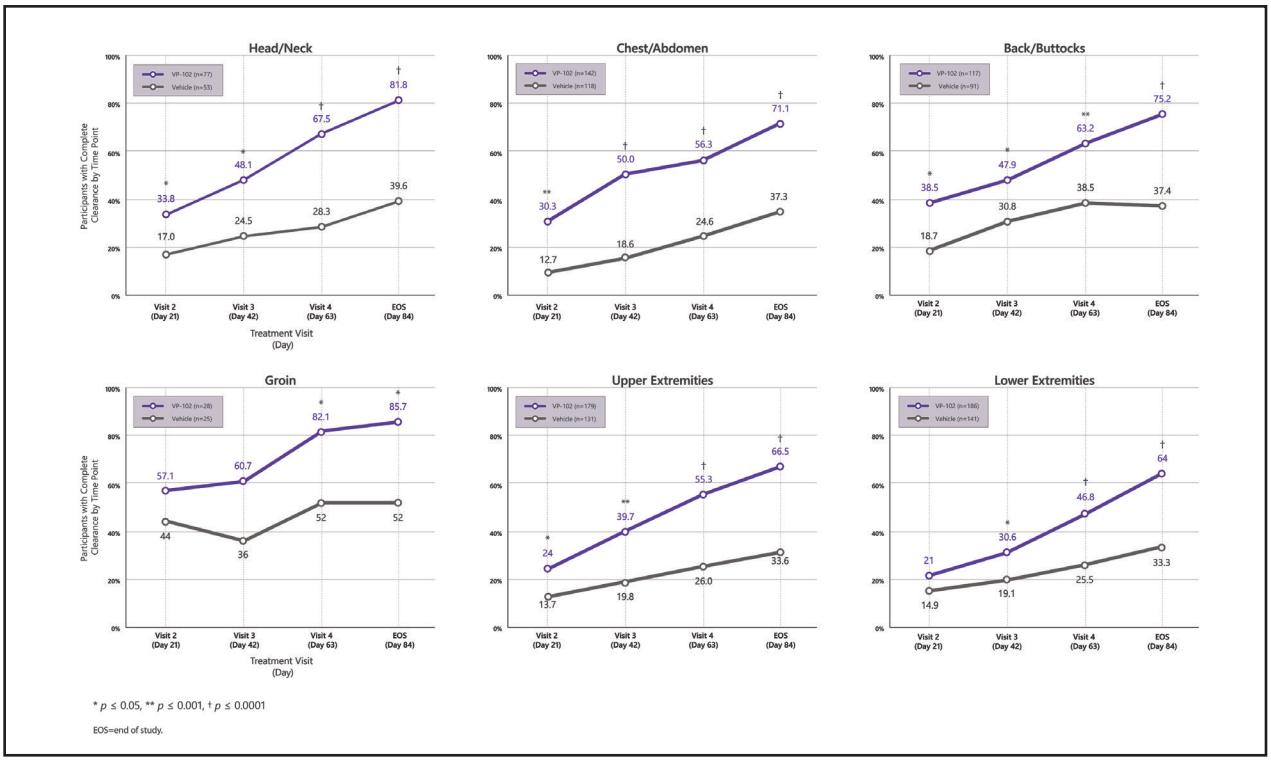


FIGURE 1. Subjects with Complete Lesion Clearance by Body Region by Visit/Day (ITT Population)

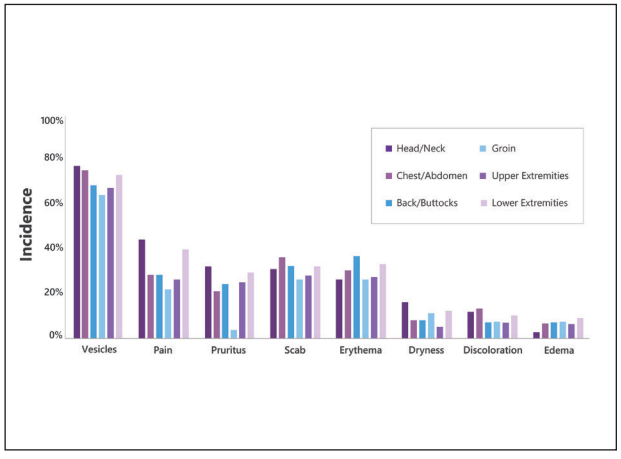


FIGURE 2. Incidence of Application Site TEAEs by Body Location n VP-102-Treated Subjects (Safety Population)

RESULTS: Subjects had lesions in the following regions at baseline: head/neck (n=77 VP-102, n=53 vehicle), upper extremities (n=179, 131), lower extremities (n=186, 141), back/buttocks (n=117, 91), groin (n=28, 25), or chest/abdomen (n=142, 118). The percentage of subjects with complete clearance of all lesions was statistically significantly higher in the VP-102 group than the vehicle in all body regions at the EOS visit. Clearance of Head/neck, chest/abdomen, back/buttocks, and upper extremities were statistically significantly higher than vehicle beginning after the first visit through the EOS visit (all p<0.05). Clearance rates of the lower extremities were significantly higher for VP-102 vs vehicle beginning at day 42, and in the groin beginning at day 63 through the EOS visit (p<0.05). All clearance rates will be presented in the poster. The incidence of targeted AEs was consistent across regions for the VP-102 group.

CONCLUSIONS: Treatment of molluscum with VP-102 showed statistically significantly higher efficacy of percentage of subjects with complete clearance vs. vehicle across all body locations, though different body regions may require a different number of treatments for complete clearance. The VP-102 group showed a similar incidence of AEs across all body regions.

Corresponding author contact information: molivadoti@verrica.com; cell 714-884-1523

Abstract 43

The hidden impact of Molluscum Contagiosum: a survey of caregivers' experiences with diagnosis and management

Pearl Kwong[1]; Adelaide Hebert[2]; Collette Utley[3]; Melissa Olivadoti[4*]

[1]Solutions Through Advanced Research, Jacksonville, FL [2]UTHealth McGovern Medical School, Houston, TX, [3]Gold Skin Care Center, Nashville, TN, [4]Verrica Pharmaceuticals Inc., West Chester, PA

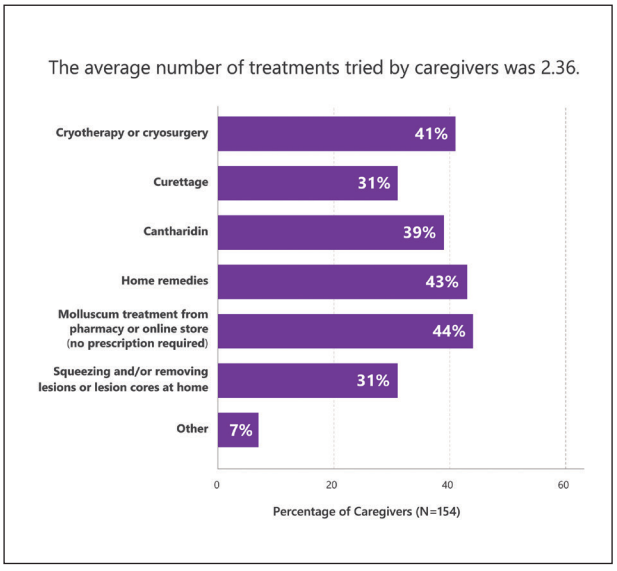


FIGURE 1. Which of the following ways of dealing with molluscum did you decide on your child?

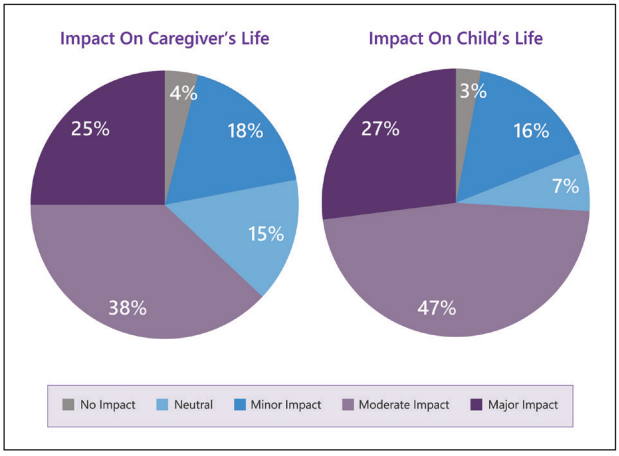


FIGURE 2. How much of an impact has molluscum had on your child's life (right figure) or on your life (left figure).

OBJECTIVES: Molluscum Contagiosum (molluscum) is a common pediatric viral skin infection. While this 1condition is considered benign and self-limiting, molluscum can last for months to years and cause itching and pain. The experience in caring for a child with molluscum largely remains a mystery, with few studies published on the topic. This online survey aimed to collect caregivers' views on their experiences with molluscum infection in their children.

METHODS: Parents, caregivers, and/or legal guardians of children (ages 3-16 years) diagnosed with molluscum in the past 4 years were recruited to answer a 15-minute paid online survey. Survey questions inquired about the type of health care provider (HCP) consulted, diagnosis, treatment, and how severely molluscum impacted the caregiver and the child.

RESULTS: Respondents (n=150) were mostly Caucasian (85%), 25-44 years of age (87%), and had at least one child with an active infection (75%). The median household size was 4 people. The median age of children in the home was 8 years. Most respondents saw at least 2 types of HCPs for their child's molluscum. The diagnosis was completed by Pediatrics (49%), Family Practice (37%), Dermatology (34%), Infectious Disease (23%), and/or Emergency Room (21%). The spread of molluscum to ≥ 1 child in the household was reported in 60% of caregivers.

Most caregivers were offered treatment options by the health care provider (61%) vs. allowing the disease to remit on its own (39%). Most caregivers reported moderate to major impact on their lives (62%), 70% agreed with the statement that molluscum kept their child away from doing things they love, and 62% agreed they worried what others thought of their child having molluscum. Many respondents (47%) considered squeezing or removing lesions themselves at home and 31% utilized this strategy. The most common approaches to treatment were home remedies (43%) and molluscum treatments purchased from Amazon.com or a drug store with no Rx required (41%), followed by cryosurgery (41%), cantharidin (39%), and curettage (31%). The average number of treatments used was 2.36.

CONCLUSIONS: Results indicate that molluscum patients receive diagnoses from many HCP types, often visiting more than one HCP. Many patients do not receive treatment, and those that do receive treatment are likely to use more than one modality in an attempt to clear the infection. Caregivers were likely to attempt to try at-home remedies or use unproven/unapproved remedies, as well as attempt to disrupt lesions themselves, creating opportunities for autoinoculation and spread of the infection. Not surprisingly, spread to another child in the household was common.

Finally, a moderate to high impact on the quality of life for caregivers and an impact on activities for their children with molluscum was reported. This suggests that while physically benign, molluscum has an emotional impact on patients and their caregivers, with concern over a negative social stigma.

Corresponding Author Information:
molivadoti@verrica.com Cell: 714-884-1523

Abstract 44
The role of Kappa and Mu opioid receptors in Pruritus

Brian Kim, MD[1]; Thomas Sciascia, MD[2]; Gil Yosipovitch, MD[3]

[1]Washington University, St. Louis, MO, USA; [2]Trevi Therapeutics, New Haven, CT, USA; [3]University of Miami, Miami, FL, USA

BACKGROUND: Itch perception is transmitted from sensory neurons innervating the skin to the spinal cord.

From there, spinal projection neurons relay signals to the brain, where itch sensation is perceived. A multitude of itch-inducing stimuli or pruritogens can trigger itch, including neurotransmitters, neuropeptides, proteases, and cytokines. However, pathways that suppress itch remain poorly understood. Recent studies have shed light on the emerging role of opioid receptors, particularly kappa-opioid receptors (KORs) and mu-opioid receptors (MORs), respectively, in suppressing and eliciting itch both in the periphery and more centrally.

OBJECTIVE: Herein, we present a summary of recent work supporting the role of KORs and MORs as potential therapeutic targets in the treatment of itch.

METHODS: A literature search of the PubMed database was conducted to identify English-language publications examining the role of opioid receptors in pruritus in the past decade; search terms included "opioid receptor", "kappa", "mu", "pruritus", and "itch". Findings from relevant publications were summarized as a narrative review.

RESULTS: KORs and MORs are expressed throughout both the peripheral and central nervous systems. Imbalances of activity across the KOR and MOR systems in the skin or CNS are associated with severe chronic pruritus and are an active area of research for novel treatments. Whereas activation of KORs results in attenuation of itch in a variety of contexts, activation of MORs is associated with increased itch. The inhibitory effects of KOR agonism are specific to itch. In addition, there are reports of KOR agonism resulting in suppression of inflammation. In contrast to MORs, activation of KORs has not been associated with addiction, which has important therapeutic implications given concerns about opioid use. Attenuation of itch has been demonstrated by KOR agonists, including the endogenous ligand dynorphin and drugs such as nalfurafine and difelikefalin, as well as by MOR antagonists such as naltrexone. Both KOR and MOR pathways are targeted with the use of dual KOR agonist/MOR antagonists such as butorphanol and nalbuphine.

CONCLUSIONS: KORs and MORs have emerged as important therapeutic targets in itch. Notwithstanding these advances, the precise mechanisms by which KOR agonists and/or MOR antagonists can be employed therapeutically remains an exciting area worthy of further investigation.

Abstract 45

Neck skin rejuvenation using a novel topical treatment: a randomized, double-blind, regimen-controlled study

Elizabeth T. Makino, BS, CCRA, MBA; Rahul C. Mehta, Ph.D.

BACKGROUND: The neck has increasingly become a key aesthetic concern for patients seeking to rejuvenate their overall appearance. With age, dermal thickness decreases which results in a sagging appearance. In addition, other prominent signs of neck aging include coarse lines and dyspigmentation. A novel neck cream (NC) was developed with a blend of antioxidants, plant extracts and peptides to address the various pathways involved in the signs of neck aging; plant extracts and peptides target the extracellular matrix to address the loss of elasticity and horizontal neck lines, and the antioxidants protect against environmental factors contributing to dyspigmentation.

OBJECTIVES: To assess the efficacy and tolerability of NC in subjects with moderate to severe overall skin texture, a 12 week, randomized, double-blind, regimen-controlled study was conducted.

METHODS: 69 females aged 48-70, with Fitzpatrick Skin Types I-V completed the study (Active: n=42, Control: n=27). Active applied NC twice daily, along with basic skincare regimen. Control applied the same basic skincare regimen. Investigator grading, questionnaires and photography were taken baseline and weeks 4, 8 and 12. Cutometer measurements for skin firmness and elasticity were taken at baseline and week 12.

RESULTS: NC demonstrated significant improvements over Control in laxity/sagging (all $p \leq 0.006$; Wilcoxon rank-sum) and global improvement in overall skin texture (all $p \leq 0.009$; Wilcoxon signed-rank) at weeks 8 and 12. Cutometer measurements in active group showed significant improvements in skin firmness and elasticity at week 12 (all $p \leq 0.04$; paired t-test).

CONCLUSIONS: These results suggest that NC may provide patients with a treatment option for neck rejuvenation.

FUNDING SOURCE: Allergan Aesthetics, an AbbVie company sponsored and provided financial support for the study

Abstract 46

Brunsting-Perry pemphigoid as a reason of cicatricial scalp alopecia

Kohut Ihor, MD, PhD, Skin Health Centre, Termopil, Ukraine, ihor.kohut@outlook.com; Antonina Kalmykova, MD, CSD Healthcare, Kyiv, Ukraine tonya@csd.com.ua; Halyna Bezkorovayna, MD, PhD, Skin Health Centre, Termopil, Ukraine, 111ya111@ukr.net

BACKGROUND: Brunsting–Perry pemphigoid (BPP) is a rare variant of epidermolysis bullosa acquisita, localized to the head and neck, causing cicatricial alopecia. Approximately 60 cases of BPP were reported, but target antigen has not yet been clearly established (Asfour L., et al. *Am J Dermatopathol.* 2017).

OBJECTIVES: Study aimed to present a rare case of alopecia caused by BPP.

METHODS: Study included a 68-year-old Caucasian female with over 10-years history of slowly progressing patching hair loss. Dermoscopy, histopathology (HP), including direct immunofluorescence (IF) tests were performed to approve a diagnosis.

RESULTS: Physical examination of temporal and parietal areas revealed multifocal moderately atrophic scar-like areas of hair loss, merged on the vertex pink plaques with white scales, yellow crusts over follicular openings, thin and single hair.

Dermoscopy showed white scarring areas on a milky red background, absent follicular openings, white scales, serpentine and dotted vessels, yellow dots with a whitish halo ("fried-egg sign") around follicular openings (Figure 1).

White scarring interfollicular confluent areas on a milky red background, absent follicular openings, yellow dots with a whitish halo ("fried-egg sign"), white polygonal scales with protruding edges, elongated serpentine and dotted vessels.

HP showed cicatricial changes in the dermis and in pre-existing follicles, dense perivascular and moderate diffuse lymphohistiocytic infiltrate, admixture of plasma cells and polymorphonuclear leukocytes, formation of subepidermal cleft, hyperkeratosis, parakeratosis, serous-haemorrhagic exudate, moderate acanthosis, increased nuclear-cytoplasmic ratio in basal keratinocytes. IF test showed linear reaction to the complement C3s, IgA and IgG, linear and granular reaction to IgM along the basal membrane (Figure 2).

After the course of intralesional Betamethasone (4 injections every 3 weeks) erosions disappeared, white scales became rare, no new scarring areas detected. Afterward, topical mometasone furoate lotion was effective to prevent a relapse of the disease.

Therefore, it was concerned that a white scarring represents a fibrosis, white lamellar scales - interfollicular epidermolysis, yellow dots - detached epidermis of follicular openings, thin and angulated hairs - dystrophy in cicatricial areas. Unopened blisters are rare to be captured by dermoscopy.

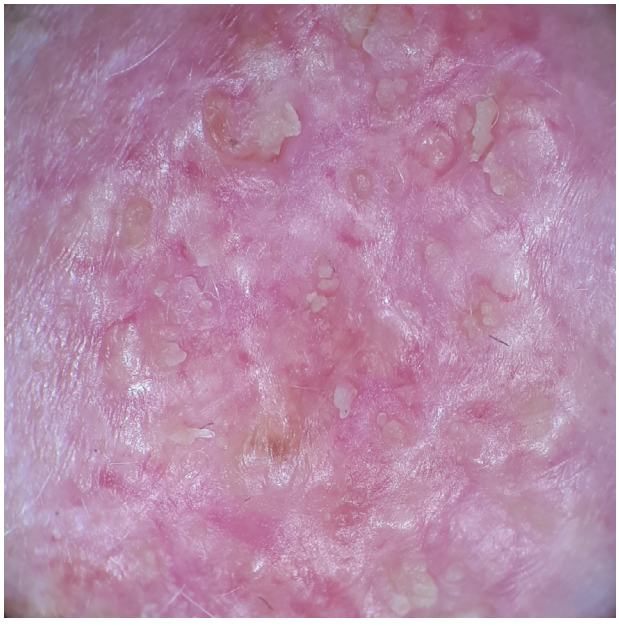


FIGURE 1. Dermoscopy presentation of cicatricial alopecia caused by BPP.

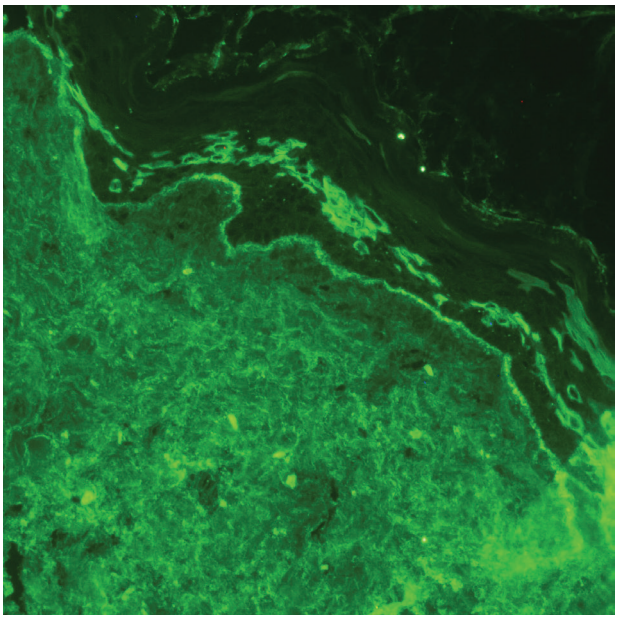


FIGURE 2. Positive IF linear reaction to IgG in in BPP.

CONCLUSIONS: Target antigen has not yet been clearly established, clinical and histopathological findings are crucial in diagnosing of BPP.

REFERENCES

Asfour L., Chong H., Mee J., Groves R., Singh M. Epidermolysis Bullosa Acquisita (Brunsting-Perry Pemphigoid Variant) Localized to the Face and Diagnosed with Antigen Identification Using Skin Deficient in Type VII Collagen. *Am J Dermatopathol.* 2017;39(7):e90-e96. doi:10.1097/DAD.0000000000000829.

CORRESPONDING AUTHOR:
Ihor Kohut, MD, PhD
6, Luchakivskoho str,
Ternopil, Ukraine, 46027
+380679913132
ihor.kohut@outlook.com

Abstract 47

Diamond tip dermabrasion combined with topical skincare provides immediate and long term clinical benefits in subjects with dry, hyperpigmented, photodamaged or acne/oily facial skin

Lisa Goberdhan, MSHS; Katie Schneider, BS, LE; Elizabeth Makino, BS, CCRA, MBA; Rahul C. Mehta, PhD

BACKGROUND: Combining in-office procedures with take-home skincare have been shown to optimize overall patient outcomes. The in-office diamond tip dermabrasion device (DG) was designed to simultaneously exfoliate, extract, and

infuse topical cosmetic serums onto the skin to improve the overall appearance of the skin.

OBJECTIVES: To assess the efficacy of a novel combination regimen (DGR) of DG and take-home cosmetic skincare, a 12 week, open-label, single-center study was conducted on subjects with facial dryness, hyperpigmentation, photodamage, or acne/oily skin.

METHODS: Sixteen subjects, aged 22 to 70 with Fitzpatrick Skin Types I-V completed the 12-week study. Subjects were assigned to one of four groups: Dryness, Hyperpigmentation, Photodamage, or Acne/Oily. All subjects received a series of six DG treatments every two weeks. Dry, hyperpigmented, photodamaged, and acne/oily groups received hydrating, brightening, antioxidant, and pore clarifying serums respectively. Subjects began take-home skincare regimen after their first DG treatment and for the duration of the study. Study endpoints included investigator grading, photography, and questionnaires.

RESULTS: All groups demonstrated immediate, 72 hour, and long-term improvements after use of the combination regimen. Immediately after DG, significant improvements in photodamage, dryness, radiance, fine lines, periocular coarse lines, and texture were achieved (all p£0.04). At 72-hours, significant improvements continued in all these parameters except fine/coarse lines (all p£0.04). DGR provided significant long-term improvements at week 12 vs. baseline for hyperpigmentation, photodamage, dryness, skin tone unevenness, radiance, periocular/perioral fine lines, and texture (all p£0.005).

CONCLUSIONS: These results support how DGR can provide an effective combination in-office and take-home treatment for patients seeking facial rejuvenation.

FUNDING SOURCE

Allergan Aesthetics, an AbbVie company sponsored and provided financial support for the study

Abstract 48

Oral 4', 7-Isoflavandiol (Equol) improves skin parameters in adult men, a pilot placebo-controlled study

Edwin D. Lephart, Ph.D., Department of Physiology, Developmental Biology and the Neuroscience Center, College of Life Sciences, Brigham Young University, Provo, Utah 84602 USA

BACKGROUND: Equol is a polyphenolic/isoflavonoid molecule derived from intestinal metabolism, dairy, eggs, and dietary plant sources (Mayo et al. Nutrients, 2019). It has the unique characteristic to bind specifically 5α-dihydrotestosterone (5α-DHT) by sequestering 5α-DHT from the androgen receptor, thus decreasing androgen hormone action to improve prostate (Lephart, OJ Urology, 2013) and skin health (Oyama et al. Menopause, 2012; Magnet et al. Internat. J. Cosmetic Sci., 2017). From a previous clinical study examining prostate health parameters, men reported improvement in their overall skin health with oral equol treatment. Objective: This single-center pilot placebo-controlled clinical study examined the effects of low dose oral equol supplementation (3 mg, twice a day at breakfast and dinner) for 12 weeks in 11 men (37 - 54 years old) to determine whether the equol treatment influences skin health. The placebo control group had 11 men (37-56 years old).

METHODS: All subjects gave informed consent, and there were no adverse events reported. Body mass index was 27.6 + 1.4 for controls and 28.8 + 1.9 for the equol group. Glogau photoaging I and II (wrinkling) was mild to moderate. Fitzpatrick skin types ranged from II to IV. To determine oral compliance each subject was asked to keep a pocket dosing journal and bring in the remaining capsules/bottle at each visit. The primary efficacy was measured by a

Self-Assessment Questionnaire Analysis – Facial Features

Efficacy: percentage of subjects that perceived improvement over baseline (parameters 1 – 5)

Week	3		6		9		12		
C = Control, E = Equol	C	E	C	E	C	E	C	E	% improvement▲
1. Skin Smoothness	18	45*	27	55*	36	64*	27	73*	at 12 wks 34*
2. Frown Lines/Wrinkles	18	55*	18	55*	27	64*	27	64*	at 12 wks 48*
3. Even Skin Tone	9	45*	18	45*	27	55*	27	64*	at 12 wks 47*
4. Skin Spots/discoloration	18	27	18	36	27	55*	18	55*	at 12 wks 39*
5. Hydration	27	64*	36	64*	27	64*	36	73*	at 12 wks 40*

	Control = 11	Equol = 11
Number of subjects		
Mean age (years ± SEM)	44.9 ± 2.1	45.7 ± 1.9
Age range (years)	37 - 56	37 – 54
Caucasian (number of subjects)	7	7
Asian (number of subjects)	4	4

* = significantly greater vs. baseline or control values ($p < 0.025$)

▲ equol group results for a given skin parameter

self-assessment questionnaire covering 5 skin parameters at baseline, 3, 6, 9, and 12 weeks. Subjects selected the score that best defined the indicated parameters of their facial features using a 1-to-10 point scale, where 1 = very poor or severe condition and 10 = excellent or perfect condition (% improvement). At each interval, scoring was made blind to previous recorded visits.

Baseline scores among the 5 skin parameters ranged from 4.1 to 4.9 in the control and equal groups.

