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IMMUNOLOGICAL MEMORY EXISTS IN THE RECURRENT LESION AND NONRECURRENT SKIN AFTER REMISSION IN PSORIATIC PATIENTS

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Introduction: Psoriasis usually recurs in previously affected areas, so a pathogenic memory has been proposed, but the nature of such site-specific recurrent memory is not completely known. Tissue-resident memory T (TRM) cells are non-recirculating memory T cells that persist long-term in epithelial tissues, including the skin. Because they can localize in the skin for many months, we speculate that TRM may contribute to recurrent pathology of psoriasis.
Objectives: The aim of the present study is to compare the differences of quantity proportion and secretion ability of cytokines of the TRM cells between recurrent and nonrecurrent lesions following remission, as well as to explicit the possible survival signal for these TRM cells in psoriatic lesion.
Methods: RNA-Seq, Gene Ontology and KEGG analysis, real-time PCR, flow cytometer analysis/sorting, cell stimulation assay, and western blot were used to explore the immunological memory.
Results: Compared with normal skin, there are common shared genes significantly upregulated (> 2 folds, $p < 0.001$) by recurrent and nonrecurrent lesions, including CD69. CD69 mRNA transcription level in nonrecurrent lesions after remission remains as high as in neighboring recurrent lesions. CD8+CD69+ TRM cells exist in both lesions, and they can secret almost same amount of IL-17A and IL-22 after stimulation. Levels of IL-15, secreted by keratinocytes in psoriasis epidermis, in nonrecurrent lesions remain as high as in neighboring recurrent lesions, and recombinant human IL-15 can induce CD69 on TRM cells.
Conclusions: Our preliminary study shows that CD8+CD69+ TRM cells persist in clinically resolved psoriatic lesions whether it recurs or not, and they can produce IL-17A and IL-22 with critical effect on psoriatic recurrence and development. Furthermore, we have indicated the IL-15 may play crucial role in the survival of CD8+CD69+ TRM cells in psoriatic lesions.
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P101

INVESTIGATING SYSTEMIC INFLAMMATION AS THE COMMON LINK BETWEEN DEPRESSION, PSORIASIS, AND PSORIATIC ARTHRITIS IN US VETERANS

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Introduction: Psychosocial factors are important in the onset and/or exacerbation of psoriasis in 40% to 80% of cases. Psoriasis has been associated with suicide, and an increased prevalence of alcoholism and a range of personality characteristics.
A recent systematic meta-analysis of 98 eligible studies with a total of 401,703 psoriasis patients showed that patients with psoriasis were approximately one and a half times more likely to exhibit signs of depression compared with healthy controls. [1].
Emerging evidence suggests that depression, like psoriasis, is associated with systemic inflammation, and the systemic inflammatory profile of the two conditions show similar traits. Depression is considered to have a strong inflammatory component, similar to psoriasis, e.g. interleukin (IL)-2, IL-6, IL-12, and tumour necrosis factor (TNF)-α [2–5].
US Veteran population has increased incidence of mental health issue as compared to general population. making Veteran group a unique population that warrants investigation.
Objectives: Hypotheses - 1/ Veterans with concomitant depression and psoriasis/PsA may have elevated inflammatory markers like CRP, ESR, and SPEP. 2/ Depression may improve with the treatment of psoriasis/psoriatic arthritis without antidepressant use.
Methods: A 36-month retrospective chart review of 100 veterans with diagnosis of depression and psoriasis/psoriatic arthritis. Elevated inflammatory markers, including sedimentation rate, C-reactive protein (CRP) and serum protein electrophoresis (SPEP), as well as longitudinal disease course of depression (PHQ-8) and psoriasis/psoriatic arthritis (HAQ-DI); specifically disease activity, and depression symptoms will be assessed. We then aim to draw a correlation between disease activity and active depressive symptoms.
Results: to be available
Conclusions: to be available
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P102

THE IMMUNE-PHENOTYPE OF SMALL PLAQUE PSORIASIS

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Introduction: Small plaque psoriasis (SPP) is a subtype of psoriasis first described by Griffiths et al (2007). It resembles guttate psoriasis but lesions are larger, are chronic, and are not associated with streptococcal infection. We have observed SPP develop in four different population groups; patients under TNFα-inhibitor therapy, patients under immune checkpoint inhibitor (ICI) therapy, and patients with concurrent SLE or ANA positivity and psoriasis. Subtypes of psoriasis develop on a spectrum between autoimmune and auto-inflammatory responses and an interplay between three signalling pathways are involved in their distinct pathogenesis. Chronic plaque psoriasis lesions are on the autoimmune spectrum, dominated by a T-cell mediated TNFα/IL-23/IL-17/IL-22 axis. Pustular psoriasis is a neutrophilic infiltrative inflammatory skin disease resulting from dysregulation of the IL-36/IL-1 axis. Lastly, TNFα-inhibitor (TNFi) induced lesions have a SPP morphology and demonstrate increased expression of LL37 by keratinocytes, activated plasmacytoid dendritic cells and upregulated type-1 interferons (IFN). These lesions express fewer epidermal CD8 T cells.
Objectives: Our aim is to characterize the immune-phenotype of SPP in multiple clinical scenarios. We hypothesize that SPP develops as a result of increased expression of cytokines and antimicrobial peptides involved in the type-1 IFN pathway.
Methods: Skin biopsies were obtained from three patients with

TNFi-induced psoriasis, three patients with SLE and psoriasis, three patients with positive ANA and psoriasis, two patients with ICI-induced psoriasis and two patients with chronic plaque psoriasis as control. Immunohistochemistry was performed using antibodies against type-1 IFN induced MXA, LL37, IL-36 and CD8 T cells. The intensity and the area of positively stained samples were each graded from 0–4 and then multiplied to provide a final score.
Results: Small plaque lesions in various clinical scenarios had histologic changes consistent with psoriasis.. Immunohistochemical evaluation revealed an increased expression of MXA (TNFi = 14, SLE = 13.3, ANA = 11.3, ICI = 16 vs. control = 6, t-test $p < 0.05$), LL37 (TNFi = 10.8, SLE = 6, ANA = 9.7, ICI = 12 vs. control = 2, t-test $p < 0.05$) and IL-36 (TNFi = 10.5, SLE = 13.3, ANA = 11, ICI = 7, control = 0.25, t-test $p < 0.05$) in the keratinocytes of SPP patients. There was decreased CD8 T cell migration to the epidermis in SPP compared to control.
Conclusion: This is the first study to describe the immune-phenotype of SPP and to extend the phenotype observed in TNFi induced psoriasis to varying clinical scenarios. There was an increased expression of MXA, LL-37 and IL-36 as well as fewer epidermal CD8 T cells than in chronic plaque psoriasis consistent with the type-1 IFN pathway of psoriasis pathogenesis. This immune-phenotypic analysis may suggest tailored therapy for this form of psoriasis.

