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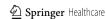*Meeting abstracts*

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Psoriasis and psoriatic arthritis relationship

P002

Early treatment of psoriatic arthritis is associated with improved outcomes: findings from the etanercept PRESTA trial

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Background: The effect of early biologic treatment has not been well investigated in patients with psoriatic arthritis (PsA) and psoriasis.

Objective: To compare short versus longer disease duration in patients with PsA and moderate-to-severe psoriasis treated with the biologic etanercept (ETN) 50 mg once weekly (QW) for 24 weeks in the PRESTA trial [1].

Methods: Patients who received ≥ 1 dose ETN 50 mg QW and ≥ 1 post-baseline value were evaluated. Mean changes from baseline at Week 24 were compared in patients with PsA ≤ 2 years versus PsA >2 years in efficacy measures (physician global assessment [PGA] arthritis, swollen joint count, and psoriasis area and severity index [PASI]) and patient-reported outcomes (PROs; joint pain, arthritis activity, Euro-Qol [EQ-5D] utility and visual analogue score [VAS], Health Assessment Questionnaire [HAQ], and Hospital Anxiety and Depression Scale [HADS]) using linear regression analysis with age and sex as covariates.

Results: At Week 24, all efficacy measures and PROs improved significantly from baseline in both the PsA ≤ 2 years (n = 103) and PsA >2 years (n = 269) groups. After controlling for age and sex, these improvements were significantly greater in patients with PsA ≤ 2 years versus PsA >2 years for PGA arthritis (-39.8 vs. -35.7; $P = 0.0269$), joint pain (-42.1 vs. -34.6; $P = 0.0072$), arthritis activity (-41.7 vs. -34.9; $P = 0.0148$), EQ-5D utility ($+0.30$ vs. $+0.24$; $P = 0.0457$), and EQ-5D VAS ($+22.8$ vs. $+18.7$; $P = 0.0402$). Improvements from baseline at Week 24 were similar in both disease duration groups for the swollen joint count, PASI, HAQ, and HADS scores.

Conclusions: Patients with short and longer PsA duration, with moderate-to-severe psoriasis, responded well to ETN 50 mg QW treatment; however patients with shorter PsA duration had significantly greater responses in several measures. Notably, PROs that incorporate pain assessments (joint pain and EQ-5D utility) improved significantly more in patients with PsA ≤ 2 years than PsA >2 years.

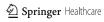*Reference:* 1. Sterry W, et al. BMJ 2010;340:c147.

P003

Bone alterations in psoriatic patients: an early sign of psoriatic arthritis?

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Nail plate, underlying bone and entheses are anatomically closely related. Recently, autoinflammatory processes such as enthesitis have been addressed. However, the exact mechanism of enthesitis spreading towards bone still has not yet been fully clarified. Therefore the link between psoriasis and alterations of periarticular bone was investigated in 30 psoriatic (PSO) patients from our Dermatology outpatient clinic (19 male, 11 female; mean age 49.47 ± 14.01). They were examined by two rheumatologists in addition to a micro-computed tomography (microCT) scan of the dominant metacarpophalangeal joints (MCPJ) 2–4. Bone erosions, new bone formation (NBF) and surface changes (SC) were assessed both semiquantitatively and metrically. 17/30 patients showed typical bone alterations as described earlier by our group in psoriatic arthritis (tPSA), 7/30 had established PSA (ePSA), 5/30 had no specific bone alterations (healthy bone, HB). None of the HB cohort showed bone erosions, but 6/7 ePSA (mean number 2.43/median 1) and 7/17 tPSA (0.71/0); ePSA score was higher (3.71/2) than in tPSA (0.59/0) as well as width and depth bigger. NBF-involvement of digits was D2 > D3 > D4. HB and tPSA did not show significant differences in total NBF-numbers or -scores; ePSA showed distinctly more extensive NBF than HB and tPSA. However, detailed per-finger analysis showed more NBF in tPSA (D2: 5.5/4; D3: 4/4.5: D4: 2.38/1.5) compared to ePSA (3.5/3; 2.38/2; 1.13/1) and HB (2.25/1.5; 1.63/1; 0.88/1). Interestingly, tPSA and ePSA both showed NBF of the whole circumference of phalangeal bases 2 and 3 whereas only ePSA also had NBF at the ulnar and radial sides of the MCP heads. Moreover, tPSA had distinct cortical thinning in semiquantitative SC analysis (tPSA D2: 4.38/3, D3: 4.75/3.5, D4: 6.75/6, ePSA: 2.38/2.5, 3.75/3.5, 3.5/2.5, HB: 1/0.5, 1.38/1.5, 1.38/1). Even in asymptomatic patients with psoriasis, periarticular bone alterations typical for PSA can be found by high resolution imaging technique. Our findings suggest that early damage is present and presumably might require early treatment. Whether tight monitoring or immediate treatment are needed will have to be further studied.

P004

Effects of PUVA and narrowband UVB on adenosine deaminase activities in plasma and tissue samples of patients with psoriasis

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Presence of active T lymphocytes in lesions and the response to immunosupressive agents, strongly support the possibility that psoriasis is a immunological diseases. Adenosine deaminase (ADA) activity is a non-specific marker of T cell activation. ADA activity has been shown to be increased in diseases characterized by T lymphocyte proliferation and activation.