RESULTS: The male subjects reported the tolerance of the treatment was excellent. Low oral dose equol improved 5 skin parameters over the treatment interval (compared to baseline or control values). In the equol group, among the skin parameters, the % improvement ranged from 34 to 48 %. Compliance was 78 % for subjects (recommended dose per day), with 22 % under dosed.

CONCLUSIONS: Equol taken orally provided well-tolerated and valuable therapy for skin health in men that can be used alone or in combination with current topical dermal personal care products. The efficacy of equol observed in this study is due to its multiple positive biological actions (Lephart & Naftolin, Dermatology Therapy, 2021) not present in current nutraceutical products. For example, equol inhibits the negative actions of androgen (5α-DHT) in the skin (Gopaul et al. Biofactors, 2012) while at the same time binds to estrogen receptor beta in the epidermal layers to increase collagen, elastin and inhibit matrix metalloproteinases to enhance skin health (Lephart, Ageing Res. Rev. 2016).

Abstract 49

Patient assessment of 5-fluorouracil and imiquimod for the treatment of actinic keratoses: A retrospective study of real-world effectiveness

Veronica K. Emmericha, BA; Deborah Culla, BSE; Katherine A. Kellya, BS; Steven R. Feldman[a,b,c,d], MD, Ph.D.

[a]Center for Dermatology Research, Department of Dermatology, Wake Forest School of Medicine, Winston-Salem, North Carolina; [b]Department of Pathology, Wake Forest School of Medicine, Winston-Salem, North Carolina; [c]Department of Social Sciences & Health Policy, Wake Forest School of Medicine, Winston- Salem, North Carolina; [d]Department of Dermatology, University of Southern Denmark, Odense, Denmark

BACKGROUND: Despite the superior efficacy of topical therapies for the treatment of actinic keratoses in clinical trials, cryosurgery remains the standard of care. Little is known about patients' perceptions or real-world use of topical therapies.

OBJECTIVES: To determine the real-world effectiveness and tolerability of 5-fluorouracil and imiquimod in the treatment of actinic keratosis, as well as the patient's willingness to use these therapies again.

METHODS: A phone survey and chart review was conducted among 51 patients prescribed 5-fluorouracil (N=27) or imiquimod (N=24) for actinic keratosis. Reaction incidence, severity, and a number of cryosurgery spot treatments and non-melanoma skin cancers one year before and after treatment were recorded.

RESULTS: Six patients in the 5-fluorouracil group and five patients in the imiquimod group reported severe local skin reactions, and three patients in both groups were unwilling to use the respective topical therapies again. Patients in the 5-fluorouracil group had, on average, 3.3 fewer cryosurgery spot treatments following topical treatment. Patients in the imiquimod group averaged 2.0 fewer spot treatments. Four patients in the 5-fluorouracil group and five patients in the imiquimod group reported that treatment was unsuccessful.

CONCLUSIONS: Patient behaviors and drug efficacy in clinical trials are not always reflective of real-world use. High rates of skin reactions, prolonged discomfort, and the continued need for procedural treatments may make patients less willing to use topical 5-fluorouracil or imiquimod for actinic keratoses.

ACKNOWLEDGMENTS: This research was supported by Almirall, LLC.

Corresponding author information:
Veronica K. Emmerich Department of Dermatology
Wake Forest School of Medicine 1 Medical Center Boulevard
Winston-Salem, NC 27157-1071, USA
Phone: 336-716-7740
E-mail: vemmeric@wakehealth.edu

TABLE 1. Dermatological procedures and non-melanoma skin cancers one year before and after initiation of therapy.

	5-Fluorouracil	Imiquimod
	N	N
Procedures Before Treatment		
Cryosurgery	251	129
Excision	7	3
MMS	4	1
Other	2	6
Procedures After Treatment		
Cryosurgery	162	81
Excision	1	0
MMS	4	2
Other	4	4
NMSCs Before Treatment		
Total	18	26
NMSCs After Treatment		
Total	18	10

NMSC: non-melanoma skin cancer. MMS: Mohs micrographic surgery.

TABLE 2. Characteristics and survey responses of study participants.

	5-Fluorouracil (N=27)		Imiquimod (N=24)	
	N	%	N	%
Gender				
Male	21	78	12	50
Female	6	22	12	50
Age				
50-59	1	3.7	6	25
60-69	5	19	6	25
70-79	18	67	7	29
80-89	3	11	4	17
90+	0	0	1	4.2
Completed Treatment				
Yes	21	78	20	83
No	6	22	4	17
Any Reaction				
Yes	19	70	15	63
No	8	30	9	38
Specific Reactions				
Redness	15	56	11	46
Irritation	9	33	6	25
Itch	0	0	3	13
Photosensitivity	2	7.4	0	0
Scaling	2	7.4	0	0
Blistering	1	3.7	1	4.2
Swelling	0	0	1	4.2
Reaction Severity				
Mild	12	44	7	29
Moderate	1	3.7	3	13
Severe	6	22	5	21
Inconvenience/Stress				
Yes	3	11	2	8.3
No	24	89	22	92
Affected Work/Social Life				
Yes	4	15	2	8.3
No	23	85	22	92
Treatment Successful				
Yes	22	81	18	75
No	4	15	5	21
Unsure	1	3.7	1	4.2
Would Use Again				
Yes	23	85	20	83
No	3	11	3	13
Unsure	1	3.7	1	4.2

Abstract 50

Efficacy and Safety of Guselkumab, a Monoclonal Antibody Specific to the p19-Subunit of Interleukin-23, Through 2 Years: Results from a Phase 3, Randomized, Double-blind, Placebo-controlled Study Conducted in Biologic-naïve Patients with Active Psoriatic Arthritis

Iain B. McInnes, FRCP, PhD, MD[1]; Proton Rahman, MD[2]; Alice B. Gottlieb, MD, PhD[3]; Elizabeth C. Hsia, MD[4,5]; Alexa P. Kollmeier, MD[4]; Xie L. Xu, PhD[4]; Shihong Sheng, PhD[6]; Yusang Jiang, MA[6]; May Shawi, PhD[7]; Soumya D. Chakravarty, MD, PhD[7,8]; Désirée van der Heijde, MD, PhD[9]; Philip J. Mease, MD[10]

[1]University of Glasgow, Institute of Infection, Immunity and Inflammation, Glasgow, United Kingdom (iain.mcinnes@glasgow.ac.uk), [2]Memorial University of Newfoundland, Craig L Dobbin Genetics Research Centre, St. John's, Canada (prahman@mun.ca), [3]Icahn School of Medicine Mt. Sinai, Dermatology, New York, United States of America (alice.gottlieb@mountsinai.org), [4]Janssen Research & Development, LLC, Immunology, Spring House, United States of America (ehsia@its.jnj.com, akollmei@its.jnj.com, lxu@its.jnj.com), [5]University of Pennsylvania Medical Center, Rheumatology, Philadelphia, United States of America, [6]Janssen Research & Development, LLC, Biostatistics, Spring House, United States of America (ssheng@its.jnj.com, yjiang54@its.jnj.com), [7]Janssen Scientific Affairs, LLC, Immunology, Horsham, United States of America (mshawi@its.jnj.com, schakr66@its.jnj.com), [8]Drexel University College of Medicine, Rheumatology, Philadelphia, United States of America, [9]Leiden University Medical Center, Rheumatology, Leiden, Netherlands (mail@dvanderheijde.nl), [10]Swedish Medical Center/Providence St. Joseph Health and University of Washington, Rheumatology Research, Seattle, United States of America (pmease@philipmease.com)

Correspondence: Professor Iain B. McInnes, University of Glasgow, Glasgow, UK (01413308412), (fax: n/a; e-mail address: iain.mcinnes@glasgow.ac.uk).

BACKGROUND: Guselkumab (GUS), a selective IL-23 inhibitor dosed every 4 or 8 weeks (Q4W or Q8W), demonstrated efficacy for joint and skin symptoms, inhibition of structural damage progression (Q4W), and safety vs. placebo (PBO) through Week 24 (W24) of the Ph3, double-blind, PBO-controlled trial in biologic-naïve PsA pts (DISCOVER-2; Mease P.J., et al. Lancet 2020). Favorable benefit-risk was also seen through 1 year (McInnes I.B., et al. Arthritis Rheumatol 2020).

OBJECTIVES: Assess GUS efficacy and safety through 2 years.

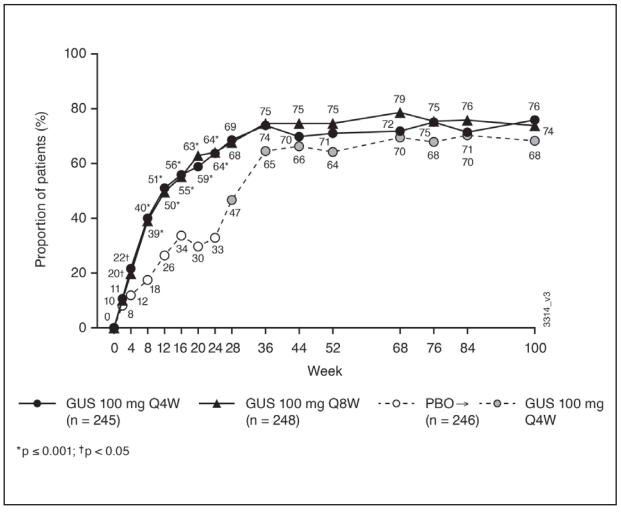


FIGURE. ACR20 response rates among GUS-treated pts increased after W24 and were maintained through W100 (NRI)

Efficacy Through W100 (NRI)

	GUS Q4W			GUS Q8W			PBO→GUS Q4W		
Data are %	W24	W52	W100	W24	W52	W100	W24	W52	W100
Analysis set, n	245			248			246		
ACR 50	33	46	56	32	48	55	14	41	48
ACR 70	13	26	35	19	28	36	4	18	30
BL HAQ-DI ≥0.35, n	228			228			236		
Improvement ≥0.35a	56	59	63	50	58	64	31	48	56
BL ≥3% BSA psoriasis + IGA ≥2, n	184			176			183		
IGA0/1	69	63	62	71	58	55	19	63	67
PASI75	78	87	83	79	86	82	23	83	80
PASI90	61	77	74	69	74	70	10	72	77
PASI100	45	58	59	45	53	53	3	52	61

BL, Baseline; BSA, Body surface area; HAQ-DI, Health assessment questionnaire disability index; IGA, Investigator global assessment; NRI, nonresponder imputation; PASI, Psoriasis area and severity index. a≥0.35 improvement among pts with HAQ-DI ≥0.35 at BL.

METHODS: Biologic-naïve adults with active PsA (≥5 swollen joint count [SJC] + ≥5 tender joint count [TJC]; CRP ≥0.6 mg/dL) were randomized (1:1:1) to GUS 100 mg Q4W; GUS 100 mg at W0, W4, Q8W; or PBO with crossover to GUS 100 mg Q4W (PBO→Q4W) at W24. Clinical efficacy (ACR/PASI/IGA/HAQ-DI) was assessed through W100 with missing data imputation (nonresponder imputation [NRI] for categorical endpoints; no change/multiple imputation for continuous endpoints). Observed PsA-modified van der Heijde Sharp (vdH-S) scores derived from blinded radiographic images taken at W0, W24, W52, W100 (or at discontinuation [d/c]); adverse events (AEs) through W112 were collected.

RESULTS: Among 739 randomized pts, 96% continued study agent at W24; 93% continued at W52; 88% completed W100. ACR20 response rates (NRI) continued to increase after W24, and at W100 were 76% for Q4W and 74% for Q8W (Fig). Similar response patterns were seen for ACR50/70, HAQ-DI and PASI90/100 (Table); IGA0/1 and PASI75 response rates were consistent through W100 in pts randomized to Q4W and Q8W. W100 data for PBO→Q4W pts were consistent with pts treated with Q4W and Q8W (Table). GUS improvements in SF-36 PCS/MCS at W52 also persisted through W100 (data not shown). Low rates of radiographic progression (as measured by PsA-modified vdH-S scores) were observed during W52-100 for Q4W (n=227; 0.75) and Q8W (n=232; 0.46). In the PBO→Q4W group (n=228), radiographic progression was 1.12 during W0-24 (while on PBO), 0.51 during W24-100 (while on Q4W), and 0.13 during W52-100. Through W112, incidences of AEs, serious AEs (SAEs), AEs leading to d/c, infections, serious infections, and injection site reactions were generally consistent with the PBO-controlled period and through 1 year. Of pts in the Q4W (n=245), Q8W (n=248), and PBO→Q4W (n=238) groups, 9%, 9%, 7% had ≥1 SAE; 2%, 3%, 3% had ≥1 serious infection; 2 Q8W pts (fungal esophagitis, disseminated herpes zoster) and 1 PBO→Q4W pt (listeria meningitis) had opportunistic infections; 1 PBO→Q4W pt died (traffic accident); 1 PBO-randomized pt had IBD; no pt had anaphylactic/serum sickness reaction or active TB.

CONCLUSION: In biologic-naïve PsA pts, GUS benefits for joint and skin symptoms, physical function, and low rates of radiographic progression persisted through 2 years. GUS safety in PsA through 2 years was comparable to safety at 6 months and 1 year, similar between Q4W and Q8W, and consistent with GUS safety in psoriasis.

DISCLOSURES: Iain B. McInnes - received grant/research support from Bristol-Myers Squibb, Celgene, Eli Lilly and Company, Janssen, and UCB and consulting fees from AbbVie, Bristol-Myers Squibb, Celgene, Eli Lilly and Company, Gilead, Janssen, Novartis, Pfizer, and UCB

Proton Rahman - received grants from Janssen and Novartis; personal fees from AbbVie, Amgen, Bristol Myers Squibb, Celgene, Eli Lilly, Janssen, Novartis, Pfizer, Roche, and UCB; speakers bureau for AbbVie, Eli Lilly, Janssen, Novartis, Pfizer, and UCB

Alice B. Gottlieb - received honoraria as an advisory board member and consultant for Anaptyps Bio, Avotres Therapeutics, Beiersdorf, Boehringer Ingelheim, Bristol-Myers-Squibb, Eli Lilly, Janssen, LEO Pharma, Novartis, Sun Pharmaceuticals, UCB, and Xbiotech (stock options only) (less than $10,000 each) and research/educational grants from Boehringer Ingelheim, Janssen, Novartis, Sun Pharmaceuticals, UCB, and Xbiotech (all paid to Mt. Sinai School of Medicine)

Désirée van der Heijde - received consulting fees from AbbVie, Amgen, Astellas, AstraZeneca, Bayer, BMS, Boehringer Ingelheim, Celgene, Cyxone, Daiichi, Eisai, Eli Lilly, Galapagos, Gilead, GlaxoSmithKline, Janssen, Merck, Novartis, Pfizer, Regeneron, Roche, Sanofi, Takeda, and UCB Pharma; and serves as the director of Imaging and Rheumatology BV

Philip J. Mease - grants and personal fees from AbbVie, Amgen, Bristol Myers Squibb, Eli Lilly, Galapagos, Gilead, Janssen, Novartis, Pfizer, SUN, and UCB, and personal fees from Boehringer Ingelheim and GlaxoSmithKline

Yusang Jiang - employee of Cytel, Inc. providing statistical support (funded by Janssen)

Elizabeth C. Hsia, Alexa P. Kollmeier, Xie L. Xu, Shihong Sheng, May Shawi, and Soumya D. Chakravarty - employees of Janssen Research and Development and Scientific Affairs, LLC (a subsidiary of Johnson and Johnson) and own Johnson and Johnson stock or stock options

Abstract 51

A CME-Certified Clinical Practice Assessment on Psoriasis Revealed Challenges and Barriers to Care

Shari J. Dermer, PhD; Piyali Chatterjee-Shin: Medscape Education, New York, NY; Lakshi M. Aldredge, MSN, ANP-BC, DCNP VA Portland Health Care System, Portland, OR

BACKGROUND: Psoriasis is a common, chronic, inflammatory, multisystemic disorder that affects approximately 8.3 million people in the United States (Rachakonda T.D., et al. J Am Acad Dermatol 2014). Undertreatment of psoriasis is common, and can unfortunately contribute to poor patient outcomes (Armstrong A.W., et al. Dermatol Ther 2017; Merola J.F., et al. Dermatol Ther 2018).

OBJECTIVES: This study was designed to assess the knowledge, competence, and practice barriers regarding the treatment of psoriasis.

METHODS: A 26-question CME clinical practice assessment survey consisting of multiple-choice knowledge- and case-based questions evaluating psoriasis comorbidities and patient-centered management was made available online to dermatologists in the United States without monetary compensation or charge (Aldredge L.M., 2018). The survey launched on a website dedicated to continuous professional development on March 25, 2019 and data were collected until May 2, 2019. Respondent confidentiality was maintained, and responses were de-identified and aggregated prior to analyses.

RESULTS: 72 Dermatologists completed all questions in the survey. The key findings include:

Comorbidities: 82% were aware of an increased risk for anxiety and depression, however only 64% and 40% of dermatologists recognized the prevalence of IBD and risk for MI, respectively.

Undertreatment: Although 67% of dermatologists recognized the proportion of patients dissatisfied with treatment, only 26% knew the NPF Treat to Target goals, and 10% were aware of the large proportion of undertreated patients with severe disease.

Severity: 61% of dermatologists knew that location and lesion size were the most important considerations for severity for dermatologists, but only 42% knew that itching was most important for patients.

Barriers to biologic agents: Patient concerns about cost or insurance coverage (57%) and safety (32%) were noted most frequently.

DISCUSSIONS: This research uncovered gaps in knowledge and competence regarding psoriasis amongst dermatologists. These gaps may be used to inform future medical education needs of learners regarding treatment of patients with psoriasis.

REFERENCES

Rachakonda TD, Schupp CW, Armstrong AW. Psoriasis prevalence among adults in the United States. *J Am Acad Dermatol.* 2014;70:512-516.

Armstrong AW, Koning JW, Rowse S, et al. Under-treatment of patients with moderate to severe psoriasis in the United States: analysis of medication usage with health plan data. *Dermatol Ther.* 2017;7:97-109.

Merola JF, Qureshi A, Husni ME. Underdiagnosed and undertreated psoriasis: nuances of treating psoriasis affecting the scalp, face, intertriginous areas, genitals, hands, feet, and nails. *Dermatol Ther.* 2018;31:e12589.

Aldredge, LM. Moderate to Severe Psoriasis Practice Check: Do Your Patients Leave Satisfied? March 25, 2018. www.medscape.org/viewarticle/907893.

Abstract 52

Association of Psoriasis Disease Severity With Patient-Reported Outcomes Among US and Canadian Patients: Analysis of the Corrona Psoriasis Registry

Bruce Strober, MD, PhD[1]; Kristina Callis Duffin, MD, MS[2]; Mark Lebwohl, MD[3]; Tin-Chi Lin, PhD[4]; Jud Janak, PhD[4]; Michelle Longcore, PharmD[5]; Manish Patel, PharmD, MS[5]; Huzefa Photowala, PhD[5]; Vishvas Garg, PhD[5]; Jerry Bagel MD, MS[6]

[1]University, New Haven, CT, and Central Connecticut Dermatology Research, Cromwell, CT, USA, email: brucestrober30@me.com; [2]Department of Dermatology, University of Utah, Salt Lake City, Utah, USA, email: kristina.duffin@hsc.utah.edu; [3]Icahn School of Medicine at Mount Sinai, New York, NY, USA, email: lebwohl@aol.com; [4]Corrona, LLC, Waltham, MA, USA, emails: tlin@corrona.org and JJanak@corrona.org; [5]AbbVie Inc. North Chicago, IL, USA, emails: michelle.longcore@abbvie.com, manish.b.patel@abbvie.com, huzefa.photowala@abbvie.com, vishvas.garg@abbvie.com; [6]Psoriasis Treatment Center of Central New Jersey, East Windsor, NJ, USA, email: dreamacres1@aol.com

BACKGROUND: Patients with plaque psoriasis, especially with special area involvement, have impaired quality of life (QoL). However, less is known regarding the impact of disease severity on patient-reported outcomes (PROs), including QoL and psoriasis symptoms, in the real-world setting.

OBJECTIVES: This analysis assessed the association between disease severity, including psoriasis involvement in special areas, and PROs.

METHODS: The Corrona Psoriasis Registry is a prospective, multicenter, non-interventional registry launched in April 2015 in the United States and Canada. Plaque psoriasis patients initiating a biologic or non-biologic therapy were included in this analysis if they had baseline and 6-month measurement of disease severity available from April 2015 to August 2020. Disease severity was assessed via body surface area (BSA) involvement (mild, <3%; moderate, 3%–10%; severe, >10%). Special area involvement was defined as a history of ≥1 of these morphologies: palmoplantar, genital, scalp, or nail. QoL impairment was defined as Dermatology Life Quality Index (DLQI) ≥2, consisting of patients with "some" to "more severe" effects on QoL. Psoriasis symptoms (itch, fatigue, and skin pain) were measured by Visual Analogue Scale 0–100. Mean and proportional difference (95% CI) were used to compare measures across groups, and trends were assessed regressing or increasing disease activity categories on PROs at baseline.

RESULTS: 2620 patients were included in this analysis (mean age: 50 years, 53% men). Among these, 13% had mild, 47% moderate, and 40% severe disease based on baseline BSA assessment; 87% reported at least "some" QoL impairment. Overall, 46% of patients reported a history of disease involvement in special areas. Among patients with mild disease, a history of special area involvement was associated with worse PROs (mean difference [95% CI] between with or without history of special area involvement for itch (11.8 [5.1–18.5]), fatigue (12.8 [6.9–18.8]) and skin pain (8.5 [2.5–14.4]). Among patients with moderate or severe disease, associations of a history of special area involvement with worse PROs were more variable. In the overall population, there was a significant trend for higher QoL impairment at baseline as disease severity increased (mild 63%, moderate 87%, severe 94%; $P<0.001$). Similarly, worse psoriasis symptoms were reported for patients with more severe disease for itch, fatigue, and skin pain.

CONCLUSIONS: A history of special area involvement was associated with worse PROs, especially among patients with mild psoriasis, indicating that special area involvement has a particularly meaningful impact on PROs among patients with smaller BSA involvement. Higher overall disease severity was associated with worse patient QoL and psoriasis symptoms. More research is needed to better understand the impact of special area involvement on PROs across disease severity measures; such research may help guide therapeutic decisions.

ACKNOWLEDGEMENT: AbbVie funded this analysis and participated in the interpretation of data, reviewing, and approval of the publication. All authors had access to relevant data and participated in the drafting, review, and approval of this publication. No honoraria or payments were made for authorship. Medical writing support was provided by Maria Hovenden, PhD, and Janet Matsuura, PhD, of ICON (North Wales, PA) and was funded by AbbVie.

DISCLOSURES: Bruce Strober has served as a consultant (received honoraria) for AbbVie, Almirall, Amgen, Arcutis, Arena, Aristea, Boehringer Ingelheim, Bristol-Myers Squibb, Celgene, Dermavant, Dermira, Janssen, Leo, Eli Lilly, Meiji Seika Pharma, Novartis, Pfizer, GlaxoSmithKline, UCB Pharma, Sun Pharma, Ortho Dermatologics, Regeneron, Sanofi-Genzyme; has served as a speaker for AbbVie, Lilly, Janssen, Ortho Dermatologics; has served as a Scientific Director (consulting fee) for Corrona Psoriasis Registry; has served as an investigator for Dermavant, AbbVie, Corrona Psoriasis Registry, Dermira, Cara, Novartis; and serves as an Editor-in-Chief (honorarium) for Journal of Psoriasis and Psoriatic Arthritis.

Kristina Callis Duffin is an investigator for and received research grants from Amgen, Eli Lilly, Janssen, Stiefel, AbbVie, BMS, Celgene, Pfizer, Novartis, Xenoport and served as a consultant for Amgen, Eli Lilly, Janssen, Steifel, AbbVie, BMS, Celgene, Pfizer, Novartis, and Xenoport.

Mark Lebwohl has grants as an investigator from AbbVie, Amgen, Arcutis, Avotres, Boehringer Ingelheim, Dermavant, Eli Lilly, Incyte, Janssen Research & Development, LLC, Ortho Dermatologics, Regeneron, and UCB, Inc.; and is a consultant for Aditum Bio, AnaptysBio, Almirall, Arcutis, Aristea, Arrive technology, Avotres Therapeutics, BioMx, Boehringer-Ingelheim, Bristol-Myers Squibb, Cara Therapeutics, Castle Biosciences, Corrona, Dermavant Sciences, Dr. Reddy, Evelo, Evommune, Facilitate International Dermatologic Education, Forte, Foundation for Research and Education in Dermatology, Helsinn, LEO Pharma, Meiji, Mindera, Pfizer, and Verrica.

Tin-Chi Lin and Judson Janak are employees of Corrona, LLC, the sponsor of the Corrona Psoriasis Registry; the registry is funded by AbbVie, Boehringer Ingelheim, Eli Lilly and Company, Janssen, Novartis Pharmaceuticals Corporation, and Valeant.

Michelle Longcore, Manish Patel, Vishvas Garg, and Huzefa Photowala are employees of AbbVie, Inc. and may hold stock or stock options.

Jerry Bagel has received research funds payable to Psoriasis Treatment Center from AbbVie, Amgen, Arcutis Biotherapeutics, Boehringer Ingelheim, Bristol Myers Squibb, Celgene Corporation, Corrona LLC, Dermavant Sciences Ltd, Dermira, UCB, Eli Lilly and Company, Glenmark Pharmaceuticals Ltd, Janssen Biotech, Kadmon Corporation, Leo Pharma, Lycera Corp, Menlo Therapeutics, Novartis, Pfizer, Regeneron Pharmaceuticals, Sun Pharma, Taro Pharmaceutical Industries Ltd, and Ortho Dermatologics; consultant fees from AbbVie, Amgen, Celgene Corporation, Bristol-Myers Squibb, Eli Lilly and Company, Janssen Biotech, Novartis, Sun Pharmaceutical Industries Ltd, UCB; and fees for speaking from AbbVie, Celgene Corporation, Eli Lilly, Janssen Biotech, and Novartis.