P104
SERUM GLUCOCORTICOID-INDUCIBLE KINASE-1(SGK1) LEVELS IN PATIENTS WITH PSORIATIC ARTHRITIS

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Introduction: Psoriatic arthritis (PsA) is an inflammatory rheumatic disorder that occurs in patients with psoriasis. The etiology of PsA is not well understood but evidence supports an interplay of genetic, immunologic, and environmental factors which promote pathological bone remodeling and joint damage in PsA. The glucocorticoid-inducible kinase-1(SGK1) is genomically upregulated by cell stress. However, excessive SGK1 expression and activity participates in the pathophysiology of several disorders, such as inflammation, autoimmune disease, fibrosis, hypertension, thrombosis and tumor growth.
Objectives: In this study, we analyzed the possible role of serum SGK-1 levels in the pathogenesis of psoriatic arthritis.
Methods: 56 patients with psoriasis (40 patients with psoriatic arthritis; 16 female, 24 male, mean age; 46.7 ± 6.5 years, mean disease duration 17.7 ± 4.3 years and 16 patients without arthritis; 8 female, 8 male, mean age; 43.2 ± 1.9 years, mean disease duration; 14.1 ± 3.9 years) and 19 healthy controls (11 female, 8 male; mean age 41.3 ± 4.7 years) were enrolled in this study. Oligoarthritis was the commonest clinical presentation (76.4 %). Dactylitis (73.4%) and enthesitis (48.1%) were frequent extra-articular features. All patients were negative for rheumatoid factor. HLA-B27 was negative in 14 patients. Serum SGK-1 levels were determined by ELISA.
Results: The mean serum SGK-1 levels were 58.4 ± 18.1 pg/ml in healthy controls, 163.7 ± 27.8 pg/ml in patients without arthritis and 443.9 ± 32.1 pg/ml in patients with arthritis. Serum SGK-1 levels were significantly high in patients with psoriasis compared with healthy controls ($p < 0.001$). Serum SGK-1 levels were significantly high in patients with psoriatic arthritis compared with in patients without psoriatic arthritis ($p < 0.001$).
Conclusions: The evidence is strong that immunological mechanisms are involved in the pathogenesis of psoriasis. In this study, we demonstrated that serum SGK-1 levels were significantly elevated in patients with psoriasis and psoriatic arthritis.

P105
DIFFERENTIAL NH2-TERMINAL AUTOANTIGEN TRIMMING MAY EXPLAIN EPISTASIS BETWEEN HLA-C*06:02 AND ERAP1 VARIANTS IN PSORIASIS RISK

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Introduction: NH2-terminal trimming by endoplasmic reticulum aminopeptidase 1 (ERAP1) generates the appropriate length of antigenic peptides for binding to and presentation by HLA-class I molecules. Genetic interaction between ERAP1 variants and HLA-class I alleles determines the genetic risk for various HLA-class I-associated inflammatory diseases. Epistasis between HLA-C*06:02 and ERAP1 variants affects also psoriasis risk but the mechanisms of these gene interactions remained unknown. Using a pathogenic Vα3S1/Vβ13S1-TCR from a psoriatic CD8+ T-cell clone we had shown that in psoriasis, HLA-C*06:02 mediates an autoimmune response against melanocytes through autoantigen presentation and we had identified a peptide from ADAMTS-like protein 5 (ADAMTSL5) as HLA-C*06:02-presented melanocyte autoantigen.
Objectives: To determine the role of ERAP1 variants in psoriasis pathogenesis.
Methods: We established ERAP1 knockout cells using CRISPR/Cas9 system. ERAP1 knockout cells transfected with plasmids coding for HLA-C*06:02, ERAP1 variants, and antigenic peptides were co-cultured with the TCR hybridoma to determine the levels of TCR ligation which reflect the generation of the antigenic ADAMTSL5 peptide and other Vα3S1/Vβ13S1-TCR ligands from precursors.
Results: Our data show that NH2-terminal trimming by ERPA1 is required to generate the actual antigenic ADAMTSL5 peptide from NH2-terminally elongated precursors. An ERAP1 variant protecting from psoriasis reduced the immunogenicity of the antigenic ADAMTSL5 peptide presumably through overtrimming and peptide destruction, whereas a psoriasis risk variant of ERAP1 highly kept the antigenicity of the autoantigen. This effect was specific for ADAMTSL5. Precursors of other Vα3S1/Vβ13S1-TCR self-ligands were not substrates of ERAP1.
Conclusions: Using a proven psoriatic autoantigen and a cognate psoriatic TCR, these experiments provide direct evidence that gene-gene interaction between ERAP1 and HLA-C*06:02 affects the risk for psoriasis through differential autoantigen trimming from precursors. These data furthermore propose a model where ERAP1 function essentially controls the autoantigenic potential of self-peptides in HLA-class I associated CD8+ T-cell mediated autoimmune diseases.

P106
ENVIRONMENTAL TRIGGERS OF AN HLA-C*06:02-RESTRICTED AUTOIMMUNE RESPONSE IN PSORIASIS

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Introduction: Psoriasis vulgaris is a multifactorial disease. While the major psoriasis risk gene HLA-C*06:02 accounts for up to 50% of disease onset, environmental factors are considered to contribute to approximately 30% of disease risk. Psoriatic skin inflammation is driven by an HLA-C*06:02-mediated autoimmune response against melanocytes. A pathogenic Vα3S1/Vβ13S1 T-cell receptor (TCR), which we had reconstituted from a lesional epidermal $CD8^+$ T-cell clone of an HLA-C*06:02–positive psoriasis patient in a mouse reporter hybridoma cell line, specifically reacts against melanocytes through HLA-C*06:02 restricted recognition of a psoriatic melanocyte autoantigen, ADAMTS-like protein 5 (ADAMTSL5). However, it is unknown whether and how environ-

mental factors may contribute to autoimmunity in psoriasis. TCRs are known to be polyspecific, recognizing multiple peptide ligands which share a conserved amino acid pattern specific for each TCR.
Objectives: To examine the potential role of environmental factors in the psoriatic autoimmune response.
Methods: We first determined the particular amino acid motif which is recognized by the psoriatic Vα3S1/Vβ13S1 TCR in the context of HLA-C*06:02. By homology searches using this conserved amino acid pattern, we selected 57 peptides from food, bacterial, fungal and viral pathogens and from the skin and intestinal microbiomes as candidate environmental antigens that may trigger the psoriatic autoimmune response. We cloned the peptides into expression plasmids, co-transfected them with HLA-C*06:02 into Cos7 cells and used them to stimulate the Vα3S1/Vβ13S1 TCR. TCR ligation was determined by GFP induction of TCR hybridoma in FACS analysis. We then stimulated blood lymphocytes with the candidate peptides that had ligated the Vα3S1/Vβ13S1 TCR. Lymphocyte activation was assessed by induction of activation markers and proliferation assays using thymidine incorporation.
Results: We identified a variety of peptides contained in proteins from food (wheat, coffee, apple, and spinach), microbiota of human skin or gut, and infectious pathogens including *Chlamydia trachomatis*, which ligated the psoriatic TCR in a polyspecific manner. Stimulation of blood lymphocytes with particular candidate antigens resulted in significant activation in psoriasis patients, as compared to healthy individuals. Interindividual-correlation analyses demonstrated cross-reactive immune responses between environmental antigens and the melanocyte autoantigen presented by HLA-C*06:02 in psoriasis patients. Among the candidate antigens, wheat peptides induced most robust lymphocyte activations in psoriasis patients. Moreover, psoriasis was significantly improved by wheat-free diet in several patients with lymphocytes responding to wheat, indicating potential pathogenic contribution of wheat antigens in psoriasis.
Conclusions: Our results provide unbiased evidence that several environmental antigens may trigger the melanocyte-specific autoimmune response in psoriasis. By identifying and avoiding those triggers at the molecular level which translate the genetic predisposition into disease manifestation, we may develop strategies to prevent disease onset and exacerbation.