In this study, ADA activities were measured in plasma and tissue samples of patients with psoriasis before and after PUVA or narrowband UVB treatment as well as in healthy controls. The severity of the disease was evaluated before and after treatment according to Psoriasis Area and Severity Index (PASI) score. Plasma and tissue ADA levels significantly elevated in patients with psoriasis compared to control groups. There was a statistically significant decrease in the ADA levels after treatment compared to pretreatment values in the same patients. There was no correlation between ADA levels and PASI scores.

These results support the evidence that T cell activation is involved in the pathogenesis of psoriasis and that ADA may be valuable in the assessment of disease activity in psoriasis.

P005

Unilateral psoriasis: a case report

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Psoriasis is a multifocal, common, chronic inflammatory skin disease. Unilateral psoriasis is a rare entity. A 28-year-old man presented with erythematosquamous lesions that were distributed over the right side of the body. Clinical examination and results of histopathologic studies indicated unilateral psoriasis.

P006

Two cases of concomitant vitiligo and psoriasis

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Vitiligo and psoriasis are common dermatoses that occur in 1–3 and 0.5% of the general population, respectively. Yet the pathogenesis of the association between these two dermatoses is still unknown but both are considered to have an autoimmune component in their pathogenesis. We report two very rare cases of concomitant vitiligo and psoriasis. Case 1: is a 31-year-old man presented with small vitiligo patches on his hands, legs and elbows for 10 years. Nine years after the onset of vitiligo, psoriasis developed on his vitiligo lesions. Case 2: is a 51-year-old man. His psoriasis and vitiligo lesions started at the same time. Both lesions exist on hands, knees, elbows and face. Based on clinic and histopathologic findings; we present two cases of concomitant vitiligo and psoriasis.
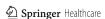
P007

The prevalence of rheumatologist-diagnosed psoriatic arthritis in psoriasis patients in European/North American dermatology clinics: Results of the PREPARE study

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Introduction: Psoriatic arthritis (PsA) is a debilitating inflammatory disease associated with permanent joint damage, which may be prevented with prompt, appropriate treatment. (1) Prevalence estimates of PsA in psoriasis patients range from 7 to 48%. (2) Further study is needed to confirm PsA prevalence and raise awareness of the need for thorough PsA screening.

Objective: To assess PsA prevalence in psoriasis patients seen in 34 dermatology centers in Europe and North America.

Methods: Consecutive psoriasis patients from dermatology centers were evaluated by rheumatologists for a clinical diagnosis of PsA with/without the aid of laboratory tests. Dermatology centers included primary, secondary (primary + referred patients), and tertiary (referred only) centers.

Results: Of 949 patients evaluated, 285 (30%) had PsA (95% CI: 27%, 33%). The highest prevalences were observed in Denmark (n/N = 49/117; 42%), Hungary (64/169; 38%), the US (35/98; 36%), and Germany (65/189; 34%); the lowest in France (12/44; 27%), Belgium (6/33; 18%), and Canada (54/299; 18%). PsA patients on average had slightly more severe psoriasis (body surface area, 9.6% vs. 7.7%; $p = 0.015$) and had slightly longer psoriasis duration (21.7 vs. 19.1 year, $p = 0.006$) than patients without PsA. The PsA diagnosis changed in only 1.2% of patients when diagnostic laboratory tests were added. The prevalence of PsA did not differ based on center type (primary, 31.0% [95% CI: 27.2%, 35.0%]; secondary, 24.9% [95% CI: 19.1%, 31.4%]; or tertiary, 32.9% [95% CI: 26.0%, 40.5%]; $p = 0.170$). Of 285 patients diagnosed with PsA, 117 (41%) had not previously been diagnosed; 47 (7%) of 664 PsA-negative patients had previously been diagnosed with PsA.

Conclusions: In this large, multinational prevalence study, almost a third of psoriasis patients seen in dermatology centers had PsA as determined by a rheumatologist. More than a third of patients with PsA had not previously been diagnosed. Given that untreated PsA can lead to permanent joint damage, monitoring for joint disease in psoriasis patients is paramount.

References: 1. Ritchlin CT et al. Ann Rheum Dis. 2009;68:1387–94. 2. Gladman DD. J Rheumatol. 2009;36(suppl 83):4–8.

P008

Epidemiology of psoriasis and psoriatic arthritis in Scotland

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Aim: To describe the severity and prevalence of psoriasis and psoriatic arthritis in two health board areas in Scotland.

Background: Prevalence data were collected as part of a large study investigating the pathway of care for people with psoriasis and psoriatic arthritis.

Method: The Scottish Primary Care Research Network collected data from Primary Care patient records to measure the prevalence of psoriasis, using National Health Service diagnostic codes. These data were used to recruit 2,000 participants for a cross-sectional survey investigating perceptions of and satisfaction with the care pathway. An expected 30% response rate would yield 77% power. Questionnaires were sent to psoriasis patients from GP practices and returned to the Robert Gordon University. Data were entered into SPSS and analysed using frequencies and χ, with a level of significance $p < 0.05$.

Results: Analysis of GP records identified psoriasis prevalence of 2.4% in this population. The response rate to the questionnaire was 673 (33.7%), additionally 107 responded on-line. 46.9% (366) perceived their psoriasis to be mild, 39.6% (309) moderate and 10.9% (85) severe. Severity was also measured by SAPASI, which correlated to self perception of mild/moderate/severe (Spearmans Rho, $p < 0.05$).