Abstract 53

TBimekizumab efficacy and safety versus adalimumab in patients with moderate to severe plaque psoriasis: Results from a multicenter, randomized, double-blinded active comparator-controlled phase 3 trial (BE SURE)

Richard B. Warren, MD[1]; Andrew Blauvelt, MD[2]; Jerry Bagel, MD[3]; Kim A. Papp, MD[4]; Paul Yamauchi, MD[5,6]; April W. Armstrong, MD[7]; Richard Langley, MD[8]; Veerle Vanvoorden, MS[9]; Luke Peterson, MS[10]; Dirk De Cuyper, MS[9]; Nancy Cross, MD[10]; Kristian Reich, MD[11]

[1]Dermatology Centre, Salford Royal NHS Foundation Trust, Manchester NIHR BRC, The University of Manchester, Manchester, UK; [2]Oregon Medical Research Center, Portland, USA; [3]Psoriasis Treatment Center of Central New Jersey, East Windsor, USA; [4]Probity Medical Research and K Papp Clinical Research, Waterloo, Canada; [5]Dermatology Institute and Skin Care Center, Santa Monica, USA; [6]David Geffen School of Medicine at University of California, Los Angeles, USA; [7]Keck School of Medicine of USC, Dermatology, Los Angeles, USA; [8]Dalhousie University, Halifax, Canada; [9]UCB Pharma, Brussels, Belgium; [10]UCB Pharma, Raleigh, USA; [11]University Medical Center Hamburg-Eppendorf and Skinflammation® Center, Hamburg, Germany

BACKGROUND: Psoriasis is the archetypal Th17-driven disease, with interleukin (IL)-17A and IL-17F pivotal in its pathogenesis (Durham L.E., et al. Curr Rheumatol Rep 2015; Fujishima S., et al. Arch Dermatol Res 2010). Bimekizumab (BKZ), a monoclonal IgG1 antibody, selectively inhibits IL-17F in addition to IL-17A (Glatt S., et al. Br J Clin Pharmacol 2017; Papp K.A., et al. J Am Acad Dermatol 2018).

OBJECTIVES: To evaluate efficacy and safety of BKZ vs adalimumab (ADA) in patients with moderate to severe plaque psoriasis.

METHODS: In BE SURE (NCT03412747) patients were randomized 1:1:1 to BKZ 320 mg every 4 weeks (wks; Q4W) for 56 wks, BKZ 320 mg Q4W for 16 wks followed by BKZ 320 mg every 8 wks (Q8W) to Wk56, or ADA 40 mg every 2 wks (Q2W) for 24 wks, followed by BKZ 320 mg Q4W to Wk56. Co-primary endpoints were Psoriasis Area and Severity Index (PASI)90 and IGA0/1 vs ADA at Wk16. Secondary endpoints included PASI90 and IGA0/1 at Wks 24 and 56 and PASI100 at Wks 16 and 24. Missing data were imputed using non-responder imputation. Treatment emergent adverse events (TEAEs) were coded using MedDRA v19.0.

RESULTS: 158, 161, and 159 patients were randomized to BKZ 320 mg Q4W, BKZ 320 mg Q4W/Q8W, and ADA 40 mg Q2W/BKZ 320 mg Q4W. Baseline demographics and characteristics were comparable between groups. All primary and ranked secondary endpoints were achieved. At Wk16, PASI90/IGA0/1/PASI100 were achieved by significantly

more BKZ- than ADA-treated patients (PASI90: 86.2% vs 47.2%, IGA0/1: 85.3% vs 57.2%, PASI100: 60.8% vs 23.9%; all p<0.001). Responses within BKZ treatment arms were durable through Wk56. In ADA-randomized patients, PASI90/PASI100/IGA0/1 responder rates rapidly increased following switch to BKZ 320 mg Q4W at Wk24 and were comparable to Wk0-randomized BKZ patients at Wk56. Through Wks 0–24, TEAEs/serious TEAEs were comparable for BKZ- and ADA-treated patients (TEAEs: 71.5% vs 69.8%; serious TEAEs: 1.6% vs 3.1%). Through Wks 0–56, TEAEs=81.4% and serious TEAEs=5.1% (BKZ-treated patients, including ADA switchers). No deaths were reported in BKZ-treated patients; one occurred in an ADA-treated patient (Investigator-assessed as non-treatment related). Over 56 wks, there were no cases of suicidal ideation or behavior, inflammatory bowel disease, or major adverse cardiac events in BKZ-treated patients. The most common TEAEs were nasopharyngitis (20.9%), oral candidiasis (16.2%), and upper respiratory tract infection (9.0%).

CONCLUSIONS: Superior, durable skin clearance was observed with BKZ vs ADA. Switching from ADA to BKZ rapidly increased PASI90/PASI100/IGA0/1 responder rates. BKZ was generally well tolerated; TEAEs were comparable with previous studies.

FUNDING: UCB Pharma.

AUTHOR INFORMATION:

Richard B. Warren, MD: richard.warren@manchester.ac.uk
Andrew Blauvelt, MD: ablauvelt@oregonmedicalresearch.com
Jerry Bagel, MD: dreamacres1@aol.com
Kim A. Papp, MD: kapapp@probitymedical.com
Paul Yamauchi, MD: paulyamauchi@yahoo.com
April W. Armstrong, MD: aprilarmstrong@post.harvard.edu
Richard Langley, MD: richardgblangley@gmail.com
Veerle Vanvoorden, MS: veerle.vanvoorden@ucb.com
Luke Peterson, MS: luke.peterson@ucb.com
Dirk De Cuyper, MS: dirk.decuyper@ucb.com
Nancy Cross, MD: nancy.cross@ucb.com
Kristian Reich, MD: kreich@jerucon.com

AUTHOR DISCLOSURES: RBW: Research grants and/or consulting fees from AbbVie, Almirall, Amgen, Arena, Avillion, Boehringer Ingelheim, Bristol Myers Squibb, Celgene, Eli Lilly, Janssen, LEO Pharma, Novartis, Pfizer, Sanofi, and UCB Pharma.

AB: Scientific adviser and/or clinical study investigator for AbbVie, Allergan, Almirall, Athenex, Boehringer Ingelheim, Bristol Myers Squibb, Dermavant, Eli Lilly, Forte, Galderma, Incyte, Janssen, LEO Pharma, Novartis, Pfizer, Rapt, Regeneron, Sanofi Genzyme, Sun Pharma and UCB Pharma; paid speaker for AbbVie.

JB: Speaker, investigator and/or consultant for AbbVie, Celgene, Eli Lilly, Leo Pharma, Novartis and Ortho Dermatologics.

KAP: Honoraria and/or grants from AbbVie, Akros, Amgen, Arcutis, Astellas, Baxalta, Boehringer Ingelheim, Bristol Myers Squibb, Canfite, Celgene, Coherus, Dermira, Dow Pharma, Eli Lilly, Forward Pharma, Galderma, Genentech, Gilead, GSK, Janssen, Kyowa Kirin, LEO Pharma, MedImmune, Merck (MSD), Merck-Serono, Mitsubishi Pharma, Moberg Pharma, Novartis, Pfizer, PRCL Research, Regeneron, Roche, Sanofi Genzyme, Sun Pharma, Takeda, UCB Pharma, and Valeant/Bausch Health; consultant (no compensation) for AstraZeneca and Meiji Seika Pharma.

PY: Speaker, investigator, consultant for AbbVie, Amgen, Eli Lilly, Janssen, Novartis, Ortho Dermatologics, Sun Pharma and UCB Pharma.

AWA: Research investigator and/or consultant for AbbVie, Bristol Myers Squibb, Dermavant, Dermira, Eli Lilly, Janssen, LEO Pharma, Kyowa Kirin, Modernizing Medicine, Novartis, Ortho Dermatologics, Regeneron, Sanofi, Sun Pharma and UCB Pharma.

RL: Honoraria from AbbVie, Amgen, Boeringer Ingelheim, Centocor, Eli Lilly, Janssen, LEO Pharma, Pfizer and Valeant/Bausch Health.

VV, LP, DDC, NC: Employees of UCB Pharma.

KR: Served as advisor and/or paid speaker for and/or participated in clinical trials sponsored by AbbVie, Affibody, Almirall, Amgen, Avillion, Biogen, Boehringer Ingelheim, Bristol Myers Squibb, Celgene, Centocor, Covagen, Dermira, Eli Lilly, Forward Pharma, Fresenius Medical Care, Galapagos, GSK, Janssen, Kyowa Kirin, LEO Pharma, Medac, MSD, Miltenyi Biotec, Novartis, Ocean Pharma, Pfizer, Regeneron, Samsung Bioepis, Sanofi, Sun Pharma, Takeda, UCB Pharma, Valeant/Bausch Health, and Xenoport.

Abstract 54

Bimekizumab for the treatment of moderate to severe plaque psoriasis with scalp, nail, and palmoplantar involvement through 52 weeks: Post-hoc analysis from the BE VIVID phase 3 trial

Kim A. Papp, MD[1]; Mark Lebwohl, MD[2]; Alice B. Gottlieb, MD[2]; Michael Sebastian MD[3]; Richard Langley, MD[4]; Yukari Okubo, MD[5]; Maggie Wang, MS[6]; Christopher Cioffi, PhD[6]; Fabienne Staelens[7]; Kristian Reich, MD[8]

[1]Probity Medical Research and K Papp Clinical Research, Waterloo, Canada; [2]Icahn School of Medicine at Mount Sinai, New York, USA; [3]Dermatological Practice Dr. med. Michael Sebastian, Mahlow, Germany; [4]Dalhousie University, Halifax, Canada; [5]Tokyo Medical University, Tokyo, Japan; [6]UCB Pharma, Raleigh, USA; [7]UCB Pharma, Braine-l'Alleud, Belgium; [8]University Medical Center Hamburg-Eppendorf and Skinflammation® Center, Hamburg, Germany

BACKGROUND: Psoriasis is the archetypal Th17-driven disease, for which interleukin (IL)-17A and IL-17F have emerged as pivotal drivers of inflammation (Durham L.E., et al. Curr Rheumatol Rep 2015; Fujishima S., et al. Arch Dermatol Res 2010). Bimekizumab (BKZ), a monoclonal IgG1 antibody, selectively inhibits IL-17F in addition to IL-17A (Glatt S., et al. Br J Clin Pharmacol 2017; Papp K.A., et al. J Am Acad Dermatol 2018). Scalp, nail, and palmoplantar psoriasis cause significant physical impairment and negatively impact quality of life; management of psoriasis in these regions is challenging for physicians and patients (Merola J.F., et al. Dermatol Ther 2018).

OBJECTIVES: To present scalp, nail, and palmoplantar outcomes from a phase 3 trial of BKZ in moderate to severe plaque psoriasis (PSO).

METHODS: Adult patients were enrolled in the multicenter, randomized, double-blinded, placebo (PBO)- and active comparator-controlled phase 3 study BE VIVID (NCT03370133); patients who developed psoriasis types other than plaque were excluded or withdrawn. Patients were randomized 4:2:1 to BKZ 320 mg every 4 weeks (wks; Q4W), ustekinumab (UST) 45 mg/90 mg (weight-based), or PBO (switching to BKZ 320 mg Q4W at Wk16). The post-hoc analyses reported here include patient subsets with regional PSO involvement at baseline (BL): scalp Investigator's Global Assessment (IGA)≥3, modified Nail Psoriasis Severity Index (mNAPSI)>10, or palmoplantar (pp)-IGA≥3. Scalp IGA and pp-IGA were measured on a 5-point scale (0–4); mNAPSI was a total fingernail score on a 0–130 scale. Proportions of patients achieving complete clearance in each region (scalp IGA0, pp-IGA0, mNAPSI0) are reported to Wk52, with missing data imputed using non-responder imputation.

RESULTS: At BL, 321, 163, and 83 patients were randomized to BKZ, UST, and PBO, respectively. 235 (73%), 114 (70%), and 62 (75%) had scalp IGA≥3; 113 (35%), 62 (38%), and 30 (36%) had mNAPSI>10; 61 (19%), 28 (17%), and 14 (17%) had pp-IGA≥3, respectively. Among patients with BL scalp IGA/pp-IGA≥3, higher proportions of BKZ- than UST-/PBO-treated patients achieved scalp IGA0/pp-IGA0 at Wk16. Responder rates were durable in all treatment arms: at Wk52, 71.9%/80.3% of BKZ-treated patients achieved scalp IGA0/pp-IGA0, respectively, vs 51.8%/67.9% of UST-treated patients. Among BKZ-treated patients with BL mNAPSI>10, the proportion achieving mNAPSI0 increased throughout. At Wk52, 54.0% of BKZ-treated patients achieved mNAPSI0 vs 30.6% UST-treated.

CONCLUSIONS: Complete clearance of scalp, nail, and palmoplantar psoriasis was observed in a higher proportion of BKZ-treated patients than UST-/PBO-treated patients after 16 wks. Initial responses were durable through Wk52 for BKZ-treated patients with scalp and palmoplantar symptoms, and increased for those with nail symptoms, reflecting the longer timescale required for nail growth. BKZ demonstrates high efficacy in high-impact areas in patients with moderate to severe PSO.

FUNDING: UCB Pharma.

AUTHOR INFORMATION:

Kim A. Papp, MD: kapapp@probitymedical.com
Mark Lebwohl, MD: lebwohl@aol.com
Alice B. Gottlieb, MD: alicegottliebderm@gmail.com
Michael Sebastian, MD: dr.sebastian@hautarztpraxis-mahlow.de
Richard Langley, MD: richardgblangley@gmail.com
Yukari Okubo, MD: yukari-o@tokyo-med.ac.jp
Maggie Wang, MS: maggie.wang@ucb.com
Christopher Cioffi, PhD: christopher.cioffi@ucb.com
Fabienne Staelens: fabienne.staelens@ucb.com
Kristian Reich, MD: kreich@jerucon.com

AUTHOR DISCLOSURES: KAP: Honoraria and/or grants from AbbVie, Akros, Amgen, Arcutis, Astellas, Baxalta, Boehringer Ingelheim, Bristol Myers Squibb, Canfite, Celgene, Coherus, Dermira, Dow Pharma, Eli Lilly, Forward Pharma, Galderma, Genentech, Gilead, GSK, Janssen, Kyowa Kirin, LEO Pharma, MedImmune, Merck (MSD), Merck-Serono, Mitsubishi Pharma, Moberg Pharma, Novartis, Pfizer, PRCL Research, Regeneron, Roche, Sanofi Genzyme, Sun Pharma, Takeda, UCB Pharma and Valeant/Bausch Health; Consultant (no compensation) for AstraZeneca and Meiji Seika Pharma.

ML: Employee of Mount Sinai which receives research funds from AbbVie, Amgen, Arcutis, Boehringer Ingelheim, Dermavant, Eli Lilly, Incyte, Janssen, LEO Pharma, Ortho Dermatologics, Pfizer and UCB Pharma; Consultant for Aditum Bio, Allergan, Almirall, Arcutis, Avotres, BirchBioMed, BMD Skincare, Boehringer Ingelheim, Bristol Myers Squibb, Cara Therapeutics, Castle Biosciences, Corrona, Dermavant, Evelo, Facilitate International Dermatologic Education, Foundation for Research and Education in Dermatology, Inozyme Pharma, LEO Pharma, Meiji Seika Pharma, Menlo, Mitsubishi Pharma, Neuroderm, Pfizer, Promius/Dr. Reddy's Laboratories, Serono, Theravance and Verrica.

ABG: Honoraria as an advisory board member and consultant for Avotres Therapeutics, Beiersdorf, Boehringer Ingelheim, Bristol Myers Squibb, Eli Lilly, Incyte, Janssen, LEO Pharma, Novartis, Sun Pharma, UCB Pharma and XBiotech (only stock options which she has not used); research/educational grants (paid to Mount Sinai Medical School) from Boehringer Ingelheim, Incyte, Janssen, Novartis, Sun Pharma, UCB Pharma and XBiotech.

MS: Received honoraria as an investigator, or received grants and has been an advisor/consultant for AbbVie, Affibody, Almirall, Boehringer Ingelheim, Bristol Myers Squibb, Celgene, Dermira, Dr. August Wolff, Dr. Reddy's Laboratories, Eli Lilly, Galderma, Genentech, GSK, Incythe, Janssen, LEO Pharma, MedImmune, MSD, Mundipharma, Novartis, Pfizer, Regeneron and UCB Pharma.

RL: Honoraria from AbbVie, Amgen, Boehringer Ingelheim, Centocor, Eli Lilly, Janssen, LEO Pharma, Pfizer and Valeant/ Bausch Health for serving as an advisory board member, principal investigator and speaker.

YO: Research grants from Eisai, Maruho, Shiseido, and Torii Pharmaceutical; current consulting/advisory board agreements and/or speakers bureau and/or clinical trials from AbbVie, Amgen, Boehringer Ingelheim, Bristol Myers Squibb, Celgene, Eisai, Eli Lilly, Janssen, Jimro, Kyowa Kirin, LEO Pharma, Maruho, Mitsubishi Pharma, Novartis, Pfizer, Sanofi Genzyme, Sun Pharma, Taiho Pharma, Torii Pharmaceutical and UCB Pharma.

MW, FS: Employees of UCB Pharma.

CC: Employee and shareholder of UCB Pharma.

KR: Served as advisor and/or paid speaker for and/or participated in clinical trials sponsored by AbbVie, Affibody, Almirall, Amgen, Avillion, Biogen, Boehringer Ingelheim, Bristol Myers Squibb, Celgene, Centocor, Covagen, Dermira, Eli Lilly, Forward Pharma, Fresenius Medical Care, Galapagos, GSK, Janssen, Kyowa Kirin, LEO Pharma, Medac, MSD, Miltenyi Biotec, Novartis, Ocean Pharma, Pfizer, Regeneron, Samsung Bioepis, Sanofi, Sun Pharma, Takeda, UCB Pharma, Valeant/Bausch Health and Xenoport.

Abstract 55

Bimekizumab safety in patients with moderate to severe psoriasis: Analysis of pooled data from phase 2 and 3 clinical trials

Kristian Reich, MD[1]; Andrew Blauvelt, MD[2]; Mark Lebwohl, MD[3]; Kim A. Papp, MD[4]; Phoebe Rich, MD[5]; Bruce Strober, MD[6,7]; Dirk De Cuyper, MS[8]; Cynthia Madden, MPH[9]; Luke Peterson, MS[9]; Veerle Vanvoorden, MS[8]; Richard B. Warren, MD[10]

[1]University Medical Center Hamburg-Eppendorf and Skinflammation® Center, Hamburg, Germany; [2]Oregon Medical Research Center, Portland, USA; [3]Icahn School of Medicine at Mount Sinai, New York, USA; [4]Probity Medical Research and K Papp Clinical Research, Waterloo, Canada; [5]Oregon Dermatology and Research Center, Portland, USA; [6]Yale University, New Haven, USA; [7]Central Connecticut Dermatology Research, Cromwell, USA; [8]UCB Pharma, Brussels, Belgium; [9]UCB Pharma, Raleigh, USA; [10]Salford Royal NHS Foundation Trust, Manchester, UK

BACKGROUND: Bimekizumab (BKZ) is a monoclonal IgG1 antibody that selectively inhibits interleukin (IL)-17F in addition to IL-17A; both play pivotal roles in psoriasis pathogenesis (Durham L.E., et al. Curr Rheumatol Rep 2015; Fujishima S., et al. Arch Dermatol Res 2010; Papp K.A., et al. J Am Acad Dermatol 2018).

OBJECTIVES: To report long-term safety data in BKZ-treated patients (pts) with moderate to severe plaque psoriasis (PSO).

METHODS: Safety from Weeks (Wks) 0–16 of 3 phase 3 trials (BE SURE, BE VIVID, BE READY) was evaluated for pts receiving ≥1 dose BKZ, ustekinumab (UST), adalimumab (ADA), or placebo (PBO). Long-term safety was evaluated for pts receiving ≥1 dose UST through 52 wks in BE VIVID, and ≥1 dose BKZ in BE SURE, BE VIVID, BE READY, BE BRIGHT open-label extension (interim cut: Nov 1, 2019), and 4 phase 2 trials. Exposure-adjusted incidence rates (EAIRs) are incidence of new cases per 100 pt-years (PY).

RESULTS: To Wk16, 989 pts (306.4 PY) received ≥1 BKZ dose, 163 (50.1 PY) received UST, 159 (48.8 PY) received ADA, and 169 (51.6 PY) received PBO. 593 (60.0%) BKZ-treated pts experienced ≥1 treatment emergent adverse event (TEAE) vs 83 (50.9%) UST-treated pts, 96 (60.4%) ADA-treated pts, and 74 (43.8%) PBO-treated pts. Serious TEAEs occurred in 1.5% BKZ-treated pts, 3.1% UST-treated pts, 1.9% ADA-treated pts, and 2.4% PBO-treated pts. Discontinuations due to TEAEs occurred in 1.7% BKZ-treated pts, 1.8% UST-treated pts, 2.5% ADA-treated pts, and 4.1% PBO-treated pts. 1 death occurred in each treatment group. Serious infections occurred in 3 BKZ-treated pts (0.3%); 7.6% experienced oral candidiasis. 1 de novo ulcerative colitis case occurred. Over the longer term, 1789 pts received ≥1 BKZ dose. EAIRs of TEAEs/TEAEs of interest generally did not increase with BKZ exposure duration. Over time, TEAEs in BKZ-treated pts occurred at 238.0/100 PY; serious TEAEs: 6.6/100 PY; discontinuations due to TEAEs: 4.9/100 PY. 5 deaths occurred (0.3/100 PY), assessed by the Investigator as unrelated to study treatment. 15.1% BKZ-treated pts experienced oral candidiasis (16.4/100 PY). 99.2% of candidiasis cases were mild to moderate and did not cause discontinuation: 1 serious case and 6 candidiasis-related discontinuations occurred. Malignancy rates in BKZ-treated pts were low (0.8/100 PY). Adjudicated major adverse cardiac events occurred at a rate of 0.7/100 PY in BKZ-treated pts. 1 case of active suicidal ideation (0.1/100 PY) occurred in a BKZ-treated pt with prior history of suicide attempt, and 1 suicide attempt in a UST-treated pt (0.6/100 PY). There were no anaphylaxis or additional cases of inflammatory bowel disease with increased BKZ exposure.

CONCLUSIONS: BKZ was well-tolerated, with no unexpected safety findings.

FUNDING: UCB Pharma.

AUTHOR INFORMATION

Kristian Reich, MD: kreich@jerucon.com
Andrew Blauvelt, MD: ablauvelt@oregonmedicalresearch.com
Mark Lebwohl, MD: lebwohl@aol.com
Kim A. Papp, MD: kapapp@probitymedical.com
Phoebe Rich, MD: phoeberich@aol.com
Bruce Strober, MD: brucestrober30@me.com
Dirk De Cuyper, MS: dirk.decuyper@ucb.com
Cynthia Madden, MPH: cindy.madden@ucb.com
Luke Peterson, MS: luke.peterson@ucb.com
Veerle Vanvoorden, MS: veerle.vanvoorden@ucb.com
Richard B. Warren, MD: richard.warren@manchester.ac.uk

AUTHOR DISCLOSURES

KR: Served as advisor and/or paid speaker for and/or participated in clinical trials sponsored by AbbVie, Affibody, Almirall, Amgen, Avillion, Biogen, Boehringer Ingelheim, Bristol Myers Squibb, Celgene, Centocor, Covagen, Dermira, Eli Lilly, Forward Pharma, Fresenius Medical Care, Galapagos, GSK, Janssen, Kyowa Kirin, LEO Pharma, Medac, MSD, Miltenyi Biotec, Novartis, Ocean Pharma, Pfizer, Regeneron, Samsung Bioepis, Sanofi, Sun Pharma, Takeda, UCB Pharma, Valeant/Bausch Health and Xenoport.

AB: Served as a Scientific adviser and/or clinical study investigator for AbbVie, Allergan, Almirall, Athenex, Boehringer Ingelheim, Bristol Myers Squibb, Dermavant, Eli Lilly, Forte, Galderma, Incyte, Janssen, LEO Pharma, Novartis, Pfizer, Rapt, Regeneron, Sanofi Genzyme, Sun Pharma and UCB Pharma; paid speaker for AbbVie.

ML: Employee of Mount Sinai which receives research funds from AbbVie, Amgen, Arcutis, Boehringer Ingelheim, Dermavant, Eli Lilly, Incyte, Janssen, LEO Pharma, Ortho Dermatologics, Pfizer and UCB Pharma; consultant for Aditum Bio, Allergan, Almirall, Arcutis, Avotres, BirchBioMed, BMD Skincare, Boehringer Ingelheim, Bristol Myers Squibb, Cara Therapeutics, Castle Biosciences, Corrona, Dermavant, Evelo, Facilitate International Dermatologic Education, Foundation for Research and Education in Dermatology, Inozyme Pharma, LEO Pharma, Meiji Seika Pharma, Menlo, Mitsubishi Pharma, Neuroderm, Pfizer, Promius/Dr. Reddy's Laboratories, Serono, Theravance and Verrica.

KAP: Honoraria and/or grants from AbbVie, Akros, Amgen, Arcutis, Astellas, Baxalta, Boehringer Ingelheim, Bristol Myers Squibb, Canfite, Celgene, Coherus, Dermira, Dow Pharma, Eli Lilly, Forward Pharma, Galderma,

Genentech, Gilead, GSK, Janssen, Kyowa Kirin, LEO Pharma, MedImmune, Merck (MSD), Merck-Serono, Mitsubishi Pharma, Moberg Pharma, Novartis, Pfizer, PRCL Research, Regeneron, Roche, Sanofi Genzyme, Sun Pharma, Takeda, UCB Pharma and Valeant/Bausch Health; consultant (no compensation) for AstraZeneca and Meiji Seika Pharma.

PR: Research grants due to being principal investigator from AbbVie, Arcutis, Bristol Myers Squibb, Centocor, Dermavant, Eli Lilly, Kadmon, Merck, Novartis, Pfizer, Sun Pharma and UCB Pharma.

BS: Consultant (honoraria) from AbbVie, Almirall, Amgen, Arcutis, Arena, Aristea, Boehringer Ingelheim, Bristol Myers Squibb, Celgene, Dermavant, Dermira, Eli Lilly, Equillium, GSK, Janssen, LEO Pharma, Meiji Seika Pharma, Mindera, Novartis, Ortho Dermatologics, Pfizer, Regeneron, Sanofi Genzyme, Sun Pharma and UCB Pharma; speaker for AbbVie, Amgen, Eli Lilly, Janssen and Ortho Dermatologics; Scientific Director (consulting fee) for Corrona Psoriasis Registry; investigator for AbbVie, Cara Therapeutics, Corrona Psoriasis Registry, Dermavant, Dermira and Novartis; Editor-in-Chief (honorarium) for Journal of Psoriasis and Psoriatic Arthritis.

DDC, LP, VV: Employees of UCB Pharma.

CM: Employee and shareholder of UCB Pharma.

RBW: Consulting fees from AbbVie, Almirall, Amgen, Arena, Avillion, Boehringer Ingelheim, Bristol Myers Squibb, Celgene, Eli Lilly, Janssen, LEO Pharma, Novartis, Pfizer, Sanofi and UCB Pharma; research grants from AbbVie, Almirall, Amgen, Celgene, Eli Lilly, Janssen, LEO Pharma, Novartis, Pfizer and UCB Pharma.