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A SKEWED POOL OF RESIDENT T CELLS TRIGGERS DISEASE-ASSOCIATED TISSUE RESPONSES IN NEVER-LESIONAL PSORIASIS

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Background: Psoriasis lesions evolve as a result of cytokine driven interactions between intralesional immune cells and keratinocytes in genetically predisposed individuals. Skin resident T cells are implicated in maintenance and recurrence of psoriasis plaques but their composition and function in never-lesional psoriasis skin is less known.
*Objective:*Characterisation of T cell driven tissue responses and subsets of resident T cells in never-lesional psoriasis.
Methods: T cell driven tissue responses were assessed in explanted skin biopsies using Nanostring and Multiplex analysis. Epidermal and dermal T cells were characterised using flow cytometry in never-lesional skin from patients with mild disease.
Results: T cell activation induced epidermal psoriasiform- and type-1 interferon tissue responses in explants from never-lesional skin. Skin resident T cells were skewed with enrichment of epidermal IL-17 and IL-22 producing CD4+CCR6+ and CD8+CD103+CD49a- T cells and IFN-γ producing CD4 T cells in never-lesional skin compared to healthy skin. Keratinocytes from never-lesional psoriasis responded to IFN-γ activation with IFN-α secretion and MX1 upregulation and skin explants exposed to common fungal antigens produced the CCR6-attractant CCL20.
Conclusion: Resident T cells poised to induce psoriasiform tissue responses accumulate in never-lesional skin of psoriasis-afflicted individuals. Additionally our data suggest that microbial interplay with genetically predisposed keratinocytes may shape the local pool of resident T cells.
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P108

NAIL INVOLVEMENT IN PSORIASIS; IS IT A PREDICTOR OF PSORIATIC ARTHRITIS?

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Introduction: Psoriatic Arthritis (PsA) arises in an increased burden of psoriasis and impairments in both quality of life and functional capacity. The relationship between nail involvement and PsA in psoriasis is not fully characterized.
*Objective:*To evaluate the frequency and characteristics of nail involvement in psoriatic patients and to assess the relationship with joint involvement.
Methods: A total of 197 patients with moderate-to-severe psoriasis, were consecutively selected to participate in this cross-sectional study. The patients divided into two groups; with and without psoriatic arthritis.
Results: 69.5% of psoriatic (137 out of 197) patients had nail involvement. The most common nail abnormality was onycholysis, followed by pitting and oil drop. Nail changes were more common in patients with psoriatic arthritis (82.1% vs. 57.8%).
Limitations: Our study had certain limitations. One of them was lack of information about the subtypes of PsA. Also, we have not recorded the severity of nail involvements. Furthermore, previous medications may have interfered with the degree of nail changes in our patients.
Conclusion: Nail involvement is associated with PsA. Onycholysis, splinter hemorrhage, and oil drop were significantly more common in PsA group. In general, psoriatic patients with arthritis had the more severe disease.
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P109

ABSOLUTE AND RELATIVE PASI IMPROVEMENTS WITH IXEKIZUMAB TREATMENT: RESULTS AT WEEK 12 FROM IXORA-P

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Introduction and Objectives: Ixekizumab (IXE), an interleukin-17A antagonist, has shown superior efficacy in psoriasis compared to placebo,1 etanercept,1 and ustekinumab.2 This post hoc analysis intended to evaluate absolute and relative Psoriasis Area and Severity Index (PASI) improvements with IXE treatment in a phase 3 trial (IXORAP).

Methods: In IXORA-P, patients with moderate-to-severe psoriasis were randomized (2:1:1) to receive any of the 3 dosing regimens of IXE 80 mg: every 2 weeks (Q2W; $n = 611$), every 4 weeks (Q4W; $n = 310$), or Q4W/Q2W step-up ($n = 306$), for 52 weeks. Randomization was stratified by country and weight (< 80 kg, ≥80 to < 100 kg, or ≥100 kg). The percentage of patients achieving a 75%, 90% or 100% improvement from baseline in PASI (PASI 75, 90, and 100) was evaluated using logistic regression with dosing regimen, country, and baseline weight as factors. Fisher's exact test with nonresponder imputation was used to compare the response rates between treatment groups. Here, we present results at 12 weeks for Q2W (label dose) and Q4W groups; results from Q4W/Q2W group will be discussed separately.

Results: Mean (standard deviation) PASI score at baseline was 20.3 (8.25). Response rates were significantly higher ($p < 0.001$) for Q2W group compared to Q4W group across all cut-off points for absolute PASI: absolute PASI ≤1, 2, 3, and 5 response rates at Week 12 were 61.4%, 76.1%, 84.5%, and 89.4%, respectively, for Q2W group, and 49.7%, 64.5%, 72.6%, and 83.9%, respectively, for Q4W group. At Week 12, PASI 75 response rates in Q2W and Q4W groups were 89.2% and 83.2%, respectively ($p = 0.012$). For Q2W and Q4W groups, PASI 90 response rates were 75.3% and 63.2%, respectively ($p < 0.001$), and PASI 100 response rates were 46.0% and 32.6%, respectively ($p < 0.001$).

Conclusion: As reported in psoriasis registration trials, induction with IXE Q2W, the labeled dosing regimen, provides better clinical outcomes at Week 12.

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P110

PREVALENCE AND SEX DIFFERENCES OF PSORIATIC ARTHRITIS IN PATIENTS WITH SEVERE PLAQUE PSORIASIS.

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Background: Prevalence of psoriatic arthritis in patients with psoriasis has conflicting data in different population. But no study has been performed in Russian population of prevalence and sex differences of psoriatic arthritis in patients with severe plaque psoriasis.

Objectives: to evaluate the prevalence PsA in patients (pts) with PsO in a dermatological hospital cohort.

Methods: 890 pts (Male-516/Female-374) with severy plaque PsO, mean age 50.4±17.6 years, mean PsO duration 21.5±14.7, mean PASI 49.4±0.5 were included. 374 female were divided into groups by age. 113 young F. pts with age less than 49 years (mean age 36.1±11.0 years), 261 old F. pts with age more than 50 years (mean age 63.7±9.6 years). 516 male were divided into groups by age. 304 young M. pts with age less than 54 years (mean age 38.5±11.3 years), 212 old M. pts with age more than 55 years (mean age 38.5±11.3 years) were included. PsO and PsA pts were identify in hospital Database reporting and coding by International Statistical Classification of Disease and Related Health Problems (ICD-10) between 2010 - 2015 years. PSA was diagnosed after appointment with a rheumatologist and an X-ray examination. Diagnosis was carried out according to the criteria of CASPAR. M±m, t-test, x2, (%) were calculated. All $p < 0.05$ were considered to indicate statistical significance.