19.7% (153) participants reported a diagnosis of psoriatic arthritis (PsA): mild in 21.6% (33), moderate in 47.7% (73) and severe in 24.8% (38). Of those NOT reporting a diagnosis of PsA (n = 615), 17.1% (105) had symptoms suggestive of arthritis and of these 77.3% (77) had frequent joint pain and/or joint stiffness. For patients with confirmed PsA, 55.6% (85) had joint swelling on first presentation to GP. For patients WITHOUT a diagnosis of PsA, diagnosis, but with joint stiffness/pain 18.1% (19) reported joint swelling.

Conclusions: Most people with psoriasis had mild/moderate symptoms (86.5%), whereas most people with PsA had moderate/severe symptoms (75.4%). Joint swelling could be the trigger for psoriatic patients to discuss their arthritic symptoms. This suggests further investigation as an indicator for earlier diagnosis and supports the need for an annual review in Primary Care.

P009

Comparison of composite disease activity scores in psoriatic arthritis

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In the absence of a psoriatic arthritis (PsA)-specific composite disease activity score, rheumatoid arthritis composite scores have predominantly been utilized although they do not incorporate outcomes for accurate PsA assessment. Several PsA-specific composite measures are in development. The purpose of this analysis is to assess the performance and relationship between existing and novel PsA composite measures for evidence of validation.

Observed data from the PRESTA trial, a randomized study evaluating 2 etanercept (ETN) dose regimens in psoriasis pts with active PsA, were analyzed. The modified composite psoriatic disease activity index (mCPDAI), disease activity index for PsA (DAPSA), PsA

disease activity score (PASDAS), and arithmetic mean desirability function (AMDF) were calculated at BL and Wk 12 and 24 and compared between dosing regimens. Spearman correlations, paired t-tests, and ANCOVA models were used. mCPDAI uses 4 domains: joints (66/68 SJC/TJC, HAQ), skin (PASI, DLQI and or PGA), dactylitis, and enthesitis for a score of 0–12 or 0–24. DAPSA sums pt global and joint pain VAS assessments, 66/68 SJC/TJC, and CRP for a score of 0–160. PASDAS utilizes pt and physician global VAS, 66/68 SJC/TJC, CRP, predicted physical component score, dactylitis, and enthesitis. AMDF is calculated from pt skin, joints, and global VAS assessments, PASI, 66/68 SJC/TJC and HAQ for a score 0–1. All indices could distinguish response to treatment comparing BL and 12/24-wk values. Of the 4 measures, mCPDAI and AMDF were able to differentiate between the dosing regimens at Wk 12 ($P < 0.05$). Although most measures did not correlate well at BL, all were highly correlated at Wks 12/24. The strongest correlations at Wks 12/24 were between AMDF vs. PASDAS and DAPSA ($r > 0.79$). mCPDAI was correlated with all indices ($r > 0.70$) including other modified versions of mCPDAI ($r > 0.93$). Similar findings were observed with only AMDF utilizing LOCF analysis. In addition to distinguishing treatment responses, both AMDF and mCPDAI which better reflect most PsA disease domains, strongly correlate with other composite measures. Further clinical trial analysis and validation of measures is required.

P010

High prevalence of articular involvement in patients with severe psoriasis with poor performance of screening questionnaires

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Background and objectives: Delay in diagnosis of psoriatic arthritis (PsA) remains a significant contributor to poor patient outcome. The objectives of this study were: (1) to assess the prevalence of PsA among Ps patients attending dermatology clinics; (2) to identify clinical predictors of the development of PsA; and (3) to compare the performance of 3 PsA screening questionnaires—PASE, PEST, and ToPAS.
Methods: Patients were divided into two groups: group 1, consecutive patients with skin psoriasis attending dermatology clinics who have no known diagnosis of inflammatory arthritis; group 2, consecutive patients attending rheumatology clinics with a confirmed diagnosis of PsA. The diagnosis of PsA was made using the CASPAR criteria. In group 1, patients completed the screening questionnaires, followed by a thorough rheumatologic evaluation whether or not they reported musculoskeletal symptoms.

Results: 200 patients were recruited; 100 in each group. 84% of patients in Group1 were using systemic therapy for their skin disease, and 99% of patients in Group 2 were on systemic immunosuppressives. In Group 1, 29% of patients were diagnosed with PsA after rheumatologic evaluation. On univariate and multivariate analysis, the only significant positive association was noted between high PASIs and the new diagnosis of PsA ($p = 0.046$), even after adjusting for confounders such as, age, gender, use of TNFi, duration of psoriasis and the presence of nail and scalp disease ever in the disease course. A strikingly different pattern of joint involvement was noted in patients with newly diagnosed PsA versus patients with established PsA with fewer polyarticular disease ($p = 0.0001$). In Group 1, the PEST, PASE and ToPAS had sensitivities of 27.5, 24 and 41%, and specificities of 98, 94 and 90%, respectively; however, in Group 2, the sensitivities were 86, 62 and 83%, respectively.
Conclusions: 29% of Ps patients attending dermatology clinics had undiagnosed PsA. Psoriasis severity was associated with the diagnosis of PsA. Poor sensitivities for the screening questionnaires was noted, due to inadequate recognition of patterns of arthritis other than that of polyarticular disease.
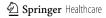
P011

Prevalence of psoriatic arthritis in psoriatic patients attending dermatologists' units in Spain: PREVAL study