Abstract 56

Bimekizumab versus ustekinumab in plaque psoriasis: Lasting efficacy translates to rapid and sustained improvements in quality of life in the BE VIVID multicenter, randomized, double-blinded phase 3 trial

Kenneth Gordon, MD[1]; Peter Foley, MD[2]; Phoebe Rich, MD[3]; Kristina Duffin, MD[4]; Andreas Pinter, MD[5]; Christopher E.M. Griffiths, MD[6]; Maggie Wang, MS[7]; Veerle Vanvoorden, MS[8]; Fabienne Staelens[9]; Valerie Ciaravino, MS[10]; Joseph F. Merola, MD[11]

[1]Medical College of Wisconsin, Milwaukee, USA; [2]The University of Melbourne, St.Vincent's Hospital Melbourne, Fitzroy and Probity Medical Research Inc., Skin Health Institute, Carlton, Australia; [3]Oregon Dermatology and Research Center, Portland, USA; [4]University of Utah, Salt Lake City, USA; [5]University Hospital Frankfurt, Frankfurt am Main, Germany; [6]The University of Manchester, Manchester, UK; [7]UCB Pharma, Raleigh, USA; [8]UCB Pharma, Brussels, Belgium; [9]UCB Pharma, Braine-l'Alleud, Belgium; [10]UCB Pharma, Colombes, France; [11]Harvard Medical School, Brigham and Women's Hospital, Boston, USA

BACKGROUND: The disease burden of psoriasis can have a profound negative impact on quality of life (QoL), extending beyond physical manifestations (Bhosle M.J., et al. Health Qual Life Outcomes 2006). Bimekizumab (BKZ) is a monoclonal IgG1 antibody that selectively inhibits interleukin (IL)-17F in addition to IL-17A, both of which are pivotal in psoriasis immunopathogenesis (Glatt S., et al. Br J Clin Pharmacol 2017; Papp K.A., et al. J Am Acad Dermatol 2018; Durham L.E., et al. Curr Rheumatol Rep 2015; Fujishima S., et al. Arch Dermatol Res 2010).

OBJECTIVES: To examine how absolute Psoriasis Area and Severity Index (PASI), a measure of psoriasis disease control, translates to improvements in Dermatology Life Quality Index (DLQI) in patients with moderate to severe plaque psoriasis (PSO) receiving BKZ vs ustekinumab (UST) and placebo (PBO).

METHODS: The BE VIVID (NCT03370133) phase 3, double-blinded, PBO- and active comparator-controlled trial randomized patients 4:2:1 to BKZ 320 mg every 4 weeks (wks; Q4W) through Wk52, UST 45 mg/90 mg (weight-based) every 12 wks through Wk52, or PBO (switching to BKZ 320 mg Q4W at Wk16 through Wk52). PSO was assessed by PASI; PASI=0 indicated complete skin clearance and PASI≤2, a relevant PSO disease endpoint for a treat to target approach (Mahil S.K., et al. Br J Dermatol 2020), indicated disease control. Patients completed the DLQI questionnaire throughout treatment; DLQI0/1 indicated no impact on QoL. To evaluate the possible relationship between clinical response and impact on health-related QoL, patients achieving DLQI0/1 were grouped by PASI=0, PASI≤2, 2<PASI<5, and PASI≥5. Wks 4/16 data for all patients, and Wk52 data for BKZ- and UST-randomized patients, are presented. Data are presented as observed cases (OC).

RESULTS: 567 patients were randomized to BKZ (N=321), UST (N=163), or PBO (N=83). A greater proportion of BKZ-treated patients rapidly achieved PASI=0 (15.1% vs 1.2% [UST] and 2.5% [PBO]) and PASI≤2 (46.5% vs 6.2% [UST] and 2.5% [PBO]) at Wk4 (OC). This was further improved and sustained through Wk16 to Wk52. Rapid improvements in DLQI were seen with BKZ: 37.5% achieved DLQI0/1 by Wk4, vs 11.2% (UST) and 6.3% (PBO), improving to Wk52 (86.6% vs 73.0% [UST]). Across treatment arms, higher disease control translated to greater QoL. This was most pronounced in BKZ, with 65.1%/83.8% of patients achieving both PASI≤2 and DLQI0/1 at Wks16/52, vs 34.6%/59.7% for UST (OC).

CONCLUSIONS: Greater proportions of BKZ- than UST-treated patients quickly achieved higher disease control and lasting complete skin clearance after one year of treatment, translating to substantial, durable improvements in DLQI. Most BKZ-treated patients achieved PASI≤2 and DLQI0/1 at Wk52.

FUNDING: UCB Pharma.

AUTHOR INFORMATION

Kenneth Gordon, MD: gordon.kenneth@att.net
Peter Foley, MD: pfoley@skinhealthinstitute.org.au
Phoebe Rich, MD: phoeberich@aol.com
Kristina Duffin, MD: kristina.duffin@hsc.utah.edu
Andreas Pinter, MD: andreas.pinter-kgu.de
Christopher E.M. Griffiths, MD: christopher.griffiths@manchester.ac.uk
Maggie Wang, MS: maggie.wang@ucb.com
Veerle Vanvoorden, MS: veerle.vanvoorden@ucb.com
Fabienne Staelens: fabienne.staelens@ucb.com
Valerie Ciaravino, MS: valerie.ciaravno@ucb.com
Joseph F. Merola, MD: JFMEROLA@BWH.HARVARD.EDU

AUTHOR DISCLOSURES: KG: Honoraria and/or research support from AbbVie, Almirall, Amgen, Boehringer Ingelheim, Bristol Myers Squibb, Celgene, Dermira, Eli Lilly, Janssen, Novartis, Pfizer, Sun Pharma, and UCB Pharma.

PF: Grant support from AbbVie, Amgen, Celgene, Eli Lilly, Janssen, Merck, Novartis, Pfizer, Sanofi, and Sun Pharma; Investigator for AbbVie, Amgen, AstraZeneca, Bristol Myers Squibb, Boehringer Ingelheim, Botanix, Celgene, Celtaxsys, CSL, Cutanea, Dermira, Eli Lilly, Galderma, Genentech, Geneseq, GSK, Hexima, Janssen, LEO Pharma, Merck, Novartis, Pfizer, Regeneron, Reistone, Roche, Sanofi Genzyme, Sun Pharma, UCB Pharma, and Valeant/Bausch Health; served on the advisory board for AbbVie, Amgen, Bristol Myers Squibb, Celgene, Eli Lilly, Galderma, Janssen, LEO Pharma, Mayne Pharma, Merck, Novartis, Pfizer, Sanofi Genzyme, Sun Pharma, UCB Pharma, and Valeant/Bausch Health; consultant for Bristol Myers Squibb, Eli Lilly, Janssen, Novartis, Pfizer, UCB Pharma, and Wintermute; received travel grants from AbbVie, Eli Lilly, Janssen, LEO Pharma, Merck, Novartis, Pfizer, Roche, and Sanofi; speaker for or received honoraria from AbbVie, Celgene, Eli Lilly, Galderma, Janssen, LEO Pharma, Merck, Novartis, Pfizer, and Roche.

PR: Research grants due to being principal investigator from AbbVie, Arcutis, Bristol Myers Squibb, Centocor, Dermavant, Eli Lilly, Kadmon, Merck, Novartis, Pfizer, Sun Pharma, and UCB Pharma.

KD: Received grants/investigator for AbbVie, Amgen, Bristol Myers Squibb, Celgene, Eli Lilly, Janssen, Novartis, Pfizer, Regeneron, Sienna, Stiefel, and UCB Pharma; Speaker's Bureau for Novartis (non-promotional only); consultant/advisory board for AbbVie, Amgen, Bristol Myers Squibb, Celgene, Eli Lilly, Janssen, Novartis, Ortho Dermatologic, Pfizer, Sienna, Stiefel, and UCB Pharma.

AP: Investigator and/or speaker and/or advisor for AbbVie, Almirall, Amgen, Biogen, Boehringer Ingelheim, Celgene, Eli Lilly, Galderma, GSK, Hexal, Janssen, LEO Pharma, MC2, Medac, Merck Serono, Mitsubishi Pharma, MSD, Novartis, Pfizer, Regeneron, Roche, Sandoz, Schering-Plough, Tigercat Pharma, and UCB Pharma.

CEMG: Honoraria and/or grants from AbbVie, Almirall, BMS, Celgene, Eli Lilly, Galderma, LEO Pharma, Janssen, Novartis, Pfizer, Sandoz, and UCB Pharma.

MW, VV, FS, VC: Employees of UCB Pharma.

JFM: Consultant and/or investigator for AbbVie, Arena, Avotres, Biogen, Bristol Myers Squibb, Dermavant, Eli Lilly, EMD-Serono, Janssen, LEO Pharma, Merck, Novartis, Regeneron, Sanofi, Sun Pharma, Pfizer, and UCB Pharma.

Abstract 57

Comparison of Long-Term Treatment Patterns between Ixekizumab and Secukinumab Users among Psoriasis Patients

Blauvelt A.[1], MD, MBA; Shi N.[2], PhD; Burge R.[3], PhD; Zhu B.[3], PhD; Ridenour T.L.[3], MBA, BSN; Somani N.[3], MD; Lew C.R.[2], PhD; Zimmerman N.M.[2], MS; Kern S.A.[3], RN, BSN; Atiya B.[3]; Murage M.J.[3], PhD

[1]Oregon Medical Research Center, Portland, OR, USA; [2]IBM Watson Health, Cambridge, MA, USA; [3]Eli Lilly and Company, Indianapolis, IN, USA.

BACKGROUND: Ixekizumab (IXE) and secukinumab (SEC) are IL-17A inhibitors approved for the treatment of moderate to severe psoriasis (PsO). A prior study found IXE had higher treatment persistence and adherence and lower discontinuation rates compared to SEC over an average follow-up period of 14-18 months (Blauvelt A., et al. J Am Acad Dermatol 2019). Given that psoriasis is a chronic disease, long-term treatment outcomes are of importance. However, there is a lack of long-term real-world comparison data for IXE vs. SEC on treatment patterns of up to two years.

OBJECTIVES: To compare long-term real-world persistence, adherence, and discontinuation data among PsO patients treated with IXE vs. SEC.

METHODS: Patients diagnosed with PsO between March 1, 2015 and October 31, 2019 and who received IXE or SEC between March 1, 2016 and October 31, 2019 were identified from the IBM MarketScan® Databases. The first claim for IXE or SEC set the index date. Patients had 6 months of continuous eligibility before (pre-period) and 24 months after (post-period) the index date. Patients with other conditions indicated for their index drug in the pre-period or with use of the index drug 90 days prior to the index date were excluded. Treatment persistence (continuous treatment with <60-day gap), adherence (proportion of days covered [PDC]≥80%), and discontinuation (≥90-day gap) during the post-period were compared between IXE and SEC users. Inverse probability of treatment weighted (IPTW) multivariable analyses were employed to address cohort imbalances and estimate risks of non-persistence and discontinuation and odds of treatment adherence.

RESULTS: A total of 471 IXE and 990 SEC users met the study criteria. Prior to weighting, the two cohorts were demographically and clinically similar at baseline with the exception of plan type and pre-period coronary heart disease. Mean age was 48 years. Both cohorts had comparable pre-period healthcare costs. Before weighting, IXE users had a higher rate of persistent treatment during the 24-month post-period than SEC users (38% vs. 30%, p=0.003), and stayed longer on persistent treatment (433±269 vs. 384±270 days, p=0.001). IXE patients also had a higher mean PDC (0.59±0.32 vs. 0.55±0.31, p=0.035), a higher rate of highly adherent treatment (PDC≥80%) (40% vs. 32%, p=0.002), and a lower discontinuation rate (57% vs. 64%, p=0.010) over 24 months compared to SEC. After multivariable adjustment, IXE was associated with 20% lower risk of non-persistence, 17% lower risk of

discontinuation, and 42% higher odds of adherent treatment than SEC.

CONCLUSIONS: These real-world data show that IXE has better treatment persistence and adherence profile and lower discontinuation rate compared to SEC over a two-year period.

Funded by Eli Lilly and Company. Abstract previously presented at FALLCDC PA&NP 2020.

AUTHOR INFORMATION

Blauvelt A1, MD, MBA, ABlauvelt@oregonmedicalresearch.com
Shi N2, PhD, nshi@us.ibm.com
Burge R3, PhD, burge_russel_thomas@lilly.com
Zhu B3, PhD, zhu_baojin@lilly.com
Ridenour TL3, MBA, BSN, ridenour_terri_lynn@lilly.com
Somani N3, MD, somani_najwa@lilly.com
Lew CR2, PhD, carolyn.r.lew@ibm.com
Zimmerman NM2, MS, nicole.m.zimmerman@ibm.com
Kern SA3, RN, BSN, kern_scott_a@lilly.com
Atiya B3, atiya_bilal@lilly.com
Murage MJ3, PhD, murage_mwangi_james@lilly.com

TABLE 1: Descriptive statistics of sex, age, duration of disease, Psoriasis Area Severity Index (PASI) scores, and Dermatology Life Quality Index (DLQI) scores

Category	Descriptive Statistics
Sex	Male: n=44, 73.33% Female: n=16, 26.67%
Age	Mean ± SD: 38.18±15.372 years Mode: 45 years Minimum: 15 years Maximum: 80 years
Duration of disease	Mean ± SD: 6.5604±8.7028 years Mode: 2 years Minimum: 0.08 years Maximum: 40 years
PASI scores	Mean ± SD: 4.682±2.994 Minimum: 0.2 Maximum: 11.5
DLQI scores	Mean ± SD: 6.7±4.928 Mode: 2 Minimum: 1 Maximum: 23

Abstract 58

Correlation between quality of life and severity of disease in patients with psoriasis in Pakistan

Short title: Quality of life and disease severity in psoriasis

Zainab Tariq, MD[1]; Marielle Jamgochian, MBS[2]; Shawana Sharif, MD[1]; Nadia Waqas, MD[3]; Mahin Alamgir, MD[4]; Babar Rao, MD[4]

[1]Benazir Bhutto Hospital, Rawalpindi Medical University Department of Dermatology, Rawalpindi, Pakistan; [2]Rutgers, Robert Wood Johnson Medical School, Piscataway NJ, USA; [3]Consultant dermatologist, Wah General Hospital, Rawalpindi, Pakistan; [4]Rutgers, Robert Wood Johnson Medical School, Department of Dermatology, Somerset, NJ, USA

CORRESPONDING AUTHOR

Marielle Jamgochian, MBS
675 Hoes Lane West
Piscataway, NJ 08854
c. 2019564392
mjamoch@rwjms.rutgers.edu

DISCLOSURES: Authors declare no conflicts of interest.

BACKGROUND: Validated dermatology-specific quality of life measures are used worldwide to quantify the degree to which skin disease affects a patient's quality of life, though quality of life measures are not routinely used in all locations.

OBJECTIVES: We sought to quantify the relationship between psoriasis severity and quality of life in a Pakistani population.

METHODS: A cross-sectional study of patients with psoriasis was performed. Patients were assessed for psoriasis

TABLE 2: Pre and Post- stratification correlation coefficients

Pearson's correlation coefficient between PASI and DLQI	Correlation Coefficient	*P*-value
	0.266	0.044*
Stratification by Sex	**Correlation Coefficient**	***P*-value**
Male	0.415	0.006*
Female	0.249	0.391
Stratification by Age		
Less than or equal to 28 years	0.320	0.211
Between 28 and 45 years	0.349	0.087
Greater than or equal to 45 years	0.319	0.247
Stratification by disease duration		
Less than 1 year	0.134	0.633
1 year to 6 years	0.579	0.002*
Greater than 6 years	0.052	0.85
Stratification by total sites involved		
Less or equal to 3	0.322	0.063
More than 3	0.148	0.501

* Significant at $\alpha<0.05$

severity using the Psoriasis Area and Severity Index (PASI) and were assessed for quality of life using the Dermatology Life Quality Index (DLQI).

RESULTS: 60 patients were included in this analysis (Table 1). PASI and DLQI were found to be positively and significantly correlated (r= 0.266 p = 0.044). However, post-stratification analysis failed to show a significant relationship between PASI and DLQI except in male patients (r=0.415, p = 0.006) and in patients with disease between 1-6 years (r = 0.579, p=0.002) (Table 2).

CONCLUSIONS: The degree of correlation between PASI and DLQI was lower than what has previously been reported. Cultural differences may lead to underreporting of true impact on functional quality of life as measured by the standard DLQI questionnaire. As such, further validation of culturally-sensitive dermatologic quality of life measures are essential to capture the true impact of skin disease in these populations. Currently, use of the DLQI may fail to recognize clinically important endpoints and lack relevance for routine clinical practice in some Pakistani populations.

REFERENCES

Shenoy M.M., Shenoy S. IADVL textbook of dermatology. Superficial fungal infections 4th edn Mumbai: Bhalani 2015:459-517.

Ograczyk A., Miniszewska J., Kępska A., Zalewska-Janowska A. Itch, disease coping strategies and quality of life in psoriasis patients. Advances in Dermatology and Allergology/Postępy Dermatologii i Alergologii 2014;31(5):299.

Al-Mutairi N., Eassa B.E., Nair V. Measurement of vitamin D and cathelicidin (LL-37) levels in patients of psoriasis with co-morbidities. Indian Journal of Dermatology, Venereology, and Leprology 2013;79(4):492.

Schons K.R.R., Beber A.A.C., Beck MdO, Monticielo O.A. Nail involvement in adult patients with plaque-type psoriasis: prevalence and clinical features. Anais brasileiros de dermatologia 2015;90(3):314-9.

Hawro T., Zalewska A., Hawro M., Kaszuba A., Królikowska M., Maurer M. Impact of psoriasis severity on family income and quality of life. Journal of the European Academy of Dermatology and Venereology 2015;29(3):438-43.

Owczarek K., Jaworski M. Quality of life and severity of skin changes in the dynamics of psoriasis. Advances in Dermatology and Allergology/Postępy Dermatologii i Alergologii 2016;33(2):102.

Çakmur H., Dervi**ş** E. The relationship between quality of life and the severity of psoriasis in Turkey. European Journal of Dermatology 2015;25(2):169-76.

Nayak P.B., Girisha B.S., Noronha T.M. Correlation between disease severity, family income, and quality of life in psoriasis: A study from South India. Indian dermatology online journal 2018;9(3):165.

Soltandehghan K., Najafi-Ghezeljeh T. Relationship Between Quality of Life and Disease Severity in Patients with Psoriasis. Nursing Practice Today 2017;4(3):143-53.

Khawaja A.R., Bokhari S.M.A., Rasheed T., et al. Disease severity, quality of life, and psychiatric morbidity in patients with psoriasis with reference to sociodemographic, lifestyle, and clinical variables: a prospective, cross-sectional study from Lahore, Pakistan. *Prim Care Companion CNS Disord.* 2015;17(3). doi:10.4088/PCC.14m01629

Finlay A.Y., Khan G.K. Dermatology Life Quality Index (DLQI)--a simple practical measure for routine clinical use. *Clin Exp Dermatol.* 1994;19(3):210-216. doi:10.1111/j.1365-2230.1994.tb01167.x

Basra M.K.A., Fenech R., Gatt R.M., Salek M.S., Finlay A.Y. The Dermatology Life Quality Index 1994-2007: a comprehensive review of validation data and clinical results. *Br J Dermatol.* 2008;159(5):997-1035. doi:10.1111/j.1365-2133.2008.08832.x

Abstract 59

Deucravacitinib, an Oral, Allosteric Tyrosine Kinase 2 (TYK2) Inhibitor, Reduces Body Surface Area Involvement and Improves Quality of Life in Patients With Psoriasis

Alan Menter, MD[1]; Andrew Blauvelt, MD, MBA[2]; Bruce Strober, MD, PhD[3]; Matthew J. Colombo, MD[4]; Renata M. Kisa, MD[4]; Sudeep Kundu, PhD[4]; Subhashis Banerjee, MD[4]; Craig Leonardi, MD[5]

[1]Baylor University Medical Center, Dallas, TX; [2]Oregon Medical Research Center, Portland, OR; [3]Yale University, New Haven, CT, and Central Connecticut Dermatology Research, Cromwell, CT; [4]Bristol Myers Squibb, Princeton, NJ; [5]Saint Louis University School of Medicine, St. Louis, MO

BACKGROUND: Acceptable response to treatment after 3 months is defined by the National Psoriasis Foundation (NPF) as body surface area (BSA) ≤3%, with target response defined as BSA ≤1%. Deucravacitinib is a novel, oral, allosteric agent that selectively inhibits intracellular signaling by binding to the TYK2 pseudokinase domain rather than the conserved active site in the kinase domain. In a Phase 2 trial in patients with moderate to severe plaque psoriasis, 67%-75% of patients receiving deucravacitinib at dosages of 3 or 6 mg twice daily (BID) or 12 mg once daily (QD) achieved 75% reduction from baseline Psoriasis Area and Severity Index at Week 12 versus 7% with placebo (P<0.001).

OBJECTIVES: This post-hoc analysis of Phase 2 data evaluated BSA changes over time and the relationship between BSA reductions and improvements in quality of life (QoL).

METHODS: Adults with moderate to severe plaque psoriasis were randomized equally to 1 of 5 deucravacitinib dosages (3 mg every other day to 12 mg QD) or placebo. BSA involvement with skin lesions was estimated using the handprint method. Mean change from baseline in BSA over time; percentage of patients achieving BSA ≤1% and ≤3% at Week 12; and Dermatology Life Quality Index (DLQI) in patient subgroups with BSA ≤1% or ≤3% at Week 12 were determined for the 3 highest dosage groups (3 mg BID, 6 mg BID, 12 mg QD; n=134) vs placebo (n=45).

RESULTS: At baseline, BSA involvement was comparable across dosage groups (mean [SD]: 3 mg BID, 24.5% [15.5%]; 6 mg BID, 24.8% [13.0%]; 12 mg QD, 20.6% [12.0%]; and placebo, 24.2% [13.3%]). Substantial improvements in mean BSA were observed over time with deucravacitinib and were similar across dosage groups. At Week 12, BSA ≤3% was achieved by 50.7% of deucravacitinib patients (combined dosages) vs 2.2% for placebo, and BSA ≤1% was achieved by 34.3% vs 0%, respectively. Nearly 40% of patients achieved BSA ≤1 and ~60% achieved BSA ≤3 in the deucravacitinib 12 mg QD group. Mean DLQI at Week 12 was lower among patients with BSA ≤1% and ≤3% who received deucravacitinib compared with placebo.

CONCLUSIONS: This post-hoc analysis indicates that deucravacitinib is associated with clinically meaningful decreases in BSA over time, and QoL is improved in deucravacitinib-treated patients with BSA improvement. Patients treated with deucravacitinib achieved absolute

and acceptable NPF treat-to-target values. Five Phase 3 trials in plaque psoriasis (NCT03624127, NCT03611751, NCT04167462, NCT03924427, and NCT04036435) are currently evaluating the efficacy and safety of deucravacitinib over a longer treatment period in larger patient cohorts.

FUNDING: This clinical trial was sponsored by Bristol Myers Squibb.

ACKNOWLEDGEMENTS: Professional medical writing assistance was provided by Jane A. Phillips, PhD and editorial assistance was provided by Peloton Advantage, LLC, an OPEN Health company, Parsippany, NJ; both were funded by Bristol Myers Squibb.

RELATIONSHIPS AND ACTIVITIES

A Menter: Advisory board: Abbott Labs, Amgen, Boehringer Ingelheim, Janssen Biotech, Leo Pharma; Consultant: Abbott Labs, Amgen, Eli Lilly, Janssen Biotech, Leo Pharma, Novartis, SunPharma, UCB; Investigator: Abbott Labs, Amgen, Boehringer Ingelheim, Celgene, Eli Lilly, Janssen Biotech, Leo Pharma, Merck, Novartis, SunPharma, UCB; Speaker: Abbott Labs, Amgen, Janssen Biotech, Leo Pharma, SunPharma, UCB. Compensation: Grant: Abbott Labs, Amgen, Boehringer Ingelheim, Celgene, Janssen Biotech, Leo Pharma, Merck, SunPharma; Honoraria: Abbott Labs, Amgen, Boehringer Ingelheim, Eli Lilly, Janssen Biotech, Leo Pharma, Novartis, SunPharma, UCB.

A Blauvelt: Scientific advisor and/or clinical study investigator: AbbVie, Aclaris, Almirall, Arena, Athenex, Boehringer Ingelheim, Bristol Myers Squibb, Dermavant, Dermira, Eli Lilly, Forte, Galderma, Janssen, Leo Pharma, Novartis, Ortho, Pfizer, Rapt, Regeneron, Sandoz, Sanofi Genzyme, Sun Pharma, and UCB Pharma; Speaker: AbbVie.

B Strober: Honoraria or consultation fees: AbbVie, Almirall, Amgen, Arena, Boehringer Ingelheim, Bristol Myers Squibb, Celgene, Dermavant, Dermira, Eli Lilly, GSK, Janssen, Kyowa Hakko Kirin, Leo Pharma, Medac, Meiji Seika Pharma, Novartis, Ortho Dermatologics, Pfizer, Regeneron, Sanofi-Genzyme, Sun Pharma, UCB; Speaker: AbbVie, Janssen, Lilly, Ortho Dermatologics; Scientific Director (consulting fee): Corrona Psoriasis Registry; Investigator: AbbVie, Corrona Psoriasis Registry, Dermavant, Dermira.

C Leonardi: Honoraria or consultation fees: AbbVie, Amgen, Boehringer Ingelheim, Dermira, Eli Lilly, Janssen, Leo Pharma, Ortho Dermatologics, Pfizer, Sandoz, UCB; Speaker: Amgen, AbbVie, Celgene, Eli Lilly, Janssen, Novartis, Sun Pharmaceuticals, UCB; Investigator: AbbVie, Allergan, Amgen, Boehringer, Celgene, Coherus, Cellceutix, Corrona, Dermira, Eli Lilly, Galderma, Glenmark, Janssen, Leo Pharma, Merck, Novartis, Novella, Pfizer, Sandoz, Sienna, Stiefel, UCB, Wyeth.

MJ Colombo, RM Kisa, S Kundu, and S Banerjee: Employees and shareholders of Bristol Myers Squibb.