Results: 303 out of 890 pts (34.0%) had psoriatic arthritis (PsA). PsA pts were older then PsO pts without arthritis – 55.3±13.7 years and 50.4±17.6 years accordingly ($p < 0.001$). PsA was found significantly often in F. pts compare to M. pts – in 143 out of 374 pts (38.2%) and in 129 out of 516 pts (25.0%) accordingly ($p < 0.05$). PsA was found significantly often in F. pts over 50 years old (y.o.) compare to F. pts under 50 y.o. – in 134 out of 261 pts (51.3%) and in 9 out of 113 pts (7.9%) accordingly ($p < 0.05$). In old M. and young M. PsA was found in the same cases - in 58 out of 212 pts (27.3%) and in 71 out of 304 pts (23.3%) accordingly ($p > 0.05$).

Conclusions: PsA was detected in more than a third of patients with severe plaque psoriasis. PSA was found predominantly often in F. pts over 50 years of age with severe plaque psoriasis. Future investigation in this field is needed to determine the causes of high risks PSA in this age group.

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SKIN LESION SEVERITY IN EARLY AXIAL AND PERIPHERAL PSORIATIC ARTHRITIS PATIENTS

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Introduction: Comparative analysis of skin lesion severity in early PsA patients with and without axial involvement hadn't been sufficiently studied.

*Objective:*to compare skin lesion severity of two early peripheral PsA patient populations – with and without axial involvement.

Methods: 95 patients (pts) (M/F–47 /48) with early PsA according to CASPAR criteria were included; all pts had peripheral arthritis for ≤2 years; no inflammatory back pain (IBP) pts were specially selected. Mean age 36.5±10.7 yrs, disease duration 12.2±10.3 mo, disease activity indexes DAS = 4.0±1.4, DAS28 = 4.2± 1.1, BASDAI = 4.5±1.6. Skin lesion severity was evaluated in terms of body surface area (BSA) affected and Psoriasis Area Severity Index (PASI). When BSA was ≥3%, PASI was calculated. PASI ≥11 indicates moderate and severe psoriasis.

All pts were evaluated for the presence of inflammatory back pain (IBP) by ASAS criteria. IBP was observed in 63 (66.3%) cases. Magnetic resonance imaging (MRI) of SIJs was performed in 79 pts, regardless of the presence of IBP, on Signa Ovation 0,35T. MRI results were evaluated by an independent reader. Bone marrow edema on MRI (STIR) was considered as active MRI sacroiliitis (MRI-SI). MRI-SI was detected in 28 of 79 (35.4%) examined cases. The examination also included X-ray of sacroiliac joints (SIJs) (pelvic radiographs). Radiographic sacroiliitis (R-SI) was considered according to New York criteria (unilateral grade≥3 or bilateral grade≥2). R-SI was found in 29 (30.5%) cases. Pts were split into two groups: those with axial involvement (axPsA), that is with IBP and/or MRI-SI and/or R-SI; and those without axial involvement (having only peripheral PsA [pPsA]). The axPsA group included 65 (68.4%) cases, the pPsA one 30 (31.6%) cases.

Results: skin lesions' severity was higher in the axPsA group than in the pPsA group: in axPsA pts BSA median was 3.0 [1.0 – 9.0] and in pPsA pts it was 1.0 [0.2 – 3.0] (p = 0.007); in the axPsA group PASI median was 15.6 [6.6 – 55.2] and in the pPsA group it was 6.0 [0.0 – 7.2] (p = 0.006).

Conclusion: Axial involvement in early PsA patients is associated with skin lesions' severity. These findings may have a positive impact on the selection of the best therapeutic strategy.

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GASTROINTESTINAL SYMPTOMS ARE COMMON IN U.S. PATIENTS WITH MODERATE-SEVERE PSORIASIS

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Background/Objective: Patients with moderate-to-severe plaque psoriasis (PsO) are at increased risk of developing inflammatory bowel disease (IBD). A survey was conducted to evaluate the prevalence of gastrointestinal symptoms in PsO patients.

Methods: An electronic survey was available to U.S. PsO patients with data collected from Jan-Feb. 2017. Patients with moderate-to-severe plaque PsO and healthy controls (HC), with common co-morbidities allowed in both groups qualified for inclusion in the survey. Psoriasis patients were further categorized as those without recent exposure to biologic therapy (PsO-) vs those with recent (within 4 months) biologic exposure (PsO+). GI symptoms and signs, including frequency and severity, were compared across groups. CalproQuest (CPQ) scores, which have recently been proposed as a tool to identify patients with elevated fecal calprotectin levels and increased risk for IBD, were also calculated. Patients with inflammatory bowel disease (IBD), inflammatory bowel syndrome (IBS), or other gastrointestinal (GI) diagnoses with symptoms that overlap with IBD were excluded.

Results: Overall, 915 patients with self-reported moderate-severe PsO and 1,411 healthy controls participated. Demographics were generally comparable between groups. GI symptoms and signs were significantly more prevalent in the PsO- and PsO+ groups vs the HC group, respectively: pain- 20.6% and 36.9% vs 10.5%; fullness/bloating- 37.2% and 48.4% vs 25.3%; and diarrhea (16.3% and 29.3% vs 12.2% (all p-values = 0.002 except diarrhea for PsO- vs HC, $p = 0.023$). Mucous and blood in the stool followed a similar pattern. A significantly greater percentage of PsO- and PsO+ patients had positive CPQ scores vs HCs, with the greatest percentage of positive CPQ scores in the PsO+ group.

Conclusion: GI symptoms and signs are common in patients with moderate-to-severe PsO, more so than in healthy controls. This suggests that physicians caring for patients with PsO may consider assessing for GI symptoms and signs, and monitoring for their progression with treatment of PsO to identify patients potentially at risk for developing IBD.

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SECUKINUMAB'S LONG-TERM SAFETY REMAINS FAVORABLE UP TO 5 YEARS OF TREATMENT

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Introduction and Objectives: Psoriasis is a condition typically requiring long-term treatment, thus longitudinal data establishing the safety of approved therapies are required. We report exposure adjusted incidence rates (IRs per 100 patient years) for treatment-emergent adverse events (AEs) per year of treatment from a pooled analysis of all secukinumab psoriasis trials to date (19 studies, 4,674 patients, 10,061 patient-years exposure; secukinumab exposure up to 5 years).

Methods: AE IRs were examined per year for subjects receiving secukinumab, and for 52 weeks only for those receiving etanercept (ETN), ustekinumab (UST), or placebo (PBO).

Results: Duration of exposure through 52 weeks of secukinumab treatment 300 mg, ETN 50 mg, UST 45/90 mg, and PBO was 1467.4, 296.9, 318.1, and 301 patient-years, respectively. Exposure duration through 2, 3, 4, and 5 years of secukinumab 300 mg treatment was 859.6, 423, 377.5, and 90 patient-years.