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Background and objectives: Psoriatic patients present an increase risk for development psoriatic arthritis (PsA). Dermatologists may play a relevant role in the detection of early joint symptoms. The main aim of this study was to evaluate the prevalence of PsA in a population of psoriatic patients attended by dermatologists and then referred to rheumatologists' units for PsA diagnosis confirmation.
Methods: Non-interventional, cross-sectional study conducted in 40 hospitals in Spain in 2010–2011. A total of 375 psoriatic patients were screened for PsA suspicion by dermatologists. The PASE questionnaire (Psoriatic Arthritis Screening and Evaluation Questionnaire) was used as a PsA screening tool. All patients were referred to the rheumatology units for PsA evaluation, accordingly to Classification Criteria for Psoriatic Arthritis—CASPAR—and Moll and Wright criteria; overall, 130 patients who fulfilled criteria for PsA and other arthropathies were evaluated for clinical activity at the rheumatologists' units.
Results: Overall, 32.6% (n = 121) of psoriatic patients were positively screened for PsA by dermatologists. The prevalence of PsA resulted in 22.9% (n = 86) after

confirmation by rheumatologists' evaluation; of them, 68.6% (n = 59) patients had been suspected of PsA by dermatologist. A total of 51.2% of patients diagnosed of PsA by rheumatologists presented a score equal or higher than 44 in the PASE questionnaire. Correlation between dermatologists and rheumatologists diagnosis of PsA was 0.410; whereas correlation between CASPAR and Moll and Wright criteria was 0.900. Overall 47 patients were diagnosed by rheumatologists of other arthropathies different from PsA; being osteoarthritis (51.1%; n = 24) and non inflammatory low back pain (27.7%; n = 13) the most frequent diagnosis.

Conclusions: The prevalence of PsA in patients attending dermatologists' units observed in our study was approximately 23%. The PASE questionnaire for the screening of PsA by dermatologists seems to have a moderate predictive value. It was also observed a moderate correlation between dermatologists and rheumatologists at the time of diagnosing PsA. Study promoted by Pfizer Spain, S.L.U.

Genetics

P012

Search and exploration candidate genes and their role in pathogenesis of psoriasis

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Purpose of this study was to conduct a search for candidate genes as well as identify and characterize one of the molecular mechanisms standing behind the development of psoriatic skin lesions.

Results: We performed a bioinformatics analysis of gene expression (GEO dataset GSE6710) in uninvolved and lesional psoriatic skin as well as gene ontology and networking analyses. This analysis revealed a signaling pathway leading from IL-17 to the target genes such as matrix metalloproteases through the transcription factors (AP-1 and NF-kB). Metalloproteases are one of the key in the development of pathological process in psoriasis. Comparing gene expression in uninvolved and lesional epidermis by qPCR we found elevated levels of matrix metalloproteinases—MMP-1, -9, -12 as well as proinflammatory cytokine, IL-17, and decreased levels of C-JUN, JUN-B, JUN-D and C-FOS, which are four major components of the transcription factor, AP-1. We also discovered that treatment of the patients with laser radiation of low intensity ($\lambda = 1.27$ nm) or interference therapy normalized expression of these genes and also accompanied by remission of the disease suggesting an important role of these genes in pathogenesis of psoriasis. Moreover, we found that induction of primary or immortalized keratinocytes by interleukin IL-17 in vitro also activated expression of MMP-1, -9, -12, while Inhibition of interleukin-17 pathway dramatically decreased their expression.

In conclusion, our data indicate on a direct link between IL-17 and activation of metalloproteases in psoriasis. This mechanism correlates with flow of the disease and involves the transcription factor, AP1, primarily four components of this heterodimeric complex, C-JUN, JUN-B, JUN-D and C-FOS.
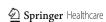
P013

Risk variants for psoriasis in a large case–control collection and association with clinical subphenotypes

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Background: Psoriatic Arthritis (PsA) is a complex disease with a substantial genetic risk component (first-degree

relative risk $\sim$55). Recently, Genomewide Association Studies (GWAS) have expanded the number of risk loci for Psoriasis (Ps) in >20 new loci.

Objectives: We have studied the association of Ps risk loci in PsA and purely cutaneous Ps (PsC). We have also analyzed the genetic association with several subphenotypes of clinical relevance.

Methods: Loci showing the strongest statistical evidence of association to Ps were selected (n = 32). The SNP having the highest statistical evidence was genotyped using Taqman technology in a cohort of n = 955 PsA, 1,050 PsC and 1,497 hypernormal controls of the Spanish population. According to each subphenotype variable, the genetic association was performed using the Chi-square test, logistic regression or linear regression.

Results: We have replicated the association to COG6 and SERPINB8 loci with Ps for the first time in a Caucasian population. We have identified, for the first time, an association of PsA with variation at IFIH1 ($P = 0.00023$), DPP6 ($P = 0.0027$) and COG6 ($P = 0.0072$). Analyzing the association with other clinically relevant subphenotypes we have identified a strong association of LCE3D locus with the severity of cutaneous affection ($P = 1.8 \times 10E - 5$). We have also found a significant association of IL1RN gene with nail disease ($P = 0.0028$). We replicated the previously described interaction of HLA-C and ERAP1 in the PsC cohort but not in the PsA cohort. We identified, for the first time, a significative epistatic association between HLA-C and SERPINB8 ($P = 0.014$). In PsA, no statistically significant interactions where identified with variation at HLA-C. However, 6 of the studied genes showed a significant ($P < 0.05$) association with HLA-B27 positivity.

Conclusions: Our findings show that common genetic variants associated to a complex phenotype like PsV influence PsA as well as different subphenotypes of high clinical relevance.

P014

Influence of VEGF gene polymorphisms on clinical features of psoriatic arthritis and SAPHO syndrome

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Aim of the study: To investigate the role of polymorphisms of the vascular endothelial growth factor (VEGF) gene C(-2578)A in PsA and SAPHO syndrome and its relationship to clinical features.