Abstract 60

Secukinumab Improves Real-World Effectiveness Outcomes in Patients With Psoriasis Through 18 Months of Follow-Up: Analysis of US Dermatology Electronic Medical Records

April W. Armstrong, MD, MPH,[1] Dhaval Patil, MS, BPharm,[2] Eugenia Levi, PharmD,[2] Catherine B. McGuiness, MA, MS,[3] Xin Wang, PhD,[3] Chi-Chang Chen, PhD,[3] Elizabeth Nguyen, PharmD,[2] Paul S. Yamauchi, MD, PhD[4]

[1]Keck School of Medicine of University of Southern California, Los Angeles, CA; [2]Novartis Pharmaceuticals Corporation, East Hanover, NJ; [3]IQVIA, Plymouth Meeting, PA; [4]David Geffen School of Medicine at UCLA, Los Angeles, CA

BACKGROUND: Approximately 20% of patients with psoriasis have moderate-to-severe disease affecting > 5% of body surface area (BSA). Secukinumab is a fully human monoclonal antibody that selectively neutralizes interleukin 17A and has shown long-lasting efficacy in treating the complete spectrum of psoriasis manifestations (Reich K, et al. J Eur Acad Dermatol Venereol 2020).

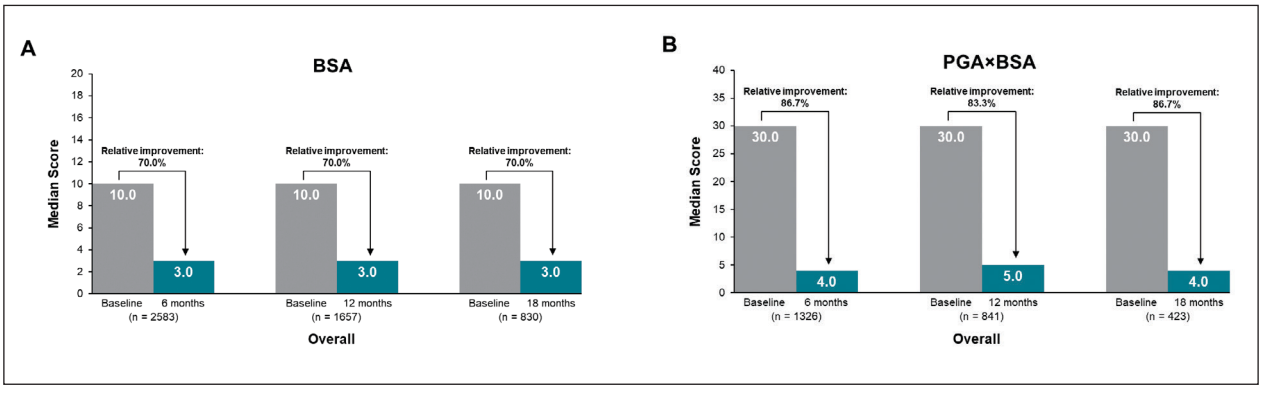


FIGURE 1. Absolute Median (A) BSA and (B) PGA×BSA Scores and Relative Changea From Baseline in Overall Population of Patients Who Initiated Secukinumab and Had 6, 12, and 18 Months of Follow-Up

BSA, body surface area; PGA, Physician's Global Assessment.

[a] Relative change represents percentage improvement in BSA or PGA×BSA at a given time point (6, 12, or 18 months) relative to baseline values (prior to secukinumab treatment).

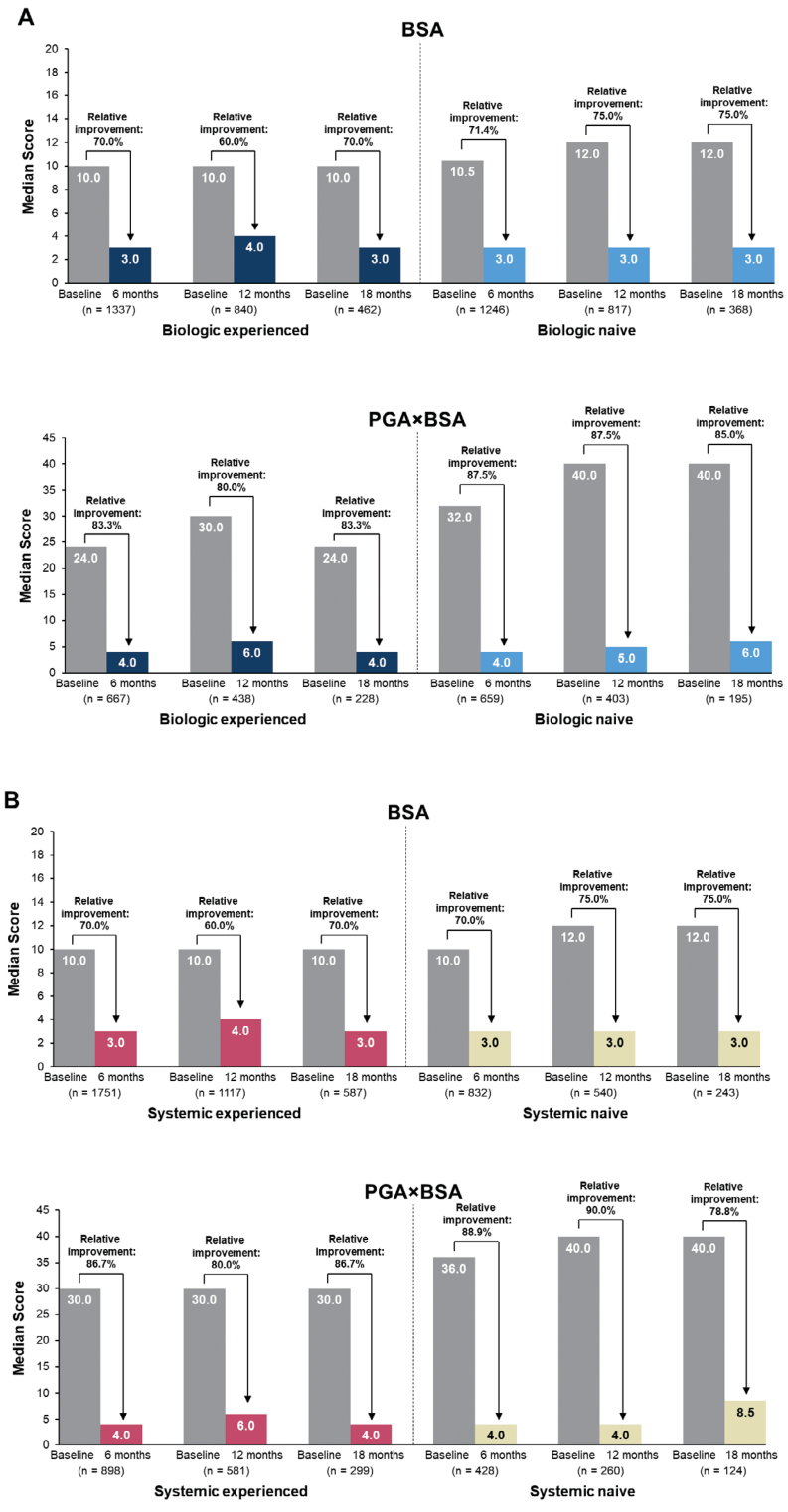


FIGURE 2. Absolute Median BSA and PGA×BSA Scores and Relative Changea From Baseline in Patients Who Initiated Secukinumab and Had 6, 12, and 18 Months of Follow-Up Stratified by (A) Prior Biologic or (B) Systemic Use

BSA, body surface area; PGA, Physician's Global Assessment.

[a] Relative change represents percentage improvement in BSA or PGA×BSA at a given time point (6, 12, or 18 months) relative to baseline values (prior to secukinumab treatment).

OBJECTIVE: This analysis of clinical data obtained from Modernizing Medicine Data Services, Inc's (MMDS) affiliate's dermatology electronic medical records (EMRs) described real-world effectiveness outcomes of patients with psoriasis who initiated secukinumab stratified by prior biologic or systemic use.
METHODS: Eligible patients in the MMDS EMR database had ≥ 1 prescription order for secukinumab within the index period (3/31/2018 to 1/31/2020), had a confirmed diagnosis of psoriasis prior to or at the time of secukinumab initiation (index date), were aged ≥ 18 years at the time of secukinumab initiation, had ≥ 1 visit for any reason during the 12-month preindex (baseline) period, and had ≥ 1 visit for any reason within the first 6 months following secukinumab initiation (postindex). Patients were stratified by prior biologic and systemic (any biologic, methotrexate, corticosteroids [oral and injectable], acitretin, or apremilast) use in the baseline period. Median BSA and Physician's Global Assessment (PGA)×BSA scores were evaluated during the 12-month baseline period and at 6-, 12-, and 18-month postindex visits.
RESULTS: Among 17,734 patients who met the inclusion criteria, mean (SD) age was 49.7 (14.7) years, 51.2% were female, 7991 patients (45.1%) had prior treatment with biologics, and 10,730 patients (60.5%) had prior treatment with systemics. Of these, 2583, 1657, and 830 patients, respectively, had additional BSA measurements, and 1326, 841, and 423 had additional PGA×BSA measurements, respectively, at 6, 12, and 18 months. Patients demonstrated improvements from baseline to 6 months in median BSA (10.0 vs 3.0; relative improvement: 70.0%; Figure 1A) and PGA×BSA (30.0 vs 4.0; relative improvement: 86.7%; Figure 1B) that were sustained through 18 months. There were numerically larger improvements in biologic- (Figure 2A) and systemic-naive patients (Figure 2B) compared with biologic- and systemic-experienced patients. Relative improvements from baseline to 6, 12, and 18 months in BSA and PGA×BSA demonstrated similar trends overall and based on prior biologic or systemic treatment.
CONCLUSION: In this analysis of EMR data among patients with psoriasis, secukinumab treatment improved effectiveness outcomes, with larger median improvements in both biologic- and systemic-naive groups compared to the corresponding groups with prior treatment exposure. These findings highlight the real-word effectiveness of secukinumab in improving and maintaining skin clearance in patients with psoriasis.

REFERENCE:

Reich K, et al. *J Eur Acad Dermatol Venereol.* 2020;34(6):1161-1173.

Corresponding Author:
Dhaval Patil, MS, BPharm, Novartis Pharmaceuticals Corporation, One Health Plaza, East Hanover, NJ 07936. Phone: 201-602-4863. Email: Dhaval.patil@novartis.com.

Disclosures: A. W. Armstrong has served as an investigator or consultant for AbbVie, Bristol Myers Squibb, Dermavant, Dermira, Eli Lilly, Janssen, LEO Pharma, Modernizing Medicine, Novartis, Ortho Dermatologics, Regeneron, Sanofi Genzyme, Science 37, and UCB. C. B. McGuiness, X. Wang, and C.-C. Chen are employees of IQVIA who received consulting fees to conduct this research. D. Patil, E. Levi, and E. Nguyen are employees of Novartis Pharmaceuticals Corporation. P. S. Yamauchi has served as an investigator for Amgen, Celgene, Dermira, Galderma, Janssen, LEO Pharma, Eli Lilly, MedImmune, Novartis, Pfizer, Regeneron, and Sandoz, and has served as an advisor and/or speaker for AbbVie, Amgen, Baxter, Celgene, Dermira, Galderma, Janssen, LEO Pharma, Eli Lilly, Novartis, Pfizer, and Regeneron.
FUNDING SOURCES: This study was funded by Novartis Pharmaceuticals Corporation, East Hanover, NJ.

Abstract 61

Efficacy of Risankizumab vs. Secukinumab for moderate-to-severe plaque Psoriasis: subgroup analysis from a phase 3 trial

Kenneth Gordon[1]; Tianshuang Wu[2]; Michelle Longcore[2]; Jeffrey Crowley[3]

[1]Medical College of Wisconsin, Milwaukee, WI, USA, [2]AbbVie Inc., North Chicago, IL, USA, [3]Bakersfield Dermatology, Bakersfield, CA, USA

INTRODUCTION: Risankizumab (RZB), a humanized immunoglobulin G1 monoclonal antibody, binds to the p19 subunit and inhibits interleukin(IL)-23, a cytokine that's key in the development and maintenance of psoriatic lesions. This analysis aims to determine the efficacy of RZB vs. the IL-17A antagonist, secukinumab (SEC), across patient subgroups with moderate-to-severe plaque psoriasis.
METHODS: We analyzed data from a phase 3, randomized, multicenter, open-label, efficacy assessor-blinded, active-comparator study. Patients were randomized 1:1 to receive RZB 150mg or SEC 300mg via subcutaneous injection during a 52-week treatment period. RZB was administered at weeks 0, 4, and every 12 weeks after. SEC was administered weekly from weeks 0 to 4, then subsequently every 4-weeks. Primary efficacy endpoints were a proportion of patients achieving Psoriasis Area Severity Index (PASI)90 at weeks 16(noninferiority margin 12%) and 52(superiority of RZB vs. SEC). Patients were analyzed in subgroups according to various baseline characteristics: age(<40 years, ≥40 years), sex(female, male), race(white, non-white), smoking status (current, ex or never), body mass index(BMI, <25kg/m2; ≥25to<30 kg/m2; ≥30kg/m2), PASI(≤median[18.0], >median[18.0]), and static Physician's Global Assessment(sPGA, scores 3, 4).
RESULTS: Baseline demographics and disease characteristics were generally similar between RZB(n = 164) and SEC(n = 163) treatment arms. Response to RZB at week 52 remained consistent across subgroups and was numerically higher than SEC. A similar proportion of patients achieved PASI 90 with RZB regardless of age(<40 years,

42/50[84%]; ≥40 years, 100/114[88%]). In contrast, reduced PASI 90 response rates were observed in SEC patients aged ≥40 years(<40 years, 39/60[65%]; ≥40 years, 54/103[52%]). Similar PASI 90 responses to RZB were observed in patients regardless of baseline BMI(<25kg/m2, 32/36[89%]; ≥25 to <30kg/m2, 44/52[85%]; ≥30kg/m2, 66/76[87%]). However, patients with BMI ≥ 30kg/m2 responded less favorably to SEC than patients in lower BMI groups (<25 kg/m2, 24/37[65%]; ≥25 to <30kg/m2, 30/47[64%]; ≥30kg/m2, 39/79[49%]). Responses to RZB were similar regardless of sex (female, 46/52[88%]; male, 96/112[86%]), whereas females had a less favorable response to SEC than males (29/62[47%] vs. 64/101[63%], respectively). Patients with higher disease activity at baseline (sPGA 4 or > median baseline PASI) responded slightly better to both RZB and SEC than those with lower disease activity (sPGA 3 or ≤ median PASI); however responses were consistently higher for RZB(sPGA 4, 22/24[92%]; sPGA 3, 120/140[86%]; >median PASI, 75/85[88%]; ≤median PASI, 67/79[85%]) than for SEC(sPGA 4, 16/25[64%]; sPGA 3, 77/137[56%]; >median PASI, 44/74[60%]; ≤median PASI, 49/89 [55%]). RZB efficacy in all subgroups was similar to that seen in the overall patient population.

CONCLUSIONS: At week 52, response to RZB treatment was consistent across all baseline subgroups, with numerically higher PASI 90 responses compared with SEC, even in subgroups that experienced reduced efficacy with SEC.

Abstract 62

Fixed-Combination Halobetasol Propionate and Tazarotene Lotion Reduces Signs and Symptoms of Psoriasis in Patients With Body Surface Area Involvement of 3% to 5%

Linda Stein Gold, MD[1]; Seemal R. Desai, MD[2,3]; Neal Bhatia, MD[4]; Madleine Makori, PharmD[5]; Abby Jacobson, MS, PA-C5

[1]Henry Ford Health System, Detroit, MI; [2]Innovative Dermatology, Plano, TX; [3]The University of Texas Southwestern Medical Center, Dallas, TX; [4]Therapeutics Clinical Research, San Diego, CA; [5]Ortho Dermatologics (a division of Bausch Health US, LLC), Bridgewater, NJ

BACKGROUND: Fixed-combination halobetasol propionate (HP; 0.01%) and tazarotene (TAZ; 0.045%) lotion is approved for topical treatment of plaque psoriasis in adults. Joint AAD-NPF guidelines recommend the combined use of TAZ with topical steroids for mild-to-moderate psoriasis (Elmets C., et al. J Am Acad Dermatol 2021). Patients with BSA involvement of 3% to 5% and a Dermatology Life Quality Index (DLQI) of <5 may be good candidates for topical therapy.

OBJECTIVES: To assess changes in Investigator's Global Assessment (IGA) scores, plaque elevation, and scaling at 8 wk of treatment with once-daily, fixed-combination HP (0.01%) and TAZ (0.045%) in patients with baseline BSA involvement of 3% to 5% and DLQI of <5.

METHODS: Two phase 3, multicenter, double-blind trials (ClinicalTrials.gov identifiers: NCT02462070, NCT02462122) enrolled 418 adults with BSA involvement of 3% to 12% and IGA score of 3 (moderate) or 4 (severe) at baseline. Patients were randomized 2:1 to receive HP/TAZ or vehicle lotion once daily for 8 wk, with a 4-wk posttreatment follow-up. Pooled post hoc analyses were conducted in patients with BSA involvement of 3% to 5% at baseline and those with BSA involvement of 3% to 5% and DLQI of <5 at baseline. Efficacy measures were treatment success (≥2-grade reduction in IGA score and score of 0 [clear] or 1 [almost clear]) and success rates in plaque elevation and scaling (≥2-grade improvements from baseline). Treatment-emergent adverse events (TEAEs) were also evaluated.

RESULTS: Of 418 patients at baseline, 232 had BSA involvement of 3% to 5% and 84 had BSA involvement of 3% to 5% and DLQI of <5. Patients with BSA involvement of 3% to 5% who received HP/TAZ had significantly higher rates of treatment success at wk 8 vs those receiving vehicle (42.7% vs 11.4%; $P<0.001$). Treatment success rates at wk 8 for those with BSA involvement of 3% to 5% and DLQI of <5 were numerically higher with HP/TAZ vs vehicle (41.6% vs 14.7%; $P=0.068$). At wk 8, HP/TAZ vs vehicle was associated with significantly higher success rates in plaque elevation (56.0% vs 19.4%; $P<0.001$) and scaling (62.7% vs 25.6%; $P<0.001$) in patients with BSA involvement of 3% to 5%. Comparable results were observed at wk 8 in those with BSA involvement of 3% to 5% and DLQI of <5 (plaque elevation: 59.6% vs 28.4%; $P=0.016$; scaling: 63.2% vs 26.0%; $P=0.016$). Overall TEAEs occurred more in patients receiving HP/TAZ vs vehicle through wk 8 in both subgroups; rates of serious TEAEs and discontinuations were low (≤5%).

CONCLUSIONS: HP/TAZ lotion was associated with higher efficacy rates and greater reductions in signs and symptoms of psoriasis vs vehicle and was generally well tolerated in patients with lower BSA involvement who are candidates for topical psoriasis therapy.

ACKNOWLEDGEMENTS: This study was sponsored by Ortho Dermatologics. Medical writing support was provided by MedThink SciCom and funded by Ortho Dermatologics. Ortho Dermatologics is a division of Bausch Health US, LLC.

CORRESPONDING AUTHOR:
Linda Stein Gold, MD
Henry Ford Health System
6530 Farmington Rd, Suite 101
West Bloomfield, MI 48322
Phone: (248) 661-8764
Email: lstein1@hfhs.org

AUTHOR INFORMATION:
LSG, lstein1@hfhs.org
SD, seemald@yahoo.com
NB, dsbconsulting37@gmail.com
MM, madleine.makori@ortho-dermatologics.com
AJ, Abby.Jacobson@ortho-dermatologics.com

Abstract 63

Genetics of Psoriasis: Role of Methylenetetrahydrofolate reductase (MTHFR) gene polymorphism in psoriasis susceptibility

Ghaleb Bin Huraib[1], Fahad Al Harthi[2], Misbahul Arfin[1], Abdulrahman Al-Asmari[1]

[1]Scientific Research Center, Medical Services Department for Armed Forces, Riyadh, Saudi Arabia; [2]Department of Dermatology, Prince Sultan Military Medical City, Riyadh, Saudi Arabia

BACKGROUND: Psoriasis is a serious chronic non-communicable inflammatory skin disease. Its etiology is very complex and multifactorial involving genetic, environmental and immunological factors. Methylenetetrahydrofolate reductase (MTHFR) has been linked with the etiopathogenesis of psoriasis with inconsistent results.

METHOD:We evaluated MTHFR C677T polymorphism in 100 Saudi psoriasis vulgaris patients and 200 matched healthy controls. Some of the cardiovascular risk factors were also compared in cases and controls.

RESULTS: The distribution of alleles and genotypes of MTHFR C677T differed in controls and patients. The frequencies of allele T and genotypes CT, TT were found to be increased while those of allele C and genotype CC significantly decreased in psoriasis patients as compared to controls ($p<0.001$). These results indicated that the T-allele and genotypes (TT, CT) of MTHFR C677T are significantly linked with psoriasis susceptibility while C-allele and CC genotype may be protective for it. The known markers for cardiovascular diseases such as BMI, fasting glucose, total cholesterol, low-density lipoprotein, triglycerides and C-reactive protein were found to be significantly elevated in the patient group in comparison to the controls.

CONCLUSION: It is concluded that the MTHFR C677T polymorphism increases psoriasis risk in Saudi patients.

Abstract 64

Inadequate Response Rates and Associated Factors to Psoriasis Therapies Using a Claims-Based Algorithm

Jeffery Curtis, MD, MS, MPH[1]; Michael Grabner, PhD[2*]; Russel Burge, PhD[3,4]; Chia-Chen Teng, MS[2]; Mingyang Shan, PhD[3]; Alyssa Garrelts, PhD[3]; Terri Ridenour, MBA[3]; Keith Isenberg, MD[5]

[1]University of Alabama at Birmingham, Birmingham, AL, USA; [2]HealthCore, Inc., Wilmington, DE, USA; [3]Eli Lilly and Company, Indianapolis, IN, USA; [4]University of Cincinnati, Cincinnati, OH, USA; [5]Anthem, Inc., Indianapolis, IN, USA

CORRESPONDING AUTHOR:
Name: Michael Grabner
Email ID: mgrabner@healthcore.com

BACKGROUND: Psoriasis (PsO) therapies are associated with high inadequate response (IR) rates. Limited research has been done to identify patient characteristics associated with variability in responses using real-world data sources.

OBJECTIVES: To estimate the frequency of IR to PsO therapies using a claims-based algorithm and describe characteristics of patients with IR.

METHODS: This retrospective observational study included patients aged 18+ with PsO, identified using US administrative claims data from the HealthCore Integrated Research Database®. We identified patients initiating biologics or apremilast between July 1, 2016 and August 31, 2018. Baseline period was 6 months pre-index date (date of initiation) and follow-up period lasted 12 months. Patient characteristics were compared between responders and inadequate responders. IR was defined using a modified algorithm from published literature (Curtis, et al. Arthritis Res Ther 2011). The algorithm assessed behaviors typical among patients with IR to treatment: adherence; biologic dose escalation or switching (after treatment loading); addition of new disease-modifying agents; increase in oral glucocorticoid dose; addition of topical treatment, actinotherapy, retinoids, or new pain medications. Inadequate responders were further stratified based on treatment switching to non-index therapies over the follow-up period. Multivariable logistic regression models were fitted to identify baseline patient characteristics associated with IR to initial therapy.

RESULTS: Among the 4952 patients with PsO who met inclusion criteria, 70% were inadequate responders. The effectiveness algorithm identified low adherence followed by switching or addition of biologic or apremilast therapy as primary reasons for IR. Across all patients, the mean age was 47 years; 52% were male; and Quan–Charlson Comorbidity Index score was 0.28. The proportions of patients treated with index TNFi biologic agents, non-TNFi biologic agents, and apremilast were 36%, 29%, and 36%, respectively. Non-TNFi biologic agents were associated with lower IR rates (64%) compared with TNFi biologic (69%) and apremilast (74%, Figure 1). Patients who were female, had previously used TNFi biologic agents, and had certain existing comorbidities (bacterial infection; mental health issues; diabetes without chronic complications) (Figure 1) were associated with higher IR rates. Among switchers (n=202), more patients used TNFi agents (50%) than non-TNFi agents (15%) or apremilast (35%); between-class switching was ~5 times more frequent than within-class switching.

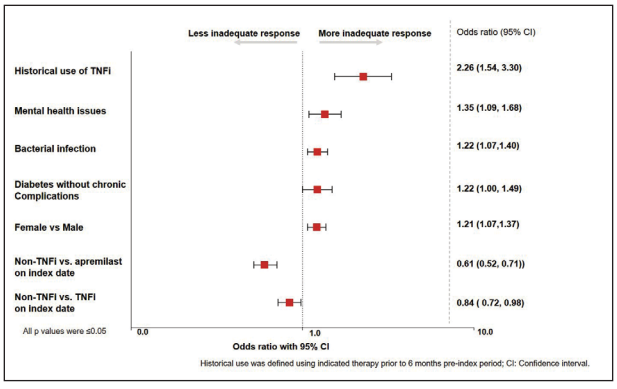


FIGURE 1. Factors and patient characteristics associated with inadequate response.

LIMITATIONS: Results may not be generalizable to those without commercial or any insurance or living outside the US. The IR algorithm has not been validated for PsO.
CONCLUSIONS: Non-TNFi biologics had the lowest IR rate compared with other PsO therapy agents. Patient characteristics, treatment history, and type of index therapy affected treatment response.
DISCLOSURES: This study has been funded by Eli Lilly and company.