Over 52 weeks for secukinumab, ETN, UST, and PBO, respectively, exposure adjusted IRs were overall comparable across treatments: total AEs (275.6, 245.7, 252.2, 355.8); nasopharyngitis (28.4, 35.9, 31.2, 35.9); headache (12.6, 15, 14.6, 23.7); upper respiratory infections [URI] (9.1, 5.9, 9.9, 8.8); opportunistic infections (0.2, 0.3, 0.3, 0.3); *Candida* infections (4.7, 1.4, 1.6, 1.7); neutropenia (0.5, 1.4, 0, 0); major adverse cardiovascular events [MACE] (0.5, 0.3, 0.3, 1.3); Crohn's disease (0.1, 0, 0, 0); ulcerative colitis (0.1, 0.3, 0, 0); and malignant or unspecified tumors [excluding non-melanoma skin cancer [NMSC]] (0.4, 0.3, 0.3, 0.3).

Secukinumab 300 mg pooled safety remained favorable over time with no increases in AEs (exposure adjusted IRs for up to Year 1 to Year 5, respectively): total AEs (275.6, 168.1, 160.2, 111.9, 13.9); nasopharyngitis (28.4, 21.2, 24.1, 11.8, 3.4); headache (12.6, 5.4, 4.3, 4.9, 0); URI (9.1, 7.3, 6.1, 5.5, 0); opportunistic infections (0.2, 0.1, 0, 0, 0); *Candida* infections (4.7, 3.6, 1.9, 1.3, 1.1); neutropenia (0.5, 0.1, 0, 0, 0); MACE (0.5, 0.1, 0.5, 0, 0); Crohn's disease (0.1, 0, 0, 0, 0); ulcerative colitis (0.1, 0.4, 0.2, 0.3, 0); and malignant or unspecified tumors [excluding NMSC] (0.4, 0.4, 0.2, 0, 0).

Conclusions: This comprehensive pooled analysis supports the favorable long-term safety profile of secukinumab in patients with psoriasis; no new safety signals were identified for up to 5 years of treatment and secukinumab's safety profile was consistent with that established in a large phase 3 program.

Findings previously published at the AAD Annual Meeting, February 16–20, 2018, San-Diego, California.

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IMPACT OF IMPROVEMENT IN SKIN AND JOINT ON QUALITY OF LIFE IN ACTIVE PSORIATIC ARTHRITIS PATIENTS

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Introduction: Psoriatic arthritis (PsA) is a chronic immune-mediated inflammatory disease affecting peripheral and axial joints. For patients with active psoriasis, the added burden of skin disease can further reduce health-related quality of life (HRQoL) of patients with joint disease.

Objective: To determine the contribution of joint and skin improvements in HRQoL of patients with active PsA during Phase 3 clinical trials investigating ixekizumab (IXE) treatment.

Methods: The double-blind Phase 3 trials (SPIRIT) investigated the treatment of IXE, a high-affinity monoclonal antibody selectively targeting interleukin-17A, for patients with active PsA. The integrated database of 2 SPIRIT trials consisted of biologic disease-modifying antirheumatic drug (DMARD)-naïve patients (SPIRIT-P1, NCT01695239) or inadequate responders to tumor necrosis factor (TNF)-inhibitors (SPIRIT-P2, NCT02349295). Patients were randomized to 80mg IXE every 4 weeks (Q4W,

$n = 229$) or 2 weeks (Q2W, $n = 226$) after a 160mg starting dose or placebo (PBO, $n = 224$). At baseline and Week 24, joint and skin diseases were measured by the Disease Activity index for PSoriatic Arthritis (DAPSA; calculated post-hoc) and Psoriasis Area and Severity Index (PASI), respectively. HRQoL was measured by EuroQoL 5 Dimensions Visual Analog Scale (EQ-5D VAS), Short Form-36 Health Survey (SF-36), and Work Productivity and Activity Impairment-Specific Health Problem (WPAI). The synergistic contribution of skin and joint improvements to HRQoL was modeled using smoothing spline method and depicted with response surface. Missing data were imputed using last observation carried forward.

Results: Of 679 PBO- and IXE-treated patients in the SPIRIT trials, 402 (65%) and 224 (36%) patients had ≥3% body surface area (BSA) and ≥10% BSA psoriasis at baseline, respectively. In these patients, we applied response surface modeling to investigate the relationship among DAPSA, PASI, and change from baseline in EQ-5D VAS at Week 24. The greatest improvement in EQ-5D VAS was associated with the largest percent improvements in both DAPSA and PASI together, rather than DAPSA or PASI alone. Similar observations, regardless of ≥3% or ≥10% BSA baseline psoriasis, were made in domains of SF-36 (General Health, Physical Functioning, Social Functioning, and Vitality; data not shown) and WPAI (Activity Impairment; data not shown).

Conclusion: For PsA patients with psoriasis, optimal improvements in patients' HRQoL, as measured by select domains of patient-reported outcomes, were dependent on successful treatment of both joint and skin symptoms.

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P115

SECUKINUMAB SHOWS HIGH AND SUSTAINED EFFICACY IN SUBJECTS WITH MODERATE TO SEVERE PALMOPLANTAR PSORIASIS: 2.5-YEAR RESULTS FROM THE GESTURE STUDY

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Introduction: Palmoplantar psoriasis (ppPsO) occurs in up to 40% of plaque psoriasis subjects and is often resistant to treatment. It is associated with pain, functional limitations, and greater impairment of health related quality of life compared with plaque psoriasis on other parts of the body (1). Secukinumab, a fully human monoclonal antibody which selectively neutralises IL-17A, has shown long lasting efficacy and safety in the complete spectrum of psoriasis manifestations, including nails, scalp, palms and soles and psoriatic arthritis.

Objectives: Here we report, the long-term follow-up efficacy and safety results from the GESTURE study, the first robust (2.5-year) data reported in subjects with moderate to severe ppPsO treated with secukinumab.

Methods: GESTURE is a double blind, randomised, placebo-controlled, parallel-group, multicentre phase 3b study to investigate safety and efficacy of secukinumab 150 and 300 mg s.c. in 205 subjects with moderate to severe ppPsO.

Results: As previously reported, after 16 weeks placebo-controlled treatment, the primary endpoint palmoplantar Investigator's Global Assessment (ppIGA) 0/1 and all secondary endpoints of this study were met, demonstrating superiority of secukinumab to placebo at week 16 (2). An interim analysis at week 80 established the continuation improvement of palmoplantar disease for all efficacy parameters. The effect was sustained through 2.5 years with 59.2% and 52.5% of subjects in secukinumab 300 and 150 mg groups, respectively [multiple imputation (MI)] achieving clear or almost clear palms and soles (ppIGA 0/1). Consistent with this observation, the mean palmoplantar Psoriasis Area and Severity Index % change from baseline reached –74.7% and –61.6% for secukinumab 300 and 150 mg, respectively, at 2.5 years (MI). The Dermatology Life Quality Index 0/1 response, was achieved in 45.5% vs. 23.9% of subjects for secukinumab 300 and 150 mg groups respectively (LOCF). Pain and function of palms and soles was markedly improved with secukinumab; as reflected by the Palmoplantar Quality of Life Instrument overall scores with 16.7% and 17.9% subjects experiencing no difficulty in hand and feet functionality in secukinumab 300 mg and 150 mg groups respectively (LOCF). The safety profile was consistent with that seen in secukinumab phase 3 trials. The most common adverse events across all treatment arms were nasopharyngitis, upper respiratory tract infection and headache.