Materials and methods: We studied 61 PsA patients and 16 SAPHO syndrome patients. The following data were recorded: age, sex, disease duration, presence of peripheral joint involvement, radiological changes, spinal anterior and lateral flexion. Skin changes in PsA patients were assessed according Psoriatic Arthritis Skin Index (PASI) score. Clinical activity of the disease was assessed according following indexes: Clinical activity of the disease was assessed according following indexes: BASMI, BASFI, BASDAI, BASG, HAQ score and SF-36 score. We assessed ESR, CRP, platelets level (PLT), hemoglobin level, leukocyte level. Serum VEGF levels were determinate using ELISA method. The polymorphisms C(-2578)A was genotyped by polymerase chain reaction restriction fragment length polymorphism PCR–RFLP.

Results: The mean age of PsA patients was 49.9 ± 12.6 years. The mean disease duration was 5.1 ± 4.7 years. The mean value of VEGF serum levels in PsA group was 371.2 ± 286.1 pg/ml. The mean age of SAPHO patients was 51.8 ± 10.9 years. The mean disease duration was 2.8 ± 1.7 years. The mean value of VEGF serum levels in SAPHO group was 363.7 ± 203.9 pg/ml. Clinical features were analysed for the three genotypes: AA, CA, CC. The genotype AA was present in 26.2% PsA patients and 43.8% SAPHO patients. The genotype CA was present in 45.9% PsA patients and 43.8% SAPHO patients. The genotype CC was present in 27.9% PsA patients and 12.4% SAPHO patients. In group with active disease increased ESR was connected with genotype CA in 39.3% of PsA patients. In group with active disease increased CRP was connected with genotype CC in 38.5% of PsA patients. In PsA the peripheral joint involvement was connected with genotype CA.

Conclusions: We conclude that VEGF gene polymorphisms influence on clinical features of psoriatic arthritis. Genotype CA is connected with peripheral course of the disease and increased disease activity in PsA patients.
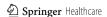
P015

Association of HLA class I and II alleles with psoriasis in Pakistani population

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Introduction: Psoriasis is a complex inflammatory disorder characterized by sharply demarcated erythematous papules and plaques with abundant silvery white scales. The etiology of psoriasis is not completely known. However it is clear that both genetic and environmental factors play role in the pathogenesis of psoriasis. The prevalence of psoriasis varies with ethnic groups and geographical locations, with an overall prevalence of approximately 2% of the world's population. The association of Human Leukocyte

Antigen (HLA) alleles with psoriasis is well documented in several population based studies. Numerous HLA class I and II alleles have been reported to be associated with psoriasis. Among these, the HLA class I alleles HLA-Cw*06 and B*57 have been reported consistently worldwide.

Objectives: The main aim of this study is to screen Pakistani psoriasis patients and healthy controls for HLA class I and II alleles as there is no data reported so far regarding the association of HLA alleles with Pakistani psoriasis patients.

Methodology: Our study included 290 patients (216 males and 74 females) and 183 healthy ethnically matched control samples. HLA alleles were typed using sequence-specific PCR. The distribution of HLA allelic frequencies were further analyzed according to different phenotypes and age of onset. The data was analyzed using statistical programme like SPSS ver 10.0 and Arlequin 3.0.

Results: This study is the first to be reported on Pakistani psoriasis patients and we found some allelic associations that were already reported and also found some novel associations. In case of HLA class I A*01, B*57, B*37 and Cw*0602 allelic frequencies were found to be higher in patients whereas A*33, B*51, Cw*0702, Cw*15 allelic frequencies were higher in control samples. In case of HLA class II DRB1*0701 and DQB1*03032 allelic frequencies were higher in patients and DRB1*03 and DQB1*02 allelic frequencies were higher in control group.

Conclusion: This study will give an insight about the role of HLA alleles in the prognosis of psoriasis and will help in future diagnosis and treatment of the disease.

P016

Different genetic background separates prepubertal and postpubertal onset of psoriasis

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The genetic background of psoriasis is strong and several susceptibility genes have been identified with HLA-Cw*0602 remaining the strongest candidate. Precisely how HLA-C contributes to psoriasis is however unclear. Evidence for an interaction between HLA-C and endoplasmic reticulum aminopeptidase 1, ERAP1, confined to individuals carrying the HLA-C risk allele was recently presented. ERAP1 plays a crucial role in MHC class I peptide processing and is involved in cell surface shedding of proinflammatory cytokine receptors, altogether suggestive of a potential involvement in psoriasis pathogenesis. Psoriasis displays wide clinical variation and genetic heterogeneity likely contributes substantially to clinical diversity. Therefore, stringent stratification for sub-phenotypes may be crucial in genetic analyses. Age of onset is an obvious phenotype and separating psoriasis into type I (onset <40 years of age) and Type II (>40 years of age) has been useful. To sharpen the age—dependant phenotype, we performed a more detailed stratification comparing genotypes for ERAP1 and HLA-Cw*0602 in four age groups: disease onset below 10 years, between 10 and 20, 20 and 40 and above 40 years. Herein we confirm association to ERAP1 in patients with disease onset between 10 and 20 years, but lack of association in other groups including those with onset before 10 years. The latter group also displays a significant lower association to HLA-Cw*0602 than children with onset between 10 and 20 years but comparable to those with disease onset between 20 and 40 years of age.
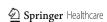
P017

A qualitative analysis of digitopalmar dermatoglyphics in 400 psoriasis and psoriatic artrhritis patients from Croatia