Abstract 65

Ixekizumab Shows Early and Sustained Resolution of Nail Psoriasis in Patients with Psoriatic Arthritis and Moderate-to-Severe Psoriasis: 52-Week Results from a Multicentre, Randomised, Open-Label, Rater-Blinded Study (SPIRIT-H2H)

Authors: Reich K.[1], MD; Kristensen L.E.[2], MD, PhD; Smith S.D.[3], MBChB, MHL, PhD; Schuster C.[4], MD; Sapin C.[4], MSc; Liu-Leage S.[4], MD; Riedl E.[4,5], MD; Rich P.[6], MD

[1]Center for Translational Research in Inflammatory Skin Diseases, Institute for Health Services Research in Dermatology and Nursing, University Medical Center Hamburg-Eppendorf, and Skinflammation® Center, Hamburg, Germany; [2]The Parker Institute, Lund University, Copenhagen, Denmark; [3]The Dermatology and Skin Cancer Centre, St Leonards, Sydney, Australia; [4]Eli Lilly and Company, Indianapolis, USA; [5]Department of Dermatology, Medical University of Vienna, Vienna, Austria; [6]Oregon Dermatology and Research, Portland, OR, USA

BACKGROUND: Nail psoriasis is common among patients with psoriasis (PsO) and psoriatic arthritis (PsA), causing pain and impairing the ability to perform precise hand movements. In a post-hoc subgroup analysis of the SPIRIT-H2H (NCT03151551) study, ixekizumab (IXE), a selective interleukin-17A antagonist, showed significantly higher rates of complete resolution of nail psoriasis compared with adalimumab (ADA) at 24 weeks in patients with active PsA, moderate-to-severe PsO and nail psoriasis.
OBJECTIVES: This subgroup analysis evaluated the efficacy of IXE vs ADA for the resolution of nail psoriasis in these patients up to 52 weeks.
METHODS: This sub-analysis included 78 patients (IXE [N=37], ADA [N=41]) with PsA (≥3/68 tender joint count, ≥3/66 swollen joint count) from the SPIRIT-H2H study who had moderate-to-severe PsO (Psoriasis Area and Severity Index ≥12, static Physicians Global Assessment score ≥3 and body surface area involvement ≥10%) and nail psoriasis (baseline Nail Psoriasis Severity Index [NAPSI] score ≥1) at baseline. Patients received either IXE (160 mg at week 0, followed by 80 mg every 2 weeks up to week 12 then every 4 weeks) or ADA (80 mg at week 0, then 40 mg every 2 weeks starting at week 1). Least squares mean (LSM) change from baseline in fingernail NAPSI scores for each treatment (mixed models for repeated measurement), and the proportions of complete responders (NAPSI score = 0; logistic regression model) were determined up to 52 weeks.
RESULTS: Baseline NAPSI scores ≥16 were recorded for 56.8% of IXE- and 58.5% of ADA-treated patients; 27.0% IXE- and 17.1% ADA-treated patients had baseline NAPSI scores >40. At week 52, NAPSI values were available for 74 patients (IXE [N=35], ADA [N=39]). At this time, 82.9% of IXE-treated patients versus 71.8% of ADA-treated patients achieved complete resolution of nail psoriasis; this difference in efficacy was consistent throughout the study and statistically significant ($p<0.05$) at weeks 24 (IXE: 80.0%, ADA: 52.5%) and 40 (IXE: 87.9%, ADA: 67.6%). LSM reductions from baseline in NAPSI scores were numerically greater in patients treated with IXE than in those treated with ADA at all times, achieving statistical significance at week 40 (IXE: –23.0, ADA: –19.8, LSM difference: –3.2).
CONCLUSIONS: In this post-hoc analysis, IXE effectively maintained complete resolution of nail psoriasis in patients with active PsA and moderate-to-severe PsO. Numerical differences in favour of IXE compared with ADA were reported for LSM NAPSI reduction and the proportion of patients who achieved complete resolution of nail involvement from week 12 to week 52. These results confirm the established efficacy of IXE in the treatment of nail psoriasis.

Funded by Eli Lilly and Company. Abstract previously presented at EADV 2020.

AUTHOR INFORMATION:
Reich K1, MD, kreich@jerucon.com
Kristensen LE2, MD, PhD, lars.erik.kristensen@regionh.dk
Smith SD3, MBChB, MHL, PhD, dr.saxon.smith@gmail.com
Schuster C4, MD, schuster_christopher@lilly.com
Sapin C4, MSc, sapin_christophe@lilly.com
Liu-Leage S4, MD, liu-leage_soyi@lilly.com
Riedl E4,5, MD, riedl_elisabeth@lilly.com
Rich P6, MD, phoeberich@aol.com

Abstract 66

Long Term Safety of Ixekizumab in Patients with Moderate-to-Severe Plaque Psoriasis up to 5 years: Pooled Data from 16 Clinical Trials

Christopher E.M. Griffiths[1]; Kristian Reich[2]; Melinda Gooderham[3]; Gaia Gallo4; Himanshu Patel[4]; Wen Xu[4]; Yan Wang[4]; Hany Elmaraghy4; Andrew Blauvelt[5]

[1]The University of Manchester, The Dermatology Centre, Salford Royal NHS Foundation Trust, Manchester, United Kingdom; [2]Translational Research in Inflammatory Skin Diseases, Institute for Health Care Research in Dermatology and Nursing, University Medical Center Hamburg-Eppendorf, and Skinflammation® Center, Hamburg, Germany; [3]SkiN for Dermatology, Peterborough, Ontario, Canada; 4Eli Lilly and Company, Indianapolis, Indiana, USA; 5Oregon Medical Research Center, Portland, Oregon, USA.

Corresponding Author:
Himanshu Patel
Eli Lilly and Company, Indianapolis, Indiana, USA
himanshu.patel@lilly.com

BACKGROUND: Psoriasis (PsO) is a chronic inflammatory disease that requires long-term treatment. Ixekizumab (IXE), a high-affinity monoclonal antibody

that selectively targets interleukin-17A, is approved for the treatment of moderate-to-severe plaque PsO in adults and pediatric patients (6 years and older). Here, we examined the long-term safety of IXE in patients with PsO.

METHODS: An integrated safety analysis from 16 clinical trials that were performed in patients with PsO who received at least 1 dose of IXE. Treatment-emergent adverse events (TEAEs) adjusted incidence rates (IRs) per 100 patient-years (PY) within 1-year time periods through 5 years exposure were summarized. This analysis includes data from the beginning of each of the studies to March 19, 2020 cutoff.

RESULTS: A total of 6,645 patients, including 6,449 adults and 196 pediatric patients with a cumulative ixekizumab exposure of 17,902.0 PY (including 303.3 PY in pediatric patients) were included in this analysis (Table 1). The IR of patients with ≥1 TEAE was 31.4 per 100 PY in the pooled IXE population and 31.0 per 100 PY in the adults population. Most common TEAEs were nasopharyngitis (IR= 8.9) and upper respiratory tract infection (IR= 5.7). Serious AEs were reported by 963 patients (IR= 5.4). A total of 35 deaths was reported (IR= 0.2). The IR of discontinuation from the study due to AEs was 2.8 per 100 PY in the pooled population. Infections were the most common AE of special interest, reported by 4,184 patients (IR= 23.4), including 226 cases of serious infections in adults (IR= 1.3), 335 cases of candida infections all in the adults population (IR= 1.9), and 529 total cases of opportunistic infections (IR= 3.0). ISRs were reported by 1,004 patients (IR= 5.6), including 965 adults and 39 pediatric patients (IR= 5.5 in adults and 12.9 in pediatric patients). Allergic reaction/hypersensitivity occurred with IRs of 5.3 per 100 PY in the pooled population. No confirmed events of anaphylaxis were reported. Cytopenia occurred in 133 patients including 130 adults (IR= 0.7), MACE in 90 patients all in the adults population (IR= 0.5), malignancies in 139 patients all in the adults population (IR= 0.8), and depression in 218 patients including 210 adults (IR= 1.2). Per external adjudication, 35 patients had reported IBD (including 31adults and 4 pediatric patients) confirmed as ulcerative colitis (n=18, IR=0.1 all adults) and Crohn's disease (n=17 pooled population, n=13 adults only, IR=0.1). As assessed based on year of exposure, IRs were decreasing or constant over time (Figure 1).

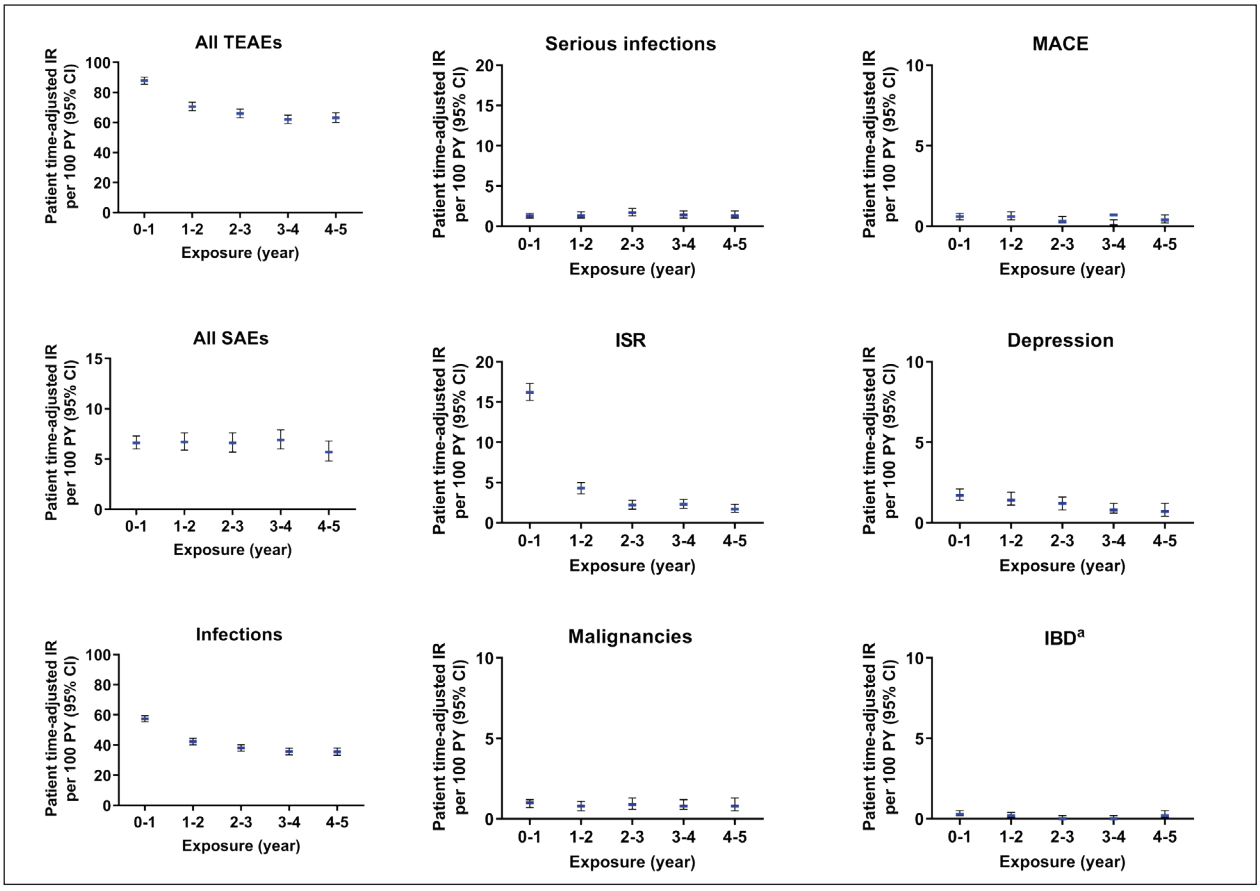


FIGURE 1. Exposure-Adjusted Incidence Rates of Adverse Events pooled IXE population. The data points on the graph are the IR (95% CI)/100 PY at successive year intervals from Year 0 to Year 5. The CIs for the IRs are from likelihood ratio test of treatment effect from the Poisson regression model.
[a]Specific terms.
Abbreviations: AEs, adverse events; CI, confidence interval; IBD, Inflammatory bowel disease; ISR, ISR= Injection site reaction MACE, Major adverse cerebro-cardiovascular events; PY, patient-years; SAEs, serious adverse events; TEAEs, treatment-emergent adverse events.

TABLE 1. Safety outcomes

	Pooled IXE (N=6,645)	Adults (N=6,449)
Total patient-years	17,902.0	17,598.6
n (IR)		
Treatment-emergent adverse events	5,626 (31.4)	5,461 (31.0)
Nasopharyngitis	1,595 (8.9)	1,558 (8.9)
Upper respiratory tract infection	1,016 (5.7)	976 (5.5)
Serious adverse events	963 (5.4)	950 (5.4)
Deaths	35 (0.2)	35 (0.2)
Discontinuations due to adverse events	510 (2.8)	506 (2.9)
Selected adverse events		
Infections	4,184 (23.4)	4,047 (23.0)
SAEs infections and infestations	228 (1.3)	226 (1.3)
Candida infections	335 (1.9)	335 (1.9)
Opportunistic infections	529 (3.0)	519 (2.9)
Injection-site reactions	1,004 (5.6)	965 (5.5)
Allergic/hypersensitivity reactions	941 (5.3)	910 (5.2)
Cytopeniaa	133 (0.7)	130 (0.7)
Malignancies	139 (0.8)	139 (0.8)
MACEb	90 (0.5)	90 (0.5)
Depressionc	218 (1.2)	210 (1.2)
Inflammatory bowel diseased	35 (0.2)	31 (0.2)
Ulcerative colitis	18 (0.1)	18 (0.1)
Crohn's disease	17 (0.1)	13 (0.1)

IR, incidence rate; IBD, Inflammatory bowel disease; IXE, ixekizumab; MACE, major adverse cardiovascular events; n, number of patients in each category; PY, patient-year; SMQ, standardized MedDRA queries.
[a]Broad, according to SMQ classification.
[b]Confirmed events
[c]Broad, according to SMQ or sub-SMQ classification.
[d]The data represents adjudicated cases. Events classified as "definite" and "probable" per external adjudication are included when determining IR and were considered positively adjudicated. IR was calculated as the total of "definite" and "probable" cases /Total patient-years, then multiplied by 100.
TEAE is defined as an event that first occurred or worsened in severity after baseline and on or prior to the date of the last visit within the treatment period. In the pooled IXE population, there were 5 cases of adjudicated IBD that were not considered TEAEs; total adjudicated TEAEs IBD n= 30 (IR = 0.2 per 100 PY). In the adults only population, there were 5 cases of adjudicated IBD that were not considered TEAEs; total adjudicated TEAEs IBD n=26 (IR= 0.1 per 100 PY).

CONCLUSIONS: In this analysis, the overall safety profile and tolerability of IXE are consistent with the known safety profile in patients with PsO. No new or unexpected safety events were detected.

Abstract 67

Long-term Efficacy and Safety of Continuous Risankizumab Every 12 Weeks: An Interim Analysis from the Open-Label Extension Trial, LIMMitless

Kim Papp[1], Mark Lebwohl[2], Luis Puig[3], Jiewei Zeng[4], Simone Rubant[4], Ranjeeta Sinvhal[4], Yiwei Zhao[4], Craig Leonardi[5]

[1]K Papp Clinical Research, Probity Medical Research Inc, Waterloo, and Division of Dermatology, Department of Medicine, University of Toronto, Toronto, Ontario, Canada; [2]Icahn School of Medicine at Mount Sinai, New York, New York, USA; [3]Hospital de la Santa Creu i Sant Pau, Barcelona, Spain; [4]AbbVie Inc, North Chicago, Illinois, USA; [5]Central Dermatology, Richmond Heights, Missouri, USA

BACKGROUND: Risankizumab (RZB) is a humanized IgG1 monoclonal antibody that specifically targets the p19 subunit of IL-23, a cytokine that plays a key role in the development and maintenance of psoriatic lesions. We evaluated the long-term efficacy and safety of continuous RZB in patients with moderate-to-severe plaque psoriasis (Ps).
METHODS: Long-term, continuous RZB 150 mg treatment for adults (≥18 years old) with moderate-to-severe plaque Ps was evaluated using integrated data from 4 double-blind, phase 3, base trials (UltIMMa-1/NCT02684370; UltIMMa-2/NCT02684357, IMMvent/NCT02694523, RZB vs Fumaderm/NCT03255382), and from an ongoing, phase 3, multicenter, international, open-label extension (OLE) trial (LIMMitless, NCT03047395). Patients who were randomized to RZB 150 mg (dosed at week 0, 4, and then every 12 weeks) and completed the base trials were candidates for long-term RZB treatment in the OLE where the patients continued RZB 150 mg as open-label every 12 weeks. Efficacy and safety were evaluated using an interim data cut at 172 weeks of continuous RZB treatment. Efficacy was assessed as improvement in Psoriasis Area Severity Index (PASI), static Physician's Global Assessment of clear or almost clear (sPGA 0/1), and Dermatology Life Quality Index of no or little effect on psoriasis quality of life (DLQI 0/1), using an as-observed analysis. Safety of continuous RZB treatment was assessed by reported adverse events (AEs).
RESULTS: Of 959 patients initially randomized to continuous RZB in the base trials, 901 completed their base trials and 846 continued to receive 150 mg RZB every 12 weeks in the ongoing OLE. Of the 418 patients who completed 172 weeks of RZB treatment, 383 (91.6%) achieved PASI 90, 275 (65.8%) achieved PASI 100, and 381 (91.1%) achieved sPGA 0/1. 427 (84.6%) of the 505 patients with DLQI results at week 172 acheived DLQI 0/1. These rates,

as well as mean percent improvement in PASI, generally increased across timepoints. As the study is ongoing, not all patients had reached each timepoint at the time of this analysis.The rates for AEs of interest were low.

CONCLUSIONS: Patients treated long-term with continuous RZB every 12 weeks for 172 weeks achieved and sustained high durable efficacy and showed consistency with the established RZB safety profile. No new safety signals were observed.

Abstract 68

Long-term Efficacy of Brodalumab in Patients With Moderate-to-Severe Psoriasis Who Received Prior Biologics

Neal Bhatia, MD[1]; Andrew Alexis, MD, MPH[2]; Naveen Anbalagan, MD, MBA[3]; Abby Jacobson, MS, PA-C3

[1]Therapeutics Clinical Research, San Diego, CA; [2]Mount Sinai Morningside and Mount Sinai West, New York, NY; [3]Ortho Dermatologics (a division of Bausch Health US, LLC), Bridgewater, NJ

BACKGROUND: Patients who switch biologic therapies may experience reduced efficacy of these agents over time. Brodalumab is a human interleukin-17 receptor A antagonist indicated for the treatment of moderate-to-severe plaque psoriasis in adult patients who are candidates for systemic therapy or phototherapy and have failed to respond or have lost response to other systemic therapies. The mechanism of action of brodalumab differs from that of other biologics, as it binds the interleukin-17 receptor A with high affinity and blocks multiple cytokines implicated in psoriasis.

OBJECTIVES: To assess long-term (through week 120) efficacy of brodalumab in patients with moderate-to-severe psoriasis whose disease did or did not respond to prior biologics (self-reported before entering the study), including adalimumab, in post hoc analyses of 2 multicenter, randomized clinical trials (AMAGINE-2/-3; ClinicalTrials.gov identifiers: NCT01708603, NCT01708629).

METHODS: Patients in AMAGINE-2/-3 received brodalumab 210 mg every 2 weeks or ustekinumab through 52 weeks. At week 52, all patients entered the long-term extension phase and received brodalumab. Patients who received any dose of brodalumab through week 120 were included in these post hoc analyses. Skin clearance was assessed by achievement of 75% and 100% improvement from baseline in psoriasis area and severity index (PASI 75 and PASI 100, respectively).

RESULTS: In the first post hoc analysis of 408 patients whose disease did not respond to 1, 2, or ≥3 prior biologics, 160 (39.2%) patients had been treated with 1 biologic, 112 (27.5%) patients had been treated with 2 biologics, and 136 (33.3%) patients had been treated with ≥3 biologics at baseline. Observed PASI 75 response rates at week 120 were 82.1%, 84.3%, and 93.2% in patients whose disease did not respond to 1, 2, or ≥3 prior biologics, respectively, and PASI 100 rates were 50.0%, 54.9%, and 54.2%, respectively. In the second post hoc analysis of 386 patients who had previously received adalimumab, there were 187 (48.4%) patients whose disease had responded to prior adalimumab treatment and 199 (51.6%) patients whose disease had not responded to adalimumab treatment at baseline. Observed PASI 75 response rates at week 120 were 74.4% and 88.3% in patients whose disease did and did not respond to adalimumab, respectively; PASI 100 rates were 43.6% and 52.1%, respectively.

CONCLUSIONS: Brodalumab, a highly specific interleukin-17 receptor A antagonist, is efficacious for the long-term treatment of moderate-to-severe psoriasis in patients whose disease did not respond to prior biologic therapies. Understanding how biologics interact with the interleukin-17 pathway and how patients respond to different biologic therapies can help dermatologists make informed treatment decisions.

ACKNOWLEDEMENT: This study was sponsored by Ortho Dermatologics. Medical writing support was provided by MedThink SciCom and funded by Ortho Dermatologics. Ortho Dermatologics is a division of Bausch Health US, LLC. Data included in this poster have been previously presented in part at the 2019 Fall Clinical Dermatology Conference®; October 17-20, 2019; Las Vegas, NV; and at the American Academy of Dermatology Virtual Meeting Experience 2020; June 12-14, 2020; Virtual.

CORRESPONDING AUTHOR:
Neal Bhatia
Therapeutics Clinical Research
9025 Balboa Ave #105
San Diego, CA 92123
Phone: (858) 571-6800
Email: dsbconsulting37@gmail.com

Abstract 69

Long-term improvements in health-related quality of life of patients with moderate to severe plaque psoriasis treated with certolizumab pegol: Results from the CIMPASI-1 and CIMPASI-2 phase 3 trials

Authors: Diamant Thaçi, MD[1]; Andrew Blauvelt, MD[2]; Kristian Reich, MD[3]; Richard B. Warren, MD[4]; Vincent Piguet, MD[5,6]; Fiona Brock, MS[7]; Frederik Fierens, MS[8]; Valerie Ciaravino, MS9; Mark Lebwohl, MD[10]

[1]University Hospital of Lübeck, Lübeck, Germany; [2]Oregon Medical Research Center, Portland, USA; [3]Institute for Health Services Research in Dermatology and Nursing, University Medical Center Hamburg-Eppendorf and Skinflammation® Center, Hamburg, Germany; [4]Salford Royal NHS Foundation Trust, Manchester NIHR BRC, The University of Manchester, UK; [5]University of Toronto, Toronto, Canada; [6]Women's College Hospital, Toronto, Canada; [7]UCB Pharma, Slough, UK; [8]UCB Pharma, Brussels, Belgium; [9]UCB Pharma, Colombes, France; [10]Icahn School of Medicine at Mount Sinai, NewYork, USA

BACKGROUND: The Fc-free, PEGylated anti-tumor necrosis factor (TNF) agent certolizumab pegol (CZP) has shown durable clinical improvements, and a safety profile consistent with anti-TNFs, over 144 weeks' (wks) treatment in moderate to severe plaque psoriasis (PSO) (Gordon K., et al. EADV 2019; Blauvelt A., et al. SKIN 2020).

PSO can negatively impact health-related quality of life (HRQoL) (Bhosle M.J., et al. Health Qual Life Outcomes 2006). Durable HRQoL improvements have been reported over 48 wks' CZP treatment using the Dermatology Life Quality Index (DLQI) (Gottlieb A.B., et al. J Am Acad Dermatol 2018).

OBJECTIVES: To report data from the widely used 36-item Short Form Health Survey (SF-36), used to assess mental and physical HRQoL domains, over 144 wks from two CZP in PSO phase 3 trials (Optum, SF-36v2 Health Survey).

METHODS: Data were pooled from CIMPASI-1 (NCT02326298) and CIMPASI-2 (NCT02326272) (Gottlieb A.B., et al. J Am Acad Dermatol 2018). Adults with PSO ≥6 months (Psoriasis Area and Severity Index (PASI) ≥12, ≥10% body surface area affected, Physician's Global Assessment ≥3) were randomized 2:2:1 to CZP 200 mg every 2 wks (Q2W) (400 mg loading dose Wk0/2/4), CZP 400 mg Q2W, or placebo (PBO). Wk16 PASI50 non-responders entered an open-label CZP 400 mg Q2W escape arm. At Wk48, all patients receiving double-blinded CZP and received open-label CZP 200 mg Q2W, with subsequent dose adjustments permitted (mandatory or at Investigator discretion). We report mean change from baseline (CFB) across eight SF-36 domains through wks 0–144; data are observed case (OC). Scores in each domain range from 0–100 and were derived to have a mean score of 50 in the US general population (Optum, SF-36v2 Health Survey).

RESULTS: At Wk0, 175, 186, and 100, patients were randomized to CZP 400 mg Q2W, 200 mg Q2W, and PBO, respectively. Baseline SF-36 values were similar across treatment groups for all domains. Rapid increases in SF-36 scores occurred in CZP-treated patients from Wk8. Wk16 improvements were greater for CZP-treated patients vs PBO across all domains and durable to Wk144. At Wk48 (before all patients received open-label CZP 200 mg Q2W), greater improvements from baseline in mental SF-36 domains were observed among CZP 400 mg Q2W-treated patients (n=146) vs CZP 200 mg Q2W (n=149) (Wk48 CFB, Social Functioning: 7.7, 5.3, respectively; Vitality: 7.2, 5.0; Mental Health: 6.1, 4.2; Role Emotional: 4.9, 3.4). Physical functioning domain scores also improved, although CFBs were more similar between CZP 400 mg and 200 mg Q2W groups (Wk48 CFB, Bodily Pain: 7.9, 7.5, respectively; Role Physical: 4.2, 3.7; General Health: 4.5, 2.8; Physical Functioning: 3.0, 3.7).

CONCLUSIONS: Improvements across all SF-36 domains were observed from Wk8, generally durable through Wk144. These data complement previous 48-wk DLQI results (Gottlieb A.B., et al. J Am Acad Dermatol 2018).

FUNDING: UCB Pharma.

AUTHOR INFORMATION

Diamant Thaci, MD: diamant.thaci@uksh.de
Andrew Blauvelt, MD: ablauvelt@oregonmedicalresearch.com
Kristian Reich, MD: kreich@jerucon.com
Richard B. Warren, MD: richard.warren@manchester.ac.uk
Vincent Piguet, MD: vincent.piguet@utoronto.ca
Fiona Brock, MS: fiona.brock@ucb.com
Frederik Fierens, MS: frederik.fierens@ucb.com
Valerie Ciaravino, MS: valerie.ciaravno@ucb.com
Mark Lebwohl, MD: lebwohl@aol.com

AUTHOR DISCLOSURES

DT: Honoraria for participation on advisory boards, as a speaker and for consultancy from AbbVie, Almirall, Amgen, Biogen, Boehringer Ingelheim, Bristol Myers Squibb, Celgene, DS Biopharma, Eli Lilly, Galapagos, Janssen, LEO Pharma, Morphosis, Novartis, Pfizer, Regeneron, Samsung, Sandoz, Sanofi Genzyme, and UCB Pharma; research grants received from Celgene, LEO Pharma, and Novartis.

AB: Scientific adviser and/or clinical study investigator for AbbVie, Almirall, Arena, Athenex, Boehringer Ingelheim, Bristol Myers Squibb, Dermavant, Eli Lilly, Forte, Galderma, Incyte, Janssen, LEO Pharma, Novartis, Pfizer, Rapt, Regeneron, Sanofi Genzyme, Sun Pharma, and UCB Pharma; paid speaker for AbbVie.