Conclusions: GESTURE, the largest and longest duration randomised controlled trial to date, revealed that secukinumab provides a novel treatment option for the challenging and infrequently studied ppPsO population by providing a strong and sustained response through 2.5 years.

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SECUKINUMAB SHOWS HIGH AND SUSTAINED EFFICACY IN NAIL PSORIASIS: 2.5-YEAR TRANSFIGURE STUDY RESULTS

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Introduction: Nail psoriasis is associated with decreased finger mobility, functional impairment, pain and reduced quality of life (QoL) and is often challenging to treat. It correlates with more severe psoriatic disease and is an important predictor of psoriatic arthritis (PsA). Nails are affected in up to 50% of psoriasis patients, with a lifetime incidence as high as 90%[1]. Secukinumab, a fully human monoclonal antibody that selectively neutralises IL-17A, has shown long lasting efficacy and safety in the complete spectrum of psoriasis manifestations, including nails, scalp, palms and soles and psoriatic arthritis.

Objectives: Here, we report the long-term follow-up efficacy and safety results from the TRANSFIGURE study, the first robust (2.5-year) data reported in subjects with nail psoriasis treated with secukinumab.

Methods: TRANSFIGURE is a double blind, randomised, placebo-controlled, parallel group, multi-centre phase 3b study, to investigate safety and efficacy of secukinumab 150 and 300 mg s.c. in moderate to severe nail psoriasis, involving 198 subjects.

Results: As previously reported, at week 16 the primary endpoint NAPSI (NAil Psoriasis Severity Index) and all secondary endpoints of this study was met, demonstrating superiority of secukinumab to placebo after 16 weeks placebo-controlled treat-

ment[2]. An interim analysis at week 80 demonstrated the continuation of improvement in nail psoriasis for all efficacy parameters. The effect was sustained through 2.5 years with a large mean NAPSI improvement from baseline (BL) of −73.3% and −63.6% with secukinumab 300 and 150 mg, respectively (as observed). Secukinumab demonstrated sustained reductions (improvements) in total mean NAPPA (Nail Assessment in Psoriasis and Psoriatic Arthritis) QoL scores from BL to 2.5 years by −52.4% and −18.1%, and 70.2% and 71.0% of subjects achieved a weighted NAPPA-PBI (Patient Benefit Index) global score of ≥2 (at least moderate benefits) with secukinumab 300 and 150 mg, respectively (LOCF). Subjects showed considerable improvements in EQ-5D (EuroQOL 5-Dimension Health Status Questionnaire) compared with BL reporting decreased pain and discomfort. The safety profile was consistent with that observed in previous phase 3 trials of psoriasis and PsA.
Conclusions: TRANSFIGURE is the first large, randomised controlled trial to report long-term results in subjects with nail psoriasis. Secukinumab demonstrated strong sustainability of clinically meaningful efficacy, large QoL improvement and a favourable safety profile up to 2.5 years in this challenging form of psoriasis.
This investigation was sponsored by Novartis Pharma AG, Basel, Switzerland.
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THE OBESITY AND PREVALENCE PSORIATIC ARTHRITIS IN PATIENTS WITH PLAQUE PSORIASIS: DERMATOLOGICAL REAL-SETTING DATA

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Background: Psoriasis (PsO) is a chronic inflammatory disease, which can be associated with the obesity. A link between body mass index (BMI) and psoriatic arthritis (PsA) has been found recently. But there is limited data about this association in Russian population and from real-world data.
*Objective:*To study the incidence of PsA in PsO patients (pts) with/without obesity.
Methods: 103 pts (male-47/female-56) with different forms of plaque PsO, mean age 44±13.69 years (yrs.), mean PsO duration 10.7±10.2 yrs., mean PASI 15.39±12.51 were included. 61 out of 103 pts with PsO (59.2%) had psoriatic arthritis (PsA) by CASPAR criteria. In all pts BMI was calculated. If the BMI was more than 30 it was regarded as obesity. M±m, %, t-test were peformed. All $p < 0.05$ were considered to indicate statistical significance.
Results: The overweight in both groups of pts with PsO and PsA was not significantly different: in 30 pts without PsA and in 48 with PsA, 71.4% and 78.7% respectively. However, there was a significant difference in the frequency of PsA in the group of pts with a BMI = 30–35 (obesity 1 degree). Thus, it was more than 4 times higher the pts with PsA, compared with pts without PsA - 19 and 4 pts (31.2% vs. 9.5%) respectively ($p = 0.06$).
Conclusion: There is a higher incidence of PsA in PsO pts with obesity. It should be taken into account during choice of treatment and evaluation of efficiency of therapy in real-world dermatological setting. Russian population – based studies are needed.

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DIAGNOSIS OF PSORIATIC ARTHRITIS IN PATIENTS WITH MODERATE TO SEVERE CHRONIC PLAQUE PSORIASIS TREATED WITH SECUKINUMAB VS. OTHER TREATMENTS IN THE PURE REGISTRY: INDICATION OF SELECTION PREFERENCES AND UNDERDIAGNOSIS

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Introduction: Secukinumab (SEC) is a fully human monoclonal antibody that selectively neutralizes IL-17A, a key cytokine involved in the development of psoriasis (PsO). SEC has shown long lasting efficacy and safety in the complete spectrum of PsO manifestations, including nails, scalp, palms and soles and psoriatic arthritis (PsA). PURE is an international registry of adult patients (pts) from Canada and Latin America with moderate to severe PsO treated with SEC vs other approved therapies (other Tx).
Objectives: To describe and compare the baseline demographic, disease, and clinical characteristics – specifically, the history of a PsA diagnosis among PsO pts treated with SEC vs other Tx.
Methods: Approximately 2,500 adult pts (1:1 ratio, SEC: other Tx) will be recruited. A decision regarding treatment must have been reached prior to enrollment. The independent-samples and Chi-square tests were used for continuous and categorical variables, respectively, for treatment group comparison.
Results: As of Nov 27, 2017, 1032 pts (397 SEC vs 635 other Tx) had been enrolled. Mean age (50.5 vs 49.4 years), time since diagnosis (18.5 vs 16.9 years), duration since symptom onset (20.5 vs 19 years), and race (78.6% vs 83.8% Caucasian) were comparable between groups. The percentage of females was lower in the SEC group (38.0%) vs other Tx (45.5%; $p = 0.037$). At baseline, the majority of SEC-treated pts (66.2%) were employed, and 23.7% vs 34.8% vs 34.3% had public vs private vs combined coverage, respectively. There was no difference between cohorts. A higher proportion of SEC pts had a history of PsA (23.2% vs 15.0%; $p = 0.001$) or diabetes (18.1% vs 13.4%; $p = 0.072$) compared to pts on other Tx. About 87.9% pts with PsA history and 34.1% pts without had a Psoriasis Epidemiology Screening Tool (PEST) score ≥3 at baseline; however, the diagnosis of PsA in these pts needs to be confirmed. In terms of prior PsO treatments, 52.4% vs 29.9% ($p < 0.001$) of SEC vs other Tx pts had been previously treated with methotrexate, and 50.6% vs 18.0% ($p < 0.001$) with a biologic. Prior to enrollment, 4.7%, 13.2% and 4.7% pts in the other Tx group received anti-IL-12/23, anti-TNF-α, and anti-IL-17A, respectively. Pts treated with SEC had a higher historical Psoriasis Area and Severity Index (PASI) score (16.5 vs 14.2; $p = 0.005$), baseline PASI (13.6 vs 12.0; $p = 0.001$) and Investigator's Global Assessment score (severe disease [score = 4]: 25.4% vs 20.1%) at enrollment compared to pts on other Tx.
Conclusions: Pts with moderate to severe PsO selected for treatment with SEC were more likely to have been previously exposed to another biologic, have comorbid PsA and had more severe skin disease, compared to pts treated with other Tx. A significant proportion of PsO pts may have their PsA undiagnosed in routine clinical care.
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EFFICACY AND SAFETY RESULTS OF GUSELKUMAB IN PATIENTS WITH ACTIVE PSORIATIC ARTHRITIS OVER 56 WEEKS