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Objective: By one of very simple and inexpensive genetic method, we were analysed dermograms of hands in 140 psoriatic patients (70 males and 70 females), and 260 psoriatic arthritis patients (130 males and 130 females), with a view to differential diagnostics between psoriasis and psoriatic arthritis from the one side and among five psoriatic arthritis clinical subgroups, from the other side. Namely, between 14th and 25th week of intrauterine dermatoglyphics development on hands, there is certain possibility that this early period, the simultaneous pathogenetic mechanism operated on dermatoglyphic drawing, and on group of genes responsible for psoriasis and psoriatic arthritis. Dermatoglyphics stay unchangeable to the end of life, and always were available for analysis after delivery. The data obtained were compared with those recorded in a control group of 400 (200 males and 200 females) pairs of imprints of phenotipycally helathy adults from the Zagreb area. Palm and finger prints were taken onto the adhesive transparent tape by silver powder, used in criminalistics. Statistically significant differences were found in male psoriatics to control in 10, female psoriatics to control in 5 variables, male psoritatic arthritis patients to control in 7 variables, and female psoriatic arthritis patients to control in 5 variables. Then, in male psoriatics to male psoriatic arthritis patients in 10 variables, and female psoriatics to psoriatic arthritis patients in 9 variables. Statistically significant differences were found to control among male psoriatic arthritis in 35 variables, and among female psoriatic arthritis to control in 40 variables. Then, among five clinical subgroups of male psoriatic arthritis patients in 87 variables and among

five clinical subgroups of female psoriatic patients in 65 variables. In conclusion we could say that dermatoglyphics came to existence as an important tool for genetics in psoriasis and psoriatic arthritis, and in their differential diagnostics.

In conclusion we could say that dermatoglyphics came to existence as an important tool for genetics in psoriasis and psoriatic arthritis, and in their different diagnostic.

P018

Time to event and progressive multi-state analyses confirm the association between human leukocyte antigen alleles and the development of arthritis mutilans in patients with psoriatic arthritis

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Objective: To identify HLA alleles associated with development of Arthritis Mutilans (AM), the most severe form of psoriatic arthritis (PsA).

Methods: Radiographs of hands and feet were obtained at baseline and at 2-yearly intervals from a large cohort. AM was defined as ≥5 joints with grade 4 damage using the modified Steinbrocker method. The time when joints with grade 4 damage was first observed was obtained on 610 Caucasian subjects. Parametric survival analyses were carried out using a Weibull regression model, adjusted for age at diagnosis of PsA and sex, to identify HLA alleles associated with the interval-censored time to development of AM. This analysis ignores the information provided by time of development of grade 4 damage in the first 4 joints. Multi-state analysis modeling the transition from no grade 4 damage to 1, 2, 3, 4 and finally ≥5 joints with grade 4 damage was therefore conducted.

Results: 610 subjects (58% males, age at diagnosis 36 years, duration of PsA 7 years at first visit) had a median of 3 radiographs during a median follow up of 6.3 years. 97 (16%) subjects developed AM. Univariate survival analyses showed that HLA-B*27 and -DQB1*02 alleles are associated with an increased hazard of developing AM whereas HLA-A*11 and -C*04 are associated with a reduced hazard. Multivariate analysis showed that HLA-B*27 (HR 2.14, $p < 0.01$) and -DQB1*02 (HR 1.80, $p < 0.01$) are independently associated with increased risk whereas HLA-A*11 (HR 0.36, $p = 0.03$) and -A*29 (HR 0.22, $p = 0.04$) are associated with lower risk. Univariate multi-state transition analyses showed that HLA-C*01, -B*08, -B*27, -DQB1*02 increases risk of transition through each state whereas HLA-A*11, -C*03, -C*04 and -B*60 decreases risk. Multivariate multi-state transition analysis using a reduced common effects model confirmed that HLA-B*27 (RR 1.50, $p = 0.001$) and -CDQB1*02 (1.42, $p = 0.001$) increases risk and HLA-C*03 (0.77, $p = 0.013$) decreases risk.

Conclusion: Time to event and progressive multi-state analyses suggest that HLA-B*27 and -DQB1*02 are associated with increased risk of developing AM in PsA.

Pathophysiology and immunobiology

P019

Anti-inflammatory potential of bacterial components

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Uncontrolled activation of macrophages could be involved in the development of chronic inflammatory diseases, such as psoriasis, rheumatoid and psoriatic arthritis and inflammatory bowel disease. Recently, it was demonstrated that activities of macrophages can be modulated either negatively or positively by bacterial components. The aim of our study was to evaluate the immunomodulatory effect of selected bacterial components in the process of macrophage activation.

Macrophage cell line RAW 264.7 was activated by lipopolysacharide and cultivated with various concentrations of bacterial lysates prepared from Lactobacillus casei DN-114-001 (Lc), Lactobacillus plantarum (Lp), Parabacteroides distasonis (Pd) and recombinant mycobacterial heat shock proteins 60, 70 (HSP) for 24 h at 37 °C and 5% CO_2 in DMEM. After cultivation, the concentration of cytokines in the supernatants was measured by ELISA (TNF-α) and cytokine antibody arrays. NFκB assay kit was used to detect changes in the binding activity of subunit p65 in NFκB pathway. Macrophage viability and polarization to M1 or M2 stage was performed by FACS analysis.