KR: Served as advisor and/or paid speaker for and/or participated in clinical trials sponsored by AbbVie, Affibody, Almirall, Amgen, Avillion, Biogen, Boehringer Ingelheim, Bristol Myers Squibb, Celgene, Centocor, Covagen, Dermira, Eli Lilly, Forward Pharma, Fresenius Medical Care, Galapagos, GSK, Janssen, Kyowa Kirin, LEO Pharma, Medac, MSD, Miltenyi Biotec, Novartis, Ocean Pharma, Pfizer, Regeneron, Samsung Bioepis, Sanofi, Sun Pharma, Takeda, UCB Pharma, Valeant/Bausch Health, and Xenoport.

RBW: Consulting fees from AbbVie, Almirall, Amgen, Arena, Avillion, Boehringer Ingelheim, Bristol Myers Squibb, Celgene, Eli Lilly, Janssen, LEO Pharma, Novartis, Pfizer, Sanofi, and UCB Pharma; research grants from AbbVie, Almirall, Amgen, Celgene, Eli Lilly, Janssen, LEO Pharma, Novartis, Pfizer, and UCB Pharma.

VP: Consulting fees from AbbVie, Amgen, Boehringer Ingelheim, Celgene, Dermira, Janssen, Eli Lilly, Medimmune, Novartis, Pfizer, Sun Pharma, UCB Pharma, Valeant.

FB, FF, VC: Employees of UCB Pharma.

ML: Employee of Mount Sinai which receives research funds from AbbVie, Amgen, Arcutis, Boehringer Ingelheim, Dermavant, Eli Lilly, Incyte, Janssen, LEO Pharma, Ortho Dermatologics, Pfizer, and UCB

Pharma; consultant for Aditum Bio, Allergan, Almirall, Arcutis, Avotres, BirchBioMed, BMD Skincare, Boehringer Ingelheim, Bristol Myers Squibb, Cara Therapeutics, Castle Biosciences, Corrona, Dermavant, Evelo, Facilitate International Dermatologic Education, Foundation for Research and Education in Dermatology, Inozyme Pharma, LEO Pharma, Meiji Seika Pharma, Menlo, Mitsubishi Pharma, Neuroderm, Pfizer, Promius/Dr. Reddy's Laboratories, Serono, Theravance, and Verrica.

Abstract 70

Long-term proactive vs reactive management with fixed-dose combination calcipotriene/betamethasone dipropionate foam in patients with psoriasis: PSO-LONG trial post-hoc analysis of patient-reported outcomes

Piergiacomo Calzavara-Pinton[1]; Leon H Kircik[2]; Ahmad Jalili[3]; Dominique Lons-Dani[c4]; Andrew Pink[5]; Nanna Jensen[6]; Henrik Thoning[6]; Bibi Petersen[6]; Karen Veverka[7]; Diamant Thaci[8]

[1]ASST degli Spedali Civili, Spedali Civili di Brescia, Brescia, Italy; [2]Icahn School of Medicine at Mount Sinai, Louisville, Kentucky, USA; [3]Bürgenstock Medical Center, Hagendorn, Switzerland; [4]Hôpotal Saint-Joseph, Paris, France; [5]St. John's Institute of Dermatology, Guy's and St.Thomas NHS Foundation Trust, London, UK; [6]LEO Pharma A/S, Ballerup, Denmark; [7]LEO Pharma, Madison, NJ, USA; [8]Research Institute and Comprehensive Center for Inflammation Medicine, University of Lübeck, Lübeck, Germany

BACKGROUND: In the PSO-LONG trial (NCT02899962), long-term proactive management with calcipotriene 50 µg/g / betamethasone dipropionate 0.5 mg/g (Cal/BD) foam demonstrated superior efficacy compared with reactive management in patients with plaque psoriasis, without new safety concerns.

OBJECTIVES: This post-hoc analysis of data from the phase 3, randomized, double-blind PSO-LONG trial assessed the impact of long-term proactive vs reactive management with fixed-dose combination calcipotriene 50 µg/g and betamethasone dipropionate 0.5 mg/g (Cal/BD) foam on health-related quality of life (HRQoL) and patient-perceived symptom severity in patients with psoriasis vulgaris using three common patient-reported outcome (PRO) assessment tools.

METHODS: The analysis included 521 patients from the Phase 3 randomized, double-blind PSO-LONG trial. The trial included an initial 4-week, open-label phase of fixed-dose Cal/BD foam once daily, followed by a 52-week maintenance phase for patients who achieved a Physician's Global Assessment (PGA) score of 0 ("clear") or 1 ("almost clear") after the initial 4 weeks. At the start of the maintenance phase, patients were randomized to either proactive management (Cal/BD form twice weekly) or reactive management (vehicle foam twice weekly). In both groups, relapses were treated with Cal/BD foam once daily for 4 weeks. HRQoL was assessed using the EuroQol-5D for Psoriasis (EQ-5D-5L-PSO) tool and Dermatology Life Quality Index (DLQI). Patient-perceived symptom severity was assessed using Psoriasis Symptom Inventory.

RESULTS: Significant improvements were observed across all PRO measures for flare treatment during the open-label phase. The mean difference (standard deviation [SD]) from baseline to Week 4 was –8.97 (6.18) for PSI scores, –6.02 (5.46) for DLQI scores, and 0.11 (0.15) for EQ-5D scores. PRO improvements were maintained over the next 52 weeks of randomized treatment in both groups. Patients who received reactive management had significantly greater mean area under the curve (AUC) scores, both for DLQI (15%, P=0.007) and PSI (15%, P=0.0128), compared with those who received proactive management during the maintenance phase. In addition, patients who received reactive management also had a lower EQ-5D mean AUC score compared with those who received proactive management (1%, P=0.0842).

CONCLUSIONS: Initial flare treatment with Cal/BD foam once daily for 4 weeks significantly improved DLQI, 5Q-ED, and PSI scores. The impact of initial flare treatment on DLQI, EQ-5D, and PSI continued through the 52-week maintenance phase. Patients assigned to proactive management had significantly better outcomes based on DLQI and PSI scores, compared with those assigned to receive reactive management.

FUNDING: The PSO-LONG study was sponsored by LEO Pharma A/S, Ballerup, Denmark.

AUTHOR INFORMATION: Piergiacomo Calzavara-Pinton: piergiacomo.calzavarapinton@unibs.it
Leon H Kircik: wedoderm@yahoo.com
Ahmad Jalili: ahmad@jalili.ch
Dominique Lons-Danic: d.lons.danic@wanadoo.fr
Andrew Pink: andrew.pink@kcl.ac.uk, Andrew.Pink@gstt.nhs.uk
Nanna Jensen: OJYDK@leo-pharma.com
Henrik Thoning: YKHDK@leo-pharma.com
Bibi Petersen: ZIPDK@leo-pharma.com
Karen Veverka: KNVUS@leo-pharma.com
Diamant Thaci: Diamant.Thaci@uksh.de

Abstract 71

Long-Term Safety of Risankizumab in Patients With Moderate-to-Severe Plaque Psoriasis: Results From Pooled Clinical Studies

Kim A. Papp[1]; Kenneth B. Gordon[2]; Herve Bachelez[3]; Andrew Blauvelt[4]; Megha Shah[5]; Yiwei Zhao[5]; Brian Waterhouse[5]; Ranjeeta Sinvhal[5]; Kristian Reich[6]

[1]K Papp Clinical Research and Probity Medical Research, Waterloo, ON, Canada; [2]Medical College of Wisconsin, Milwaukee, WI, United States; [3]Saint-Louis Hôpital, Sorbonne Paris Cité University Paris Diderot, Paris, France [4]Oregon Medical Research Center, Portland, OR, USA; [5]AbbVie Inc., North Chicago, IL, United States; [6]Center for Translational Research in Inflammatory Skin Diseases, Institute for Health Services Research in Dermatology and Nursing, University Medical Center Hamburg-Eppendorf, and Skinflammation® Center, Hamburg, Germany

BACKGROUND: Risankizumab inhibits interleukin-23, a key regulatory cytokine involved in psoriasis pathogenesis. The objective of this pooled analysis of psoriasis clinical studies was to investigate the long-term safety of risankizumab.

METHODS: Risankizumab safety was evaluated through week 16 (short-term) in data pooled from five phase 2–3 trials of risankizumab 150 mg vs adalimumab, ustekinumab, and placebo, and long-term (17 trials, all-risankizumab population, data cutoff March 25, 2020). The

occurrence of any adverse event (AE) was reported among patients who received at least one dose of risankizumab. Treatment-emergent AEs were defined as any event with an onset after the first dose of risankizumab and within 105 days (short-term) or 140 days (long-term) after the last dose of study drug in the analysis period. Data are reported as number of patients with AEs and events per 100 patient-years (PYs).

RESULTS: AEs occurred in 48.9% (638/1306), 56.9% (173/304), 52.3% (125/239), and 48.3% (145/300) of patients receiving risankizumab 150 mg, adalimumab, ustekinumab, and placebo, respectively, through week 16; serious AEs occurred in 2.4%, 3.0%, 5.0%, and 4.0%. AEs were generally comparable across treatments and most were mild-to-moderate in severity. In the all-risankizumab population (3072 patients; 7927.2 PY; median treatment duration 2.9 years with 5.6% ≥4 years), AEs occurred in 2482 (80.8%) patients corresponding to 170.9 events/100 PY. Serious AEs remained consistent over short-term (9.9/100 PY) and long-term (7.8/100 PY) treatment. Infections (90.8/100 PY short-term and 56.4/100 PY long-term) and serious infections (1.7/100 PY short-term and 1.2/100 PY long-term) did not increase over time. The most common infections over the long term were nasopharyngitis (16.8/100 PY) and upper respiratory tract infection (9.1/100 PY), and serious infections were sepsis (0.2/100 PY) and pneumonia (0.1/100 PY). There were no cases of active tuberculosis. The rate of malignant tumors excluding non-melanoma skin cancer (NMSC) was 0.7/100 PY short-term and 0.5/100 PY long-term; no trend in the events was observed. The rate of NMSC was 0.7/100 PY over short- and long-term. The rate of adjudicated major adverse cardiovascular events was 0.2/100 PY short-term and 0.3/100 PY long-term.

CONCLUSIONS: This pooled analysis is the largest reporting of safety data for risankizumab to date, encompassing more than 3000 patients with over 7900 PY of exposure from the psoriasis clinical trial program. The findings show that risankizumab treatment is safe and well tolerated with long-term treatment (up to ≥4 years) in patients with moderate-to-severe psoriasis.

Abstract 72

Long-Term Safety of Risankizumab in Patients With Moderate-to-Severe Plaque Psoriasis: Results From Pooled Clinical Studies

Kim A. Papp[1]; Kenneth B. Gordon[2]; Herve Bachelez[3]; Andrew Blauvelt[4]; Megha Shah[5]; Yiwei Zhao[5]; Brian Waterhouse[5]; Ranjeeta Sinvhal[5]; Kristian Reich[6]

[1]K Papp Clinical Research and Probity Medical Research, Waterloo, ON, Canada; [2]Medical College of Wisconsin, Milwaukee, WI, United States; [3]Saint-Louis Hôpital, Sorbonne Paris Cité University Paris Diderot, Paris, France [4]Oregon Medical Research Center, Portland, OR, USA; [5]AbbVie Inc., North Chicago, IL, United States; [6]Center for Translational Research in Inflammatory Skin Diseases, Institute for Health Services Research in Dermatology and Nursing, University Medical Center Hamburg-Eppendorf, and Skinflammation® Center, Hamburg, Germany

BACKGROUND: Risankizumab inhibits interleukin-23, a key regulatory cytokine involved in psoriasis pathogenesis. The objective of this pooled analysis of psoriasis clinical studies was to investigate the long-term safety of risankizumab.

METHODS: Risankizumab safety was evaluated through week 16 (short-term) in data pooled from five phase 2–3 trials of risankizumab 150 mg vs adalimumab, ustekinumab, and placebo, and long-term (17 trials, all-risankizumab population, data cutoff March 25, 2020). The occurrence of any adverse event (AE) was reported among patients who received at least one dose of risankizumab. Treatment-emergent AEs were defined as any event with an onset after the first dose of risankizumab and within 105 days (short-term) or 140 days (long-term) after the last dose of study drug in the analysis period. Data are reported as number of patients with AEs and events per 100 patient-years (PYs).

RESULTS: AEs occurred in 48.9% (638/1306), 56.9% (173/304), 52.3% (125/239), and 48.3% (145/300) of patients receiving risankizumab 150 mg, adalimumab, ustekinumab, and placebo, respectively, through week 16; serious AEs occurred in 2.4%, 3.0%, 5.0%, and 4.0%. AEs were generally comparable across treatments and most were mild-to-moderate in severity. In the all-risankizumab population (3072 patients; 7927.2 PY; median treatment duration 2.9 years with 5.6% ≥4 years), AEs occurred in 2482 (80.8%) patients corresponding to 170.9 events/100 PY. Serious AEs remained consistent over short-term (9.9/100 PY) and long-term (7.8/100 PY) treatment. Infections (90.8/100 PY short-term and 56.4/100 PY long-term) and serious infections (1.7/100 PY short-term and 1.2/100 PY long-term) did not increase over time. The most common infections over the long term were nasopharyngitis (16.8/100 PY) and upper respiratory tract infection (9.1/100 PY), and serious infections were sepsis (0.2/100 PY) and pneumonia (0.1/100 PY). There were no cases of active tuberculosis. The rate of malignant tumors excluding non-melanoma skin cancer (NMSC) was 0.7/100 PY short-term and 0.5/100 PY long-term; no trend in the events was observed. The rate of NMSC was 0.7/100 PY over short- and long-term. The rate of adjudicated major adverse cardiovascular events was 0.2/100 PY short-term and 0.3/100 PY long-term.

CONCLUSIONS: This pooled analysis is the largest reporting of safety data for risankizumab to date, encompassing more than 3000 patients with over 7900 PY of exposure from the psoriasis clinical trial program. The findings show that risankizumab treatment is safe and well tolerated with long-term treatment (up to ≥4 years) in patients with moderate-to-severe psoriasis.

Abstract 73

Maintenance of response through 172 weeks of long-term continuous risankizumab treatment: an analysis of patients from UltIMMa-1 and UltIMMa-2

Craig Leonardi;[1] Mark Lebwohl;[2] Hervé Bachelez;[3] Kenneth Gordon;[4] Blair Kaplan;[5] Huzefa Photowala;[5] Jiewei Zeng;[5] Kim Papp[6]

[1]Central Dermatology, Richmond Heights, Missouri, USA; [2]Icahn School of Medicine at Mount Sinai, New York, New York, USA; [3]Sorbonne Paris Cité Université Paris Diderot, Hôpital Saint-Louis, Paris, France; [4]Medical College of Wisconsin, Milwaukee, Wisconsin, USA; [5]AbbVie Inc, North Chicago, Illinois, USA; [6]K Papp Clinical Research, Probity Medical Research Inc, Waterloo, and Division of Dermatology, Department of Medicine, University of Toronto, Toronto, Ontario, Canada

INTRODUCTION: Risankizumab is a humanized immunoglobulin G1 monoclonal antibody that binds to the p19 subunit and selectively inhibits interleukin-23, a key cytokine in the development and maintenance of psoriatic lesions. LIMMitless is a phase 3, single-arm, multicenter, open-label extension (OLE) study to assess the safety and efficacy of risankizumab for maintenance in moderate-to-severe plaque psoriasis (NCT03047395). This analysis evaluated the proportion of patients who maintained clinical responses (90% or 100% improvement in Psoriasis Area and Severity Index [PASI 90 or PASI 100]) on risankizumab through 172 weeks of treatment.

METHODS: In this analysis, we evaluated patients who had received risankizumab 150 mg for 52 weeks (dosed at week 0, 4, and every 12 weeks) during 2 phase 3 studies (UltIMMa-1 [NCT02684370] and UltIMMa-2 [NCT02684357]) were eligible for entry into the OLE and received 150 mg risankizumab subcutaneously every 12 weeks. This interim analysis assesses the proportion of patients who entered the OLE with PASI 90 or PASI 100 and received risankizumab for 120 weeks (total treatment duration of 172 weeks). Missing data were imputed using either last observation carried forward (LOCF) or modified nonresponder imputation (nonresponse imputed only for patients who discontinued due to worsening psoriasis; all other missing data was handled using a mixed model).

RESULTS: Of 525 patients who entered the OLE after receiving risankizumab for 52 weeks in the UltIMMa studies, 448 (85.3%) achieved a PASI 90 and 315 (60%) achieved a PASI 100. Of the 448 PASI 90 responders, 424 (94.6%) maintained their PASI 90 response at week 172. Among the 315 PASI 100 responders at the entry of OLE, 237 (75.2%) maintained PASI 100 at week 172. PASI 90 and PASI 100 rates assessed with an LOCF imputation method showed similar results. Risankizumab was well tolerated and there were no new safety findings through 172 total weeks of risankizumab exposure.

CONCLUSIONS: Most patients who entered the OLE with either PASI 90 or PASI 100 maintained their response through 172 weeks of risankizumab. These data demonstrate that long-term risankizumab treatment achieves clinical response up to 172 weeks with no new safety signals.

Abstract 74

Patient-reported outcomes in remission vs relapse in patients with psoriasis receiving treatment with fixed-dose combination Cal/BD foam: post-hoc analysis of the PSO-LONG trial

Diamant Thaci[1]; Stephen Tyring[2]; Pablo De la Cueva[3]; Melinda Gooderham[4]; Bibi Petersen[5]; Henrik Thoning[5]; Nanna Jensen[5]; Karen Veverka[6]; Siegfried Segaert[7]

[1]Research Institute and Comprehensive Center for Inflammation Medicine, University of Lübeck, Lübeck, Germany; [2]Center for Clinical Studies, Webster, Texas, USA; [3]Hospital Universitario Infanta Leonor, Madrid, Spain; [4]SKiN Center for Dermatology, Queen's University and Probity Medical Research, Peterborough, Ontario, Canada; [5]LEO Pharma A/S, Ballerup, Denmark; [6]LEO Pharma, Madison, NJ, USA; [7]University Hospital, Leuven, Belgium

BACKGROUND: The PSO-LONG trial (NCT02899962) was a phase 3, multicenter, randomized, double-blind, vehicle-controlled trial performed to evaluate the efficacy and safety of fixed-dose calcipotriene 50 µg/g and betamethasone dipropionate 0.5 mg/g (Cal/BD) foam used twice weekly as long-term maintenance therapy in patients with psoriasis vulgaris.

OBJECTIVES: The objective of this post-hoc analysis was to describe differences in the exploratory endpoints of health-related quality of life (HRQoL) and patient-perceived symptoms at baseline flare, start of a relapse, and remission in patients who participated in the PSO-LONG trial.

METHODS: A total of 650 patients were randomized in the PSO-LONG trial, of whom 521 were included in this analysis. The trial included an initial 4-week, open-label phase of fixed-dose Cal/BD foam once daily, followed by a 52-week maintenance phase for patients who achieved a Physician's Global Assessment (PGA) score of 0/1 after the initial 4 weeks. At the start of the maintenance phase, patients were randomized to either proactive management (Cal/BD form twice weekly) or reactive management (vehicle foam twice weekly). In both groups, relapses were treated with fixed-dose combination Cal/BD foam once daily for 4 weeks. PROs were assessed at baseline for baseline flare and for start of a relapse (defined as at least "mild" according to PGA) and during remission (defined as "clear" or "almost clear" according to PGA) at unscheduled and scheduled visits. HRQoL was assessed using the EuroQoL-5D for psoriasis (EQ-5D-5L-PSO) tool and the Dermatology Life Quality Index (DLQI). Patient-perceived symptom severity was assessed using the Psoriasis Symptom Inventory (PSI).

RESULTS: Across treatment groups, patients had improved symptoms and HRQoL during remission compared with the baseline flare and the start of a relapse. Mean (standard deviation) EQ-5D scores showed less association with the psoriasis stage, and ranged from 0.80 (0.17) for baseline flare to 0.86 (0.16) for the start of a new relapse and 0.90 (0.13) for remission. Mean change (95% confidence interval) between the start of a relapse and remission was –2.28 (–2.64, –1.92; $P<0.0001$) for PSI score, –1.32 (–1.60, –1.04; $P<0.0001$) for DLQI, and 0.03 (0.02, 0.04; $P<0.0001$) for EQ-5D.

CONCLUSIONS: Baseline flare was associated with poorer PROs than the start of a relapse. Patients in relapse had poorer HRQoL and patient-perceived symptoms than those in remission. These results build on the PSO-LONG findings (rate-ratio of relapses for proactive vs reactive management of 0.54 [0.46-0.63; *P*<0.001]) and show that reduction in the number of relapses with increased time in remission over a year of exposure for patients receiving proactive management vs reactive management can improve HRQoL and patient-perceived symptoms.

FUNDING: The PSO-LONG study was sponsored by LEO Pharma A/S, Ballerup, Denmark.

AUTHOR INFORMATION:
Diamant Thaci: Diamant.Thaci@uksh.de
Stephen Tyring: styring@cctexas.com
Pablo De la Cueva: delacueva@yahoo.com
Melinda Gooderham: mjgooderham@gmail.com
Bibi Petersen: ZIPDK@leo-pharma.com
Henrik Thoning: YKHDK@leo-pharma.com
Nanna Jensen: OJYDK@leo-pharma.com
Karen Veverka: KNVUS@leo-pharma.com
Siegfried Segaert: siegfried.segaert@gmail.com

Abstract 75

Proactive management with twice-weekly topical Cal/BD foam prolongs treatment efficacy vs reactive management in patients with plaque psoriasis

Linda Stein-Gold[1]; Javier Alonso-Llamazares[2]; Philip Laws[3]; Marc Perrussel[4]; Paul Yamauchi[5]; Henrik Thoning[6]; Camilla Toxvaerd[6]; Karen Veverka[7]; Michael Sticherling[8]

[1]Henry Ford Medical Center, Detroit, Michigan, USA; [2]VA Medical Center, Miami, Florida, USA; [3]Chapel Allerton Hospital, Leeds, UK; [4]Centre Hospitalier Universitaire Pontchaillou, Université De Rennes, Rennes, France; [5]Dermatology Institute and Skin Care Center, Santa Monica, California, USA; [6]LEO Pharma A/S, Ballerup, Denmark; [7]LEO Pharma, Madison, NJ, USA; [8]Friedrich-Alexander University (FAU) Erlangen-Nürnberg and Universitätsklinikum Erlangen, Erlangen, Germany

BACKGROUND: Long-term, proactive management with calcipotriene 50 µg/g / betamethasone dipropionate 0.5 mg/g (Cal/BD) foam demonstrated superior efficacy compared with reactive management in patients with plaque psoriasis who participated in the phase 3, randomized, double-blind PSO-LONG study (NCT02899962).

OBJECTIVES: We performed a PSO-LONG subanalysis of physician's global assessment (PGA) of disease severity and modified psoriasis area and severity index (mPASI) scores to evaluate the relative effectiveness of proactive vs reactive management for up to 52 weeks.

METHODS: Following the initial 4-week, open-label lead-in phase (Cal/BD foam once daily), patients participating in the PSO-LONG study entered a 52-week randomized, double-blind maintenance phase and an 8-week follow-up period. At maintenance phase entry, patients were randomized to receive either proactive (continued Cal/BD foam) or reactive (vehicle foam) treatment twice weekly. Rescue treatment of Cal/BD once daily for 4 weeks was given to patients experiencing a relapse (PGA ≥2), in either treatment group. If PGA was <2 after 4 weeks, maintenance therapy resumed; otherwise, the patient was withdrawn if the PGA was ≥2. mPASI and PGA scores were evaluated up to 52 weeks.

RESULTS: In the open-label lead-in phase, 80% of patients (N=521) achieved treatment success with statistically significant changes from baseline to Week 4 in mPASI and PGA scores (mean difference [SD] 6.5 [3.5] and 2.2 [0.4], respectively; both *P*<0.0001). After 4 weeks of the maintenance phase, a clear separation in mean PGA scores for proactive vs reactive management was observed, which was maintained throughout the remainder of the study. Area under the curve (AUC) distribution for mean PGA score was 15% lower for the proactive vs the reactive group throughout the maintenance phase (1.35 vs 1.59; difference –0.23, *P*=0.0001). Similarly, the AUC distribution for mean mPASI score was 20% lower for the proactive vs reactive group throughout the maintenance phase (2.27 vs 2.84; difference –0.57, *P*=0.0005). The proportion of symptom-free days (defined as PGA 0/1) was significantly greater in the proactive vs reactive group (mean 256 vs 218 days; *P*<0.001). Symptom-free days as assessed by mPASI-90, mPASI-75, and mPASI ≤3 were significantly greater in the proactive vs reactive group (mean 106 vs 72; 206 vs 169; 288 vs 259 days, respectively, all *P*<0.001).

CONCLUSIONS: These findings show that long-term proactive management of adult patients with plaque psoriasis using twice-weekly topical Cal/BD foam for up to 52 weeks was associated with sustained and significantly lower mean mPASI/PGA scores, and a significantly greater number of days in remission, compared with reactive management.

FUNDING: The PSO-LONG study was sponsored by LEO Pharma A/S, Ballerup, Denmark.

AUTHOR INFORMATION
Linda Stein-Gold: LSTEIN1@hfhs.org
Javier Alonso-Llamazares: alonso.javier1@gmail.com
Philip Laws: philip.laws2@nhs.net
Marc Perrussel: marc.perrussel@free.fr
Paul Yamauchi: paulyamauchi@yahoo.com
Henrik Thoning: YKHDK@leo-pharma.com
Camilla Toxvaerd: CATDK@leo-pharma.com
Karen Veverka: KNVUS@leo-pharma.com
Michael Sticherling: michael.sticherling@uk-erlangen.de

Abstract 76

Quantifying clinical and health-related quality-of-life improvements in patients with Psoriasis who switched from Adalimumab to Risankizumab: subgroup analysis from the phase 3 IMMVent study

Jeffrey Crowley;[1] Tianshuang Wu;[2] Huzefa Photowala;[2] Kristian Reich[3]

[1]Bakersfield Dermatology and Skin Cancer Medical Group, Bakersfield, CA, USA; [2]AbbVie Inc., North Chicago, IL, USA; [3]University Medical Center Hamburg-Eppendorf, Hamburg, Germany

INTRODUCTION: Risankizumab (RZB) is a humanized monoclonal antibody approved to treat moderate-to-severe plaque psoriasis. RZB specifically inhibits interleukin 23, a cytokine implicated in psoriasis pathogenesis, by binding its p19 subunit. The IMMvent study was designed to evaluate the efficacy and safety of RZB compared with adalimumab (ADA); this analysis was designed to evaluate clinical and quality-of-life improvements in patients who switched from ADA to RZB.