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*Introduction/Objective:*To evaluate the efficacy, safety & tolerability of guselkumab (GUS) in patients (pts) w/ PsA.
Methods: In this double-blind, PBO-controlled study, pts w/active PsA & ≥3% BSA of PsO despite treatment were randomized 2:1 to SC GUS 100mg or PBO at wks0, 4, & q8w thereafter through wk44. At wk16, pts w/ < 5% improvement from baseline (BL) in swollen & tender joint counts were eligible for early escape (EE) to open-label ustekinumab. At wk24, PBO pts crossed-over to GUS 100mg (PBO to GUS). The primary endpoint was ACR 20 at wk24. Major secondary endpoints were PASI 75 & ACR 50 responses, change from BL in HAQ-DI, & improvement in enthesitis (Leeds enthesitis index [LEI]) & dactylitis score (by a 0–3 scoring system) at wk24; & ACR 20 response at wk16. Through wk24, efficacy analyses were performed in a modified Intent-to-Treat (mITT) population. Pts who met treatment failure criteria, EE or had missing data at wk24 were considered non-responders for ACR/MDA endpoints at wk24. Efficacy post wk24 was evaluated in pts who did not EE & continued treatment at wk24 based on observed data.
Results: Of 149 pts (PBO:49, GUS:100), BL demographics & ACR component measures were generally similar between the 2 groups. 4 PBO & 9 GUS pts were previously exposed to anti-TNFα agents. At wk24, significantly more GUS pts achieved ACR 20 (58.0% vs 18.4%, $p < 0.001$), PASI 75 (78.6% vs 12.5%, $p < 0.001$), & ACR 50 (34.0% vs 10.2%, $p = 0.002$) responses vs PBO. At wk24, mean decrease in HAQ-DI score from BL (-0.42 vs. -0.06, $p < 0.001$), & median percent improvement in enthesitis (100% vs 33.33%, $p = 0.009$) & dactylitis (100% vs 33.33%, $p < 0.001$) scores (among pts w/ BL enthesitis and dactylitis) were significantly greater in GUS group vs. PBO. Significantly more GUS pts achieved ACR 20 at wk16 (60.0% vs 16.3%, $p < 0.001$) and MDA at wk24 (23.0% vs. 2.0%, $p = 0.001$) vs. PBO. Post wk24, efficacy improved in PBO to GUS crossover pts as expected and were well-maintained in GUS pts through wk56.
Through wk24, the frequencies of AEs & infections were comparable (AEs: PBO 32.7%; GUS 36.0%; infections: PBO: 20.4%; GUS: 16.0%). Post wk24, there was no disproportional increase in AE frequency or infections among GUS pts w/ longer exposure. Through wk56, there was 1 malignancy (basal cell carcinoma), 6 SAEs (myocardial infarction, osteoarthritis, pupils unequal, radius fracture, pneumonia, ulcerative keratitis), 2 pts discontinued treatment due to AEs, 1 grade 3 neutropenia, & 6 pts were positive for antibodies to GUS. No deaths occurred through wk56.
Conclusions: GUS demonstrated significant improvement on joint symptoms, physical function, PsO, enthesitis, dactylitis & quality of life; efficacy was well-maintained through wk56. GUS was well tolerated in this population after ~1 year of exposure.
Data has been previously presented at EULAR 2017 & ACR 2017

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TILDRAKIZUMAB EFFICACY OVER TIME BY WEEK 28 RESPONSE LEVELS IN TWO PHASE 3 CLINICAL TRIALS IN PATIENTS WITH CHRONIC PLAQUE PSORIASIS

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Introduction: Tildrakizumab (TIL), a humanized, IgG1/κ monoclonal antibody for IL-23p19, recently demonstrated its efficacy in subjects with chronic plaque psoriasis in two, phase 3 clinical studies1.
*Objective:*In this analysis, we examined efficacy from baseline to week 52 among TIL patients achieving various Psoriasis Area and Severity Index (PASI) responses at week 28.
Methods: ReSURFACE 1 (NCT01722331) and reSURFACE 2 (NCT01729754) were double-blind, randomized controlled studies in subjects with moderate-to-severe chronic plaque psoriasis. Part 1 (0–12 weeks) was placebo controlled; Part 2 (12–28 weeks) re-randomized placebo patients to TIL; Part 3 (28–64 weeks, reSURFACE 1; 28–52 weeks, reSURFACE 2) re-randomized patients with ≥PASI 50 to continue or increase TIL dose or to placebo based on their PASI response at week 28. In this post-hoc pooled analysis, patients consistently on TIL 100 mg and 200 mg from baseline to week 52 were classified in 5 mutually exclusive groups based on their week-28 PASI response: PASI < 50, PASI 50–74, PASI 75–89, PASI 90–99, and PASI 100. Baseline characteristics and % PASI improvement from baseline up to week 52 (observed data) were examined for each group.
Results: This analysis included 575 (TIL 100 mg) and 581 (TIL 200 mg) patients; the proportions of patients with week-28 PASI 75/90/100 responses were 77%/54%/23% (TIL 100 mg) and 78%/58%/29% (TIL 200 mg). At week 28, 133 (23.1%), 175 (30.4%), 137 (23.8%), 82 (14.3%), and 48 (8.3%) TIL 100 mg patients and 170 (29.3%), 169 (29.1%), 114 (19.6%), 105 (18.1%), and 23 (4.0%) TIL 200mg achieved PASI 100, PASI 90–99, PASI 75–89, PASI 50–74, and PASI < 50, respectively. On average, PASI 100 patients were younger, lighter, and had shorter disease duration at baseline compared to other response groups. For TIL 100 mg, % PASI improvement was highest for PASI 100 and least for PASI < 50 patients on all visits up to week 28 (week 4: 53%, 46%, 38%, 30%, and 16%; week 28: 100%, 95%, 83%, 64%, and 33% for PASI 100, PASI 90–99, PASI 75–89, PASI 50–74, and PASI < 50 categories, respectively). Among patients achieving PASI > 50 at week 28 and continued up to 52 weeks, % PASI improvement maintained or improved from week 28 to week 52. Similar results were observed for TIL 200 mg as well as a subgroup analysis with bio-naive and bio-experienced patients respectively.
Conclusions: The majority of TIL 100 and 200 mg patients achieved PASI > 50 response at week 28, and PASI improvement was maintained from week 28 to week 52. Among patients achieving PASI > 90 at week 28, TIL 100 and 200 mg were associated with a rapid PASI improvement by week 4.
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POTENTIAL DISCONNECT: CO-MANAGEMENT OF PATIENTS WITH PSORIATIC ARTHRITIS BETWEEN RHEUMATOLOGISTS AND DERMATOLOGISTS