We found that bacterial components obtained from Lc, Pd, and HSP significantly decrease the production of TNF-α in LPS-activated RAW 264.7 cells in dose dependent manner, while similarly prepared Lp did not. Lc, Pd and HSP significantly decreased the NF-κB/DNA binding activity of p65 subunit as compared to the LPS-only or Lp + LPS treated macrophages. Additionally, we found that M2 phenotype marker, the mannose receptor CD206 was significantly upregulated and M1 phenotype marker IL-7R downregulated in LPS + Lc treated macrophages as compared to either LPS or LPS + Lp treated macrophages. Therefore, Lc seems to counteract the LPS mediated M1 polarization.

These results suggests that some bacterial components exert beneficial immunomodulatory activity and could be considered as a powerful tool in the treatment of inflammatory disorders.

P020

The role of human microRNA-31 in psoriasis

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MicroRNAs (miRNA) are ∼22 nucleotides single-stranded noncoding RNAs, which play important roles in gene regulation. We previously identified a specific miRNA expression profile in psoriasis, distinct from that of healthy skin. One of the miRNAs upregulated in psoriasis skin was miRNA-31 (miR-31). By in situ hybridization we showed that the major cell type responsible for increased miR-31 levels in psoriasis lesions was keratinocytes. We found that TGF-β1, a cytokine highly expressed in the epidermis and serum of psoriatic patients, up-regulated miR-31 expression in keratinocytes both in vitro and in vivo. To explore the role of miR-31 on cellular functions, we transfected miR-31 inhibitor oligonucleotides into primary human keratinocytes. Interestingly, inhibition of endogenous miR-31 decreased keratinocyte proliferation rate and suppressed the production of several chemokines playing key roles in psoriasis, such as CXCL1, CXCL5 and CXCL8. Furthermore, we identified genes regulated by miR-31 in keratinocytes by microarray expression profiling. Among these genes, we identified serine/threonine kinase 40 (STK40), a modulator of NF-κB signalling, as a direct target for miR-31 by luciferase reporter assays. Inhibition of STK40 by siRNA rescued the suppressive effect of miR-31 inhibitors on chemokine expression indicating that miR-31 regulates chemokine expression by targeting STK40 in keratinocytes. Taken together, our results demonstrate a role for miR-31 in regulating keratinocyte proliferation and chemokine expression. MiR-31 may become a novel target for psoriasis therapeutic intervention.

P021

Langerhans cells in psoriasis

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Introduction: Psoriasis is a chronic inflammatory disorder, in which a vigorous infiltration of T cells, neutrophils and dendritic cells (DCs) occurs in the skin. DCs is a heterogeneous cell population that exhibit a wide complexity in inflamed skin and little known of their role in psoriasis. Human DCs residing in healthy epidermis, i.e. Langerhans cells (LCs), are characterized by Langerin, CD1a, EpCAM and HLA-DR expression. Upon antigen uptake they migrate to regional lymph nodes. The exact role of LCs in infection and inflammation is not known despite excessive studies in human and mice. Impaired epidermal LC mobilization has been shown in non-lesional psoriatic skin and we have found Langerin expressing DCs in lesional dermis. This study aims at elucidating if LCs have a local immune-modulatory role in inflamed skin.

Materials and methods: Skin biopsies were collected from lesional and non-lesional areas of untreated plaque psoriasis patients, and from healthy subjects. Epidermis was separated from underlying dermis and inflammatory genes were studied in FACS-sorted DC subsets, using realtime-PCR. Electron microscopy was used to detect the LC-specific intracytoplasmic organelle, i.e. Birbeck granule, within dermal Langerin expressing cells.

Results: LCs were the main cytokine producers in epidermis, expressing both pro- and anti-inflammatory genes, whereas DCs expressed higher levels in dermis. Epidermal LCs of lesional skin displayed a more pronounced pro-inflammatory phenotype than LCs of control skin. Our data indicated that dermal LCs secreted more pro-inflammatory cytokines than epidermal LCs. Epidermal, as well as dermal LCs, but not other DCs, contained Birbeck granules.

Conclusion: The activated LC phenotype in lesional psoriatic skin indicates that they participate in the local activation of inflammatory cells, e.g. T cells, in the skin, thus contributing to the ongoing inflammation. Detection of Birbeck granules within the dermal Langerin expressing cells together with expression of EpCAM and CD1a suggests that these cells are true LCs originating from the epidermis.
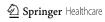
P022

Obesity and psoriasis: vaspin as a possible link?

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The link of psoriasis with obesity and the serum levels of certain adipokines is actually discussed. Vaspin, a suggested serine proteinase inhibitor of the serpin family, was originally isolated from visceral adipose

tissue of obese rats. In humans it is detectable partially in human white adipose tissue of obese patients and in human placenta. Because the impact of vaspin on inflammatory skin diseases such as psoriasis is still unknown, the expression of vaspin in healthy and psoriatic skin was investigated by analyzing vaspin mRNA by RT-PCR and protein expression by immunohistochemistry.

Keratinocytes could be identified as the major cell type expressing vaspin mRNA, whereas dermal fibroblasts or endothelial cells were vaspin-negative in vitro as well as in vivo.

To study whether the expression of vaspin is altered in psoriasis the expression level of vaspin in psoriatic skin biopsies of lesional psoriatic skin and non-lesional skin from the same localisation of the same patient were analyzed. In healthy skin vaspin is mainly expressed in the Str. granulosum, whereas in non-lesional psoriatic skin a uniform expression of vaspin in all epidermal layers was observed. By contrast in lesional psoriatic skin from the same patient a clear staining in the Str. spinosum was found, whereas vaspin was rarely detectable in the Str. granulosum. Quantification of vaspin mRNA expression in lesional psoriatic skin and uninvolved skin of the same patient confirmed significant decrease in vaspin expression in lesional psoriatic skin.