METHODS: IMMvent (NCT02694523) was a phase 3 randomized, double-blind, active–comparator-controlled trial. Eligible patients (≥18 years) had stable (≥6 months) moderate-to-severe plaque psoriasis affecting ≥10% body surface area, Psoriasis Area and Severity Index (PASI) ≥12, and static Physician Global Assessment ≥3. Patients who completed 16 weeks of ADA treatment and had an intermediate response (≥50% improvement in PASI [PASI 50] to <PASI 90) were rerandomized (1:1) to receive RZB (150 mg; weeks 16, 20, and 32) or ADA (40 mg; every other week through week 41). The intermediate response was further delineated as PASI 50 to <PASI 75 or PASI 75 to <PASI 90. In this analysis, patients who switched from ADA to RZB were assessed for clinical response. Missing data were calculated using the last observation carried forward.

RESULTS: After 16 weeks of ADA treatment, the mean percent PASI improvement was 75.4%, 51.4% (148/288) of patients had Dermatology Life Quality Index (DLQI) 0/1, and 84.7% (216/255) of patients had DLQI reduction >5. Following rerandomization to RZB, PASI mean percent improvement from study baseline was 85.7% after 1 dose (week 20) and 92.9% after 3 doses (week 44). Among patients with PASI 50 to <PASI 75 response to ADA, 58.8% (10/17) and 83.3% (15/18) had improved response 4 and 28 weeks post switch, respectively; among patients with PASI 75 to <PASI 90 response, 68.6% (24/35) and 77.1% (27/35) had improved response. A further 41.2% (7/17) of patients with PASI 50 to <PASI 75 response and 28.6% (10/35) with PASI 75 to <PASI 90 response maintained response 4 weeks post switch; 16.7% (3/18) and 22.9% (8/35) maintained response 28 weeks post switch. These clinical improvements translated into substantial quality-of-life improvements with 68.6% (35/51) of patients achieving DLQI 0/1 at week 44, and 93.6% (44/47) achieving DLQI reduction >5.

CONCLUSIONS: This analysis demonstrates that among patients with intermediate response to ADA, switching to RZB was associated with improved efficacy (PASI) and quality-of-life (DLQI). Among patients with intermediate response to ADA, PASI responses were improved or maintained in all patients at 28 weeks after switching from ADA to RZB.

Abstract 77

Real-World Drug Survival among Patients with Psoriasis Treated with Ixekizumab or Guselkumab over 1 Year

Blauvelt A.,[1] MD, MBA; Burge R.,[2] PhD; Charbonneau B.[2], PhD, MPH; Malatestinic W.[2], Pharm D, MBA; Zhu B.[2], PhD; Wang F.[2], MS; Lockshin B.[3], MD

[1]Oregon Medical Research Center, OR, USA; [2]Eli Lilly and Company, IN, USA; [3]DermAssociates, MD, USA

BACKGROUND: Persistence and adherence treatment patterns have not been previously compared for 2 psoriasis biologic therapies: ixekizumab (IXE), an interleukin (IL)-17A antagonist, and guselkumab (GUS), an IL-23 inhibitor.

OBJECTIVES: To evaluate real-world drug persistence and adherence over a 1-year period for patients with psoriasis treated with IXE or GUS.

METHODS: This retrospective observational study was performed using insurance claims data from MarketScan® Databases to identify patients aged ≥18 years with psoriasis and ≥1 prescription claim for IXE or GUS between July 1, 2017 and December 31, 2018. Patients with a diagnosis of psoriatic arthritis, on IXE with a diagnosis of ankylosing spondylitis, or on the index medications in the 6 months prior to the index date were excluded. The date of the first prescription claim was the index date. Patients were required to have continuous enrollment for ≥6 months pre-index and ≥1-year post-index. Persistence and adherence were analyzed for the 1-year post-index period, and in sensitivity analysis ≥6 months post index. The allowable gap for treatment persistence was <60 days. Sensitivity analysis on persistence was performed with a <45-day and <90-day gap. Persistence (or drug survival based on continuous/persistent treatment) was measured from time of drug initiation at index date to drug discontinuation (end of persistence), accounting for allowable gaps. Adherence was measured as the proportion of days covered (PDC) and medication possession ratio (MPR). Cox proportional hazards model was used to obtain the hazard ratio (HR) on persistence for the balanced sample using inverse probability of treatment weighting (IPTW). Logistic models were used for adherence analysis after applying IPTW.

RESULTS: Of 1,415 eligible patients, 676 (47.8%) received IXE and 739 (52.2%) received GUS in the 1-year post-index period. After IPTW was applied, baseline demographics were balanced between groups. Treatment persistence was greater for IXE versus GUS (HR 0.819 [95% confidence interval (CI), 0.704-0.953], p=0.0100)

with a <60-day gap. The HRs were 0.707 (95% CI, 0.615-0.813, p<0.001) with a <45-day gap and 0.996 (95% CI, 0.837-1.185, p=0.9621) with a <90-day gap, respectively. During the 1-year follow up, adherence was greater for IXE vs GUS as measured by PDC ≥80% (odds ratio (OR) 1.741 [95% CI, 1.391-2.180], p<0.0001) and by MPR ≥80% (OR 1.881 [95% CI, 1.512-2.340], p<0.0001). Sensitivity analysis for patients with ≥6-month post-index period confirmed the findings.

CONCLUSIONS: Real-world psoriasis patients treated with IXE had greater persistence (with a 45-day and 60-day allowable gap) and greater adherence to therapy vs psoriasis patients treated with GUS over 1-year of follow-up.

FUNDED by Eli Lilly and Company. Abstract previously presented at FALLCDC 2020.

AUTHOR INFORMATION

Blauvelt A.,1 MD, MBA, ABlauvelt@oregonmedicalresearch.com
Burge R.,2 PhD, burge_russel_thomas@lilly.com
Charbonneau B.2, PhD, MPH, charbonneau_bridget@lilly.com
Malatestinic W.2, Pharm D, MBA, malatestinic_william_n@lilly.com
Zhu B.2, PhD, zhu_baojin@lilly.com
Wang F.2, MS, wang_fangyu@lilly.com
Lockshin B.3, MD, blockshin@dermassociates.com

Abstract 78

Real-World Treatment Switching Patterns for Patients with Psoriasis Using Targeted Immunomodulators

Jashin J. Wu, MD[1]; Manish Patel, PharmD, MS[2]; Shiyin Jiao, MHS[2,3]; Vishvas Garg, PhD[2]; Weihua Gao, MS, PhD[2]; Monika Salkar, MS[4]

[1]Dermatology Research and Education Foundation, Irvine, CA, USA; [2]AbbVie Inc., North Chicago, IL, USA; [3]University of Chicago, Chicago, IL, USA; [4]University of Mississippi, Oxford, MI, USA

BACKGROUND: For patients with psoriasis (PsO) receiving treatment, the National Psoriasis Foundation recommends a target response of a body surface area (BSA) ≤1% at 3 months post treatment initiation and maintenance of this BSA at 6-month intervals thereafter. If a patient does not reach or maintain this target, treatment modification, including switching, should be considered (Armstrong A., et al. J Am Acad Dermatol 2017). Previous real-world studies estimate ~5–25% of patients switch targeted immunomodulators (TIMs) within one year of initiation (Kaplan D., et al. Clinicoecon Outcomes Res 2020; Feldman S., et al. J Manag Care Spec Pharm 2015; Foster A., et al. J Manag Care Spec Pharm 2016); however, these studies did not evaluate more recently approved biologics, such as the IL-23 inhibitors.

OBJECTIVES: This study aims to quantify real-world treatment switching rates and associated characteristics for patients with PsO initiating TIMs over 24 months accounting for the recent advancements in treatment using a large US payer claims database.

METHODS: The IBM® MarketScan® Research Databases were used to identify adults with ≥2 medical claims for PsO (ICD9/10 codes) without any other autoimmune condition who initiated a TIM approved for PsO between 1/1/17 and 8/31/20 (index date) and had ≥6 months continuous enrollment pre- and post-index date. Treatment switch rate was defined as the proportion of patients switching to a new TIM in the 24 months after index, conditional on being continuously enrolled. Kaplan-Meier methods were used to estimate switch rates, and Cox multivariable regression was performed adjusting for baseline demographic and clinical characteristics.

RESULTS: The study included 10,174 patients (mean age 46.2 years; 50% female). Across all TIMs, switch rates at 1 and 2 years were 16.4% and 29.4%, respectively. Significant differences in switch rates were seen between classes of TIMs over a 2-year follow-up (range at 1 and 2 years was 7.1–23.2% and 13.2–38.7%, respectively; $P<0.0001$) with the IL-23 inhibitors associated with the lowest switch rates. Patients treated with TNF, PDE-4, IL-17, and IL-12/23 inhibitors were 3.5, 2.3, 1.9, and 1.7 times as likely to switch as those treated with IL-23 inhibitors ($P<0.001$, all pairwise comparison). Adjusted analyses showed similar trends in switch rates by class. Patients with prior TIM use were 1.37 times more likely to switch than TIM-naïve patients ($P<0.0001$). Females (vs males) and age groups 35–50 and 51–64 (vs 18–34) were also associated with higher risks of switching (HR =1.28, 1.20, and 1.20, respectively; $P<0.01$). Among switchers, the most common classes switched to were IL-17 and IL-23 inhibitors (33% and 26%, respectively).

CONCLUSIONS: Switching among patients with PsO using TIMs was common. This study did not consider discontinuation or non-adherence in the switch definition. IL-23 inhibitors were the most durable class as demonstrated by the lowest switch rates over 24 months.

DISCLOSURES: J Wu Dr. Wu is or has been an investigator, consultant, or speaker for AbbVie, Almirall, Amgen, Arcutis, Aristea Therapeutics, Boehringer Ingelheim, Bristol-Myers Squibb, Dermavant, Dr. Reddy's Laboratories, Eli Lilly, Galderma, Janssen, LEO Pharma, Mindera, Novartis, Regeneron, Sanofi Genzyme, Solius, Sun Pharmaceutical, UCB, Valeant Pharmaceuticals North America LLC, and Zerigo Health.

M Patel, V Garg, and W Gao are employees of AbbVie and may own AbbVie stock.

S Jiao is a PhD candidate at the University of Chicago and was a contractor at AbbVie when the study was performed.

M Salkar is a PhD candidate at University of Mississippi and was a research intern at AbbVie when the study was performed.

FUNDING: Financial support for the study was provided by AbbVie. AbbVie participated in interpretation of data, review, and approval of the abstract. All authors contributed to development of the abstract and maintained control over final content. No honoraria or payments were made for authorship.

ACKNOWLEDGEMENT: Medical writing support was provided by Joann Hettasch of Fishawack Facilitate Ltd., part of Fishawack Health, and was funded by AbbVie.

Abstract 79

Secukinumab Is Highly Efficacious and Has a Favorable Safety Profile in Pediatric Patients With Moderate to Severe Plaque Psoriasis: 24 Week Results

Authors: Nina Magnolo[1]; Külli Kingo[2]; Vivian Laquer[3]; John Browning[4]; Adam Reich[5]; Jacek C. Szepietowski[6]; Deborah Keefe[7]; Rafal Mazur[8]; Prayashi Ghelani[9]; Pascal Forrer[8]; LindaAnn Wraith[7]; Manmath Patekar[8]

[1]University Hospital Münster, Münster, Germany; [2]Tartu University Hospital and University of Tartu, Tartu, Estonia; [3]First OC Dermatology, Fountain Valley, CA; [4]University of Texas San Antonio, San Antonio, TX; [5]University of Rzeszów, Rzeszów, Poland; [6]City Clinic Wroclaw, Poland; [7]Novartis Pharmaceuticals Corporation, East Hanover, NJ; [8]Novartis Pharma AG, Basel, Switzerland; 9264957 Ontario Limited, Ontario, Canada.

BACKGROUND: Here, we report the efficacy and safety of two secukinumab (SEC) dosing regimens (low dose [LD] and high dose [HD]) in pediatric patients with moderate to severe plaque psoriasis up to Week 24. **METHODS**: This is a multicenter, open-label study (NCT03668613) in pediatric patients aged 6 to <18 years at randomization, with moderate to severe chronic plaque psoriasis. Patients were randomized to receive a low-dose (LD; 75/75/150 mg; n=42) or high-dose (HD; 75/150/300 mg; n=42) SEC based on the weight group (<25 kg, 25 to <50kg, ≥50 kg). The co-primary objectives were to demonstrate superiority of SEC with respect to number of responders for Psoriasis Area Severity Index (PASI) 75 and Investigator's Global Assessment modified 2011 (IGA mod 2011) 0/1 response at Week 12, compared to historical placebo (Bayesian logistic regression analysis with non-responder imputation). The secondary objective was to assess efficacy at Week 12 according to PASI90, compared to historical placebo. In addition, efficacy of SEC with respect to PASI75/90/100 and IGA mod 2011 0/1 responses over time up to Week 24 was evaluated. QoL was assessed by Children's Dermatology Life Quality Index (CDLQI) 0/1 response (last observation carried forward) over time and clinical safety up to Week 24. **RESULTS**: SEC was superior to historical placebo for the co-primary endpoints PASI75 and IGA mod 2011 0/1 and the key secondary endpoint PASI90. At Week 12, PASI75 response rate was 92.9% in both SEC LD and HD groups and IGA 0/1 response was 78.6% and 83.3%. The proportion of patients who achieved PASI90/100 responses at Week 12 were 69.0%/59.5% (for LD group) and 76.2%/54.8% (for HD) respectively.

Both SEC dose groups demonstrated continuous increase in PASI75/90/100 (95.2%/88.1%/66.7% for LD & HD) and IGA mod 2011 0/1 (88.1% for LD and 92.9% for HD) responses at Week 24. Moreover, at least half of the patients achieved CDLQI 0/1 by Week 12 (50.0% for LD and 61.9% for HD) and nearly two-third of the patients achieved CDLQI 0/1 at Week 24 (70.7% for LD and 60.5% for HD). TEAEs were low and comparable between the treatment arms and consistent with known safety profile from adult studies with no new safety signals observed. **CONCLUSIONS**: SEC demonstrated superior efficacy and a favorable safety profile with both dosing regimens up to Week 24 in pediatric patients with moderate to severe plaque psoriasis.

FUNDING: This investigation was sponsored by Novartis Pharma AG, Basel, Switzerland.

Abstract 80

Tapinarof Cream 1% Once Daily for Plaque Psoriasis: Favorable Local Tolerability in Two Pivotal Phase 3 Trials

Linda Stein Gold, MD[1]; Leon Kircik, MD[2,3]; Mark Lebwohl, MD[3]; Neal Bhatia, MD[4]; Matthew Zirwas, MD[5]; Seemal R. Desai, MD[6,7]; Philip M. Brown, MD, JD[8]; Anna M. Tallman, PharmD[8]; Matthew C. Somerville, MS[8]; Stephen C. Piscitelli, PharmD[8]; David S. Rubenstein, MD, PhD[8]

[1]Henry Ford Health System, Detroit, MI, USA; [2]Skin Sciences, PLLC, Louisville, KY, USA; [3]Icahn School of Medicine, Mount Sinai, New York, NY, USA; [4]Therapeutics Clinical Research, San Diego, CA, USA; [5]Bexley Dermatology, Bexley, OH, USA; [6]Department of Dermatology, The University of Texas Southwestern Medical Center, Dallas, TX, USA; [7]Innovative Dermatology, Plano, TX, USA; [8]Dermavant Sciences, Inc., Morrisville, NC, USA

AUTHOR INFORMATION:
Linda Stein Gold, MD
Henry Ford Health System, Detroit, MI, USA
Henry Ford Health System
6530 Farmington Rd, Ste 101
West Bloomfield,
MI 48322
800-436-7936
LSTEIN1@hfhs.org

BACKGROUND: Tapinarof is a novel therapeutic aryl hydrocarbon receptor modulating agent (TAMA) in development for the treatment of psoriasis and atopic dermatitis. Tapinarof cream 1% once daily (QD) demonstrated highly statistically significant and clinically relevant efficacy vs vehicle QD at 12 weeks and was well-tolerated in adults with mild to severe plaque psoriasis in two identical, pivotal, randomized, double-blind Phase 3 trials, PSOARING 1 (N=510) and PSOARING 2 (N=515).
OBJECTIVES: To assess the local tolerability of tapinarof, including when applied to sensitive and/or intertriginous areas, using patient-reported tolerability and investigator-assessed irritation scores.
METHODS: Adults with a baseline Physician Global Assessment (PGA) score of 2–4 and body surface area (BSA) involvement of ≥3–≤20% were randomized 2:1 to tapinarof cream 1% or vehicle QD for 12 weeks, with no anatomic restrictions on application. Local tolerability

was evaluated by patients and investigators at Weeks 2, 4, 8, 12, and 16 with scores representing an average across all application sites. Investigators assessed the degree of application-site irritation (dryness, erythema, and peeling) overall and in sensitive/intertriginous areas (anal crux, axillae, face, genitalia, inframammary, neck, and skin folds) using a 5-point scale of 0 (no irritation), 1 (mild), 2 (moderate), 3 (severe), or 4 (very severe). Patients reported burning/stinging and itching on a 5-point scale of 0 (none), 1 (slight), 2 (mild), 3 (moderate), or 4 (strong/severe) across application sites. Local tolerability data are presented for Weeks 2 to 12.

RESULTS: Tapinarof was well tolerated, with mean patient-reported local tolerability scores ranging from 1.1–2.0 in tapinarof and vehicle groups in both trials. Patients receiving tapinarof reported numerically better tolerability than vehicle with minimal differences between groups and across visits. In both trials, mean investigator-assessed irritation scores were low in tapinarof and vehicle groups both overall (0.1–0.2) and at sensitive/intertriginous areas (0.0–0.7), with minimal differences between groups or across visits.

CONCLUSIONS: Tapinarof cream 1% QD was well-tolerated as reported by patients and investigators, including when applied to sensitive/intertriginous areas. The combination of the previously reported highly significant efficacy and good tolerability of tapinarof supports the potential for lack of restrictions on site, duration, and extent of use, which could provide an effective long-term topical treatment option for patients with psoriasis. These data will be augmented by the long-term extension study of PSOARING 1 and PSOARING 2, which will provide safety, tolerability, efficacy, and long-term durability data for up to 52 weeks of treatment with tapinarof. Tapinarof cream 1% QD has the potential to be the first topical, non-steroidal psoriasis treatment with a novel mechanism of action in over 20 years.

Abstract 81

Tapinarof Cream 1% QD for the Treatment of Plaque Psoriasis: Efficacy and Safety in Two Pivotal Phase 3 Trials

Lebwohl Mark, MD[1]; Stein Gold Linda, MD[2]; Strober Bruce, MD, PhD[3]; Papp Kim, MD, PhD[4]; Armstrong April, MD, MPH[5]; Bagel Jerry, MD[6]; Kircik Leon, MD[1,7]; Ehst Benjamin, MD, PhD[8]; Hong H. Chih-ho, MD[9]; Soung Jennifer, MD[10]; Fromowitz Jeff, MD[11]; Guenthner Scott, MD[12]; Piscitelli Stephen C., PharmD[13]; Rubenstein David S., MD, PhD[13]; Brown Philip M., MD, JD[13]; Tallman Anna M., PharmD[13]; Bissonnette Robert, MD[14]

[1]Icahn School of Medicine, Mount Sinai, New York, NY, USA; [2]Henry Ford Health System, Detroit, MI, USA; [3]Yale University, New Haven and Central Connecticut Dermatology Research, Cromwell, CT, USA; [4]Probity Medical Research, Waterloo, ON, Canada; [5]Keck School of Medicine University of Southern California, Los Angeles, CA, USA; [6]Psoriasis Treatment Center of New Jersey, NJ, USA; [7]Skin Sciences, PLLC, Louisville, KY, USA; [8]Oregon Medical Research Center, Portland, OR, USA; [9]University of British Columbia and Probity Medical Research, Surrey, BC, Canada; [10]Southern California Dermatology, Santa Ana, CA, USA; [11]Dermatology of Boca, Boca Raton, FL, USA; [12]The Indiana Clinical Trials Center, PC, Plainfield, IN, USA; [13]Dermavant Sciences, Inc., Durham, NC, USA; [14]Innovaderm Research Inc., Montreal, QC, Canada

AUTHOR INFORMATION:
Mark Lebwohl, MD
Icahn School of Medicine, Mount Sinai, New York, NY, USA
Icahn School of Medicine at Mount Sinai,
5 E. 98th St., 5th Fl.,
New York,
NY 10029
(917) 822-8455
mark.lebwohl@mssm.edu

BACKGROUND: Tapinarof is a novel therapeutic aryl hydrocarbon receptor modulating agent (TAMA) in development for the treatment of psoriasis and atopic dermatitis.

OBJECTIVES: To assess the efficacy and safety of tapinarof cream 1% QD in patients with mild to severe plaque psoriasis in two identical, randomized, double-blind, vehicle-controlled trials.

METHODS: Adults with baseline Physician Global Assessment (PGA) score ≥2 and body surface area (BSA) involvement ≥3–≤20% were randomized 2:1 to tapinarof cream 1% or vehicle QD for 12 weeks. Primary efficacy endpoint was PGA response, defined as proportion of patients with PGA score of clear (0) or almost clear (1) and ≥2-grade improvement from baseline to Week 12; key secondary efficacy endpoint was ≥75% improvement in Psoriasis Area and Severity Index (PASI75) from baseline to Week 12. We report pivotal Phase 3 results for tapinarof cream 1% once daily (QD) in the treatment of plaque psoriasis.

RESULTS: 510 and 515 patients were randomized in PSOARING 1 and PSOARING 2; overall at baseline, 79.2% and 83.9% of patients had PGA of 3; mean PASI was 8.9 and 9.1; mean BSA was 7.9% and 7.6%, respectively. At Week 12, both efficacy endpoints were met with high statistical significance (all $P<0.0001$): PGA response rates in the tapinarof 1% QD groups vs vehicle were 35.4% vs 6.0% and 40.2% vs 6.3%; and PASI75 rates in the tapinarof 1% QD groups versus vehicle were 36.1% vs 10.2% and 47.6% vs 6.9%. Most adverse events (AEs) were mild or moderate, consistent with previous studies, and did not lead to study discontinuation. Most common AEs (≥5% in any group) were folliculitis, nasopharyngitis, and contact dermatitis.

CONCLUSIONS: Tapinarof cream 1% QD demonstrated highly statistically significant and clinically meaningful efficacy compared with vehicle for both primary and secondary efficacy endpoints and was well-tolerated. Tapinarof cream has the potential to provide physicians and patients with a novel non-steroidal topical treatment option that is effective and well-tolerated.

Abstract 82

Selective Inhibition of Tyrosine Kinase 2 (TYK2) With Deucravacitinib Compared With Janus Kinase (JAK) 1–3 Inhibitors

Anjaneya Chimalakonda, PhD; James Burke, PhD*; Lihong Cheng, MS; Ian Catlett, PhD; Aditya Patel, MD, MBA; Jun Shen, PhD; Ihab G. Girgis, PhD; Subhashis Banerjee, MD; John Throup, PhD

Bristol Myers Squibb, Princeton, NJ, USA

*Employee at time analysis was conducted.

BACKGROUND: Deucravacitinib is a novel, oral, allosteric agent that selectively inhibits intracellular signaling by binding to the TYK2 pseudokinase domain rather than the conserved active site in the kinase domain. The high functional specificity for TYK2 vs other signaling tyrosine kinases has been confirmed in cellular assays. Kinase specificity should provide a differentiated risk/benefit profile due to potent TYK2 inhibition and minimal activity against other kinases. In a 12-week Phase 2 trial in moderate to severe plaque psoriasis, deucravacitinib had a favorable safety profile, and 67%–75% of patients achieved Psoriasis Area and Severity Index (PASI) 75 after 12 weeks at doses ≥3 mg twice daily vs 7% with placebo (P<0.001).

OBJECTIVES: This study assessed the selectivity profile of deucravacitinib for TYK2 vs the related JAKs 1–3, compared with the approved JAK inhibitors tofacitinib (Tofa), upadacitinib (Upa), and baricitinib (Bari), at clinically relevant doses and plasma concentrations.

METHODS: In vitro whole-blood assays were developed to measure the activity of common intracellular pairings of signaling tyrosine kinases (JAK 1/3, JAK 2/2, and TYK2/JAK2). Deucravacitinib, Tofa, Upa, and Bari concentrations providing half-maximal inhibition (IC50) of relevant signaling readouts were determined. Whole-blood IC50 values were plotted against known pharmacokinetic profiles of these agents at doses evaluated in Phase 3 trials, including approved doses. Time durations that concentrations were greater than IC50 and projected average daily inhibition were evaluated.

RESULTS: At clinically relevant doses and exposures, deucravacitinib plasma concentrations were higher than the TYK2 whole-blood IC50 for a considerable part (8–16 hours) of the day. The maximal plasma concentration (Cmax) of deucravacitinib was >9- to 18-fold lower than the JAK 1/3 whole-blood IC50 and >52- to >109-fold lower than the JAK 2/2 whole-blood IC50, indicating lack of meaningful inhibition of JAK 1–3 by deucravacitinib at clinically relevant doses. Average daily inhibition of TYK2 by deucravacitinib ranged from 54% to 70%. Tofa, Upa, and Bari exhibited varying degrees of daily average inhibition against JAK 1/3 (70%–94%) and JAK 2/2 (23%–67%). Projected Cmax values of Tofa, Upa, and Bari were 17- to 33-fold lower than TYK2 IC50, indicating minimal or no meaningful inhibition of TYK2.

CONCLUSIONS: Deucravacitinib has high functional specificity for TYK2 at clinically relevant doses and plasma concentrations. In contrast, Tofa, Upa, and Bari variably inhibit JAK 1–3 but not TYK2 at clinically relevant concentrations. These results indicate that deucravacitinib is a distinct class of signaling kinase inhibitor compared with JAK 1–3 inhibitors. Ongoing studies in multiple immune-mediated inflammatory diseases including plaque psoriasis, psoriatic arthritis, lupus, and inflammatory bowel disease will further assess the safety and efficacy of deucravacitinib.

FUNDING: This analysis was sponsored by Bristol Myers Squibb.

ACKNOWLEDGEMENT: Professional medical writing from Ann Marie Fitzmaurice, PhD and editorial assistance were provided by Peloton Advantage, LLC, an OPEN Health company, Parsippany, NJ, and were funded by Bristol Myers Squibb.

RELATIONSHIPS AND ACTIVITIES: AC, LC, IC, AP, JS, IGG, SB, and JT are employees and shareholders of Bristol Myers Squibb; JB was an employee and shareholder of Bristol Myers Squibb at the time this analysis was conducted.

A SUPPLEMENT TO
cutis®
CUTANEOUS MEDICINE FOR THE PRACTITIONER