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Introduction: On average, the majority of psoriasis (PSO) patients are diagnosed a year prior to a psoriatic arthritis (PsA) diagnosis, making the referral patterns and co-management between derma-

tologists and rheumatologists an important aspect to understanding the management of these diseases. Dermatologists represent an important referral-base for rheumatologists, accounting for over one-quarter of all new PsA patients. However, there are discrepancies between the specialists regarding the timing in which these referrals take place.
Objectives: One objective of the study was to gain further insight into rheumatologist and dermatologist co-management of patients with PsA.
Methods: An independent market analytics firm collaborated with US rheumatologists ($n = 101$) and US dermatologists ($n = 101$) to conduct analysis of both the PsA and PSO markets. Data were collected via an online survey fielded in November/December 2017 and included patient demographics, as well as physician demographics, and attitudinal survey responses.
Results: Rheumatologists indicate that 51 percent of referrals result from primary care physicians, 28 percent result from a dermatologist, and 13 percent are self-referred. The majority (73%) of PsA patients under the care of collaborating rheumatologists had previously been diagnosed with PSO prior to PsA. Dermatologists state that one-quarter of their patients with severe PSO also have PsA, with more than one-third of severe PSO patients also being co-managed with a rheumatologist. The majority of rheumatologists believe that dermatologists refer patients at the first sign of joint involvement and do not attempt to treat joint pain; however, 31 percent of dermatologists report they do not refer PSO patients to rheumatologists until patients have failed biologics or are not improving on their current systemic regimen, while an additional 35 percent report they refer only severe arthritis/patients with worsening disease. Furthermore, only 35 percent of dermatologists agree that they refer their PSO patients to a rheumatologists at the first sign of joint involvement.
At the time of dermatologist referral, rheumatologists state that two-thirds of referred patients are biologic/apremilast naïve, with only 6 percent having controlled PSO and joint pain. However, dermatologists state that 40 percent the patients that they referred to rheumatologists were treated with biologics and 15 percent of said referred patients were treated with apremilast. Indeed, 76 percent of dermatologists agree with the statement, "I *believe that starting my PSO patients earlier on biologic therapy will slow the development and progression of the arthritic component of the disease (PsA),*" while 57 percent of dermatologists agree *"I prefer to use biologics that are indicated in both PSO and PsA."*
Conclusion: With many patients diagnosed with both PSO and PsA, co-management between dermatologists and rheumatologists is common. While rheumatologists appear to be under the impression that they are receiving the majority of dermatologist-treated patients with PsA at the first sign of joint involvement, dermatologists largely report that they are managing and treating PsA patients. Furthermore, most dermatologists believe early aggressive use of biologic treatments will mitigate the development and/or progression of joint involvement, implying their willingness to manage their patients with PsA, particularly at early stages.

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THE USE OF TUMOR NECROSIS FACTOR INHIBITORS (TNF) IN THE SECOND-LINE BIOLOGIC/SMALL MOLECULE SETTING: A CROSS-SPECIALTY COMPARISON

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TNF therapy has been the standard of care for adult patients diagnosed with autoimmune conditions, resulting in familiarity, comfort, and satisfaction among physicians. TNFs are typically used as a first-line biologic/small molecule in the treatment of psoriasis (PSO) and psoriatic arthritis (PsA). However, the adoption of agents with alternate mechanisms of action (AMOA) has increased in recent years across indications and the practice of sequential TNF prescribing after an initial TNF is less common. Though TNFs are still the preferred first-line agent, there are discrepancies between specialists on the use of AMOA agents in the second-line setting. This research sought to understand the extent to which AMOA agents are prescribed after an initial TNF, and how this varies across PSO and PsA.
An independent market analytics firm collaborated with US dermatologists ($n = 201$) and US rheumatologists ($n = 200$) to conduct a retrospective chart review of patients diagnosed with PSO ($n = 950$) and PsA ($n = 1{,}008$) who had switched from one biologic/apremilast to another agent in the prior 12 weeks. Physicians were able to submit up to 7 patient charts. PSO data was collected in September 2017 and PsA data was collected in April 2017.
Analysis of patients recently switched from one biologic/apremilast to a different brand revealed the majority of patients were treated with a TNF in the first-line biologic/small molecule setting, though this varies by indication. Rheumatologists prescribe first-line TNFs significantly more than dermatologists. 83% of PsA patients are prescribed TNFs first-line compared to just 69% of PSO patients. Furthermore, rheumatologists are significantly more likely to practice TNF-sequencing than dermatologists. Indeed, 44% of PsA patients treated with a first-line TNF were prescribed a second TNF, compared to 6% of PSO patients. Additionally, certain TNF brands have experienced recent declines in first line use, though this varies by indication as well. For rheumatologists, use of first-line etanercept has declined, 38% of PsA patients were initiated on etanercept at least 24 months prior to the study, compared to just 28% initiated on etanercept within 12 months of the study. For dermatologists, there were significantly more PSO patients initiated on etanercept in the first-line setting 24 months or more prior to the study compared to those initiated within 12 months of the study, (45% vs 31%.) This pattern also held true for adalimumab, where 42% of first-line PSO patients initiated more than 24 months prior to the study were prescribed adalimumab, a figure that drops to just 27% for patients initiated within 12 months.
Though the position of TNFs as first-line agents remains dominant, the treating specialist and indication influence how widespread and continuous TNF use is. Specifically, dermatologists are less likely to prescribe TNFs as first-line agents and are also significantly less likely to partake in the sequencing of TNFs in the first- and second-line setting than rheumatologists. The introduction of several agents in PSO reporting substantially higher rates of skin clearance compared to TNFs could potentially be the source of increased switching to AMOAs compared to other specialties; whereas superior efficacy of AMOA agents over TNFs in PsA may be less apparent.

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IMPACT OF GUSELKUMAB VERSUS PLACEBO AND ADALIMUMAB ON PATIENT REPORTED OUTCOMES IN PATIENTS WITH AND WITHOUT PSORIATIC ARTHRITIS IN VOYAGE 2

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*Introduction/Objective:*VOYAGE 2 is a phase 3 double-blind, placebo/active comparator-controlled trial comparing guselkumab (GUS) with placebo (PBO) and adalimumab (ADA) in patients (pts) with moderate-to-severe PsO. The impact of treatment on patient-reported outcomes (PROs) was evaluated.
Methods: Pts were randomized to GUS 100mg (wks 0 & 4, then