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Polymicrobial composition of psoriatic skin

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Psoriasis is a chronic inflammatory disease that affects ~2% of the population and is characterized by immune-mediated, keratinocyte hyperproliferation. Recently, the importance of the microbiome in psoriasis has been demonstrated using high throughput DNA-sequencing technologies. We report here associations between disease severity and the bacterial (ie bacteriome) and fungal (ie mycobiome) components of the cutaneous microbiome. Skin swab samples were obtained from involved and uninvolved psoriatic plaques of 67 patients. Disease severity was assessed by body surface area (BSA). Amplification of the 16S (bacterial) and ITS1 region (fungal) genes was performed using 16S 515f-804r and ITS1f and ITS2r primers, respectively. The targeted amplicons were sequenced using an Ion Torrent S5 system. Relative abundance was determined using non-parametric comparisons (Wilcoxon rank-sum test; Kolmogorov-Smirnov test). A positive correlation between disease severity and increased relative abundance of *Serratia marcescens*, *Escherichia coli*, and *Candida albicans* (P = .0360, 0.05, 0.0094, respectively) was observed. Higher *C. albicans* abundance has been linked to an altered immune response triggering inflammation in psoriasis. Healthy skin is typically resistant to *E. coli* owing to production of antimicrobial peptides by keratinocytes. Interestingly, an increased abundance of *C. albicans*, *E. coli*, and *S. marcescens* has also been described in the gut of patients with Crohn disease, an autoimmune disorder linked with psoriasis. Taken together, this data suggests that abundant organisms in psoriatic lesions increase the likelihood of polymicrobial interactions in the skin that may affect host immune responses.

Commercial disclosure: None identified.

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Secukinumab demonstrates sustained effectiveness and safety in patients with moderate to severe plaque psoriasis: 30-month follow-up data from the PURE registry

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Introduction: PURE, an international, prospective, observational study from Canada and Latin America, assesses real-world safety and effectiveness of secukinumab in patients with moderate to severe psoriasis (PsO) vs other approved therapies. This abstract describes clinical outcomes from an interim analysis in secukinumab-treated group, stratified by prior biologic experience over 30 months (M30) of treatment.

Methods: Approximately 2500 patients (1250 per cohort; first-patient-first-visit: Dec 2015) with chronic plaque Pso will be recruited by specialists. Clinical characteristics including Psoriasis Area and Severity Index (PASI) and Investigators Global Assessment (IGA) scores are evaluated at enrollment, Months 3 and 6, and every 6 months thereafter.

Results: As of 14 January 2019, 633 patients receiving secukinumab were enrolled (previous biologic exposure: 45.1%). Data from 556 patients (biologic-naïve, n = 308; biologic experienced, n = 248), who had ≥1 post-baseline visit with an assessment of a patient-reported outcome or safety evaluation was analyzed. The mean PASI score decreased from 13.6 ± 8.9 (naïve: 13.7 ± 8.6; experienced: 13.4 ± 9.3) at baseline (n = 554) to 2.1 ± 3.1 (naïve: 2.6 ± 3.8; experienced: 2.0 ± 2.9) at M30 (n = 66). The proportion of patients with PASI ≥3 and PASI ≥5 decreased from 96.4% and 89.0% at baseline to 25.4% and 14.9%, respectively, at M30 (n = 67). Dermatology Life Quality Index ≤1 (n = 59), IGA ≤1, PASI 90, and PASI 100 (all n = 67) were achieved by 45.8%, 65.7%, 58.2%, and 37.3%, respectively, indicating sustained efficacy and improvements in quality of life (QoL) at M30.

Discussion: Secukinumab treatment improved disease characteristics and QoL over time, consistent with phase 3 studies. Secukinumab was effective in both biologic-naïve and biologic-experienced patients, even though the former may experience greater benefits.

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A 4-week study to determine the safety in use and efficacy of a hydrating body cream and microdermabrasion paste on subjects with dry, rough, and bumpy skin texture

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Keratosis pilaris (KP) is a common condition that causes dry, rough patches and tiny bumps on the body's skin. It can't be cured but the symptoms can be minimized with the use of exfoliants and hydrating agents. A 4-week clinical study was performed to assess efficacy and safety of a hydrating body cream featuring 3-dimensional 3-polymer interpenetrating network (3D3P-IPN) alone or in conjunction with a microdermabrasion paste. The efficacy was measured with clinical grading during live and pictures analysis, hydration with conductance and self-assessment at baseline, and weeks 2 and 4. There was a significant improvement in skin hydration after 2 and 4 weeks in both groups as revealed by both conductance and clinical grading on tactile and visual skin texture. There were no statistical differences between regimens however directionally better results were noticed in microdermabrasion group. The picture comparison study showed gradual improvements in overall healthy-looking skin, radiance, and minor benefits on erythema, and tone evenness at week 2 and 4 evaluations. The subjects scored both regimens as safe and well tolerated with no stinging, burning, nor edema signs. A significant reduction in dryness, itching, roughness, and gradual improvements in softness, radiance, tone evenness, and overall better-looking skin was observed at weeks 2 and 4 compared with baseline. This study demonstrated that a body cream featuring 3D3P-IPN technology alone or with the addition of a microdermabrasion paste effectively replenishes hydration and improves the overall skin condition associated with Keratosis Pilaris.

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Association between an itch-free state in atopic dermatitis treated with ruxolitinib cream and systemic inflammatory mediators

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Atopic dermatitis (AD) is a chronic inflammatory skin disease characterized by significant pruritus leading to an impaired quality of life and sleep disturbances. Ruxolitinib cream is a selective JAK1/2 inhibitor that previously demonstrated a significant therapeutic benefit in a phase 2b trial (NCT03011892) of patients with mild to moderate AD. This analysis investigated the percent of subjects that achieved an itch free state and the corresponding changes in systemic inflammation. Data and sera from 89 participants in the ITT population from the phase 2b clinical trial of ruxolitinib cream in AD were analyzed. Patient-reported itch was assessed daily using a numerical rating scale (NRS; 0 to 10) and an itch-free state was defined as an NRS score of 0/1 at week 8. Sera were analyzed for broad proteomic changes using the OLINK proximity extension assay. A 2-sample t-test assessed unadjusted differences in change between participants achieving itch resolution versus those who did not. Significance was conferred at $p<0.05$. At week 8, the proportion of itch-free patients included in this analysis was 7.1% for vehicle and 14.3%/29.4%/27.3%/53.3% for ruxolitinib cream 0.15%QD/0.5%QD/1.5%QD/1.5% BID, respectively. Expression of 1012 proteins was evaluated for each participant and comparisons were made between itch-free and non-itch-free participants. A total of 53 proteins were more down-regulated in itch-free participants (n=22) compared to those with NRS itch scores >1 at week 8 (n=67), while 4 were more up-regulated. Reduced pruritus following treatment with ruxolitinib cream correlated with reduced systemic inflammation.

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