We hypothesize that altered expression of vaspin—the suggested inhibitor of serine proteases—might contribute to the maintenance of psoriasis by disturbing the balance of proteases and inhibitors involved in the in the regulation of inflammation as well as in the desquamation process.

P023

Anti-TNF-α therapy alters serum miRNA expression profiles in psoriasis patients

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MicroRNAs (miRNAs) are endogenous, non-protein-coding, regulatory RNAs with important roles in health and disease. Interestingly, miRNAs are present in the circulation in a stable form and may serve as disease biomarkers. We aimed to investigate the effect of anti-TNF-α therapy on serum miRNA levels in psoriasis patients. To this end, we performed miRNA expression profiling on serum samples from patients with chronic plaque psoriasis before and 12 weeks after the initiation of treatment with the TNF-α-inhibitor etanercept. We identified a panel of 38 miRNAs whose level significantly changed after treatment and confirmed down-regulation of six selected miRNAs by qPCR: miR-17, miR-106b, miR-26b, miR-142-3p, miR-223 and miR-126. Several miRNAs regulated by etanercept have previously been

implicated in inflammation and autoimmunity. Interestingly, none of the identified etanercept-regulated miRNAs changed in serum of psoriasis patients treated with methotrexate for 12 weeks, suggesting that the observed changes are specific for anti-TNF-α treatment. Our results suggest the involvement of miRNAs in pathways affected by anti-TNF-α therapy and warrant for further investigation of serum miRNAs as potential biomarkers for therapy response in psoriasis.

P024

Skin equivalent as an experimental model to study psoriasis

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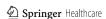
Introduction: Psoriasis is a common inflammatory skin disorder of unknown etiology, for which there is no cure. Pathology is clinically characterized by prominent epidermal hyperplasia and a distinct inflammatory infiltrate. Crosstalk between immunocytes and keratinocytes, which results in the production of cytokines, chemokines and growth factors, is thought to mediate the disease. Most of the known antipsoriatic drugs either reduce proliferation of keratinocytes or prevent activation of the immune cells. Artificially produced skin equivalent obtained from human keratinocytes in a controlled manner can become a useful tool for analysis of key factors contributing to development of the disease and help to assess efficacy of new drugs.

Aim of this study was to develop a three dimensional skin model that would allow us to screen anti-psoriatic drugs in a controlled manner and be a model in the study of the disease.

Methods: Human skin equivalent was generated from normal human adult keratinocytes grown on the de-epidermized dermis after an air exposure. The prepared skin equivalent was fixed and stained with hematoxylin and eosin to verify tissue morphology.

Results: We found that adult normal human keratinocytes cultured grown on the de-epidermized dermis at an air–liquid interface formed a structure similar to the normal human epidermis if two growth factors, EGF and KGF were added to the culture medium. Contrary, addition of proinflammatory cytokines such as IL-17 led to psoriasis-like appearance of the skin equivalent with dense stratified layer, increased thickness and hyperkeratosis.

Conclusion: We obtained 3-dimensional skin that phenotype was sensitive to the presence of proinflammatory growth factors and reproduced characteristic features of psoriasis. Thus, this model can be used to study physiological effects of the cytokines and pathology of the disease.

P025

Small intestine microflora at psoriasis: its possible role in pathogenesis

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For the first time researches of transient microflora of proximal small intestine at 121 psoriatic patients (PASI ≥ 20) are conducted. Control group consists of 43 healthy persons.

Level SIBO (small intestinal bacterial overgrowth) more than 105 CFU/ml (TBC > 5) was found at 95 psoriatic patients (78.5%). TBC (total bacterial count) for psoriatic patients has made—on average 3×106 CFU/ml that is much more than in the control group—on average 1.1×103 CFU/ml.

The correlation between SIBO level and PASI (R = 0.46), between SIBO level and duration of psoriasis disease (R = 0.43) has been found.

At 93% of psoriatic patients *Bifidobacterium spp.* was found—on average 2×105 CFU/ml (in the control group at 40%, on average 250 CFU/ml).

At 84% of psoriatic patients *Lactobacillus spp.* was found—on average 4.6×104 CFU/ml (in the control group at 19%, on average 350 CFU/ml).

At 79 of 121 psoriatic patients (65%) *Enterococcus spp.* was found—on average 2×105 CFU/ml.

Enterococcus spp. are not found in the control group at all.

At part of psoriatic patients *Str.pyogenes* (9%) and *Str.viridans* (30%) were found (not found in the control group).

It is supposed that increased colonization of small intestine by *Str.pyogenes* and others Gram + bacteria with similar peptidoglycan interpeptide bridges (in particular *E.faecalis* and *Str.viridans*), and also by Gram (−) bacteria can play important role in psoriasis pathogenesis.

The fragments of bacterial products of these bacteria contain PAMP (LPS and specific PG). These fragments get to systemic blood flow, form chronically increased both PAMP-level and PAMP-load on blood phagocytes (neutrophils, monocytes and dendritic cells). It provides functioning of systemic psoriatic process SPP.

Details about SPP are in report: ≪ Psoriasis as skin reaction to systemic psoriatic process SPP. Y-model of pathogenesis.≫ www.psorias.info.

P026

Differential scanning calorimetry analysis of human plasma in different psoriasis stages

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Psoriasis vulgaris is a chronic autoimmune, inflammatory, proliferative skin disease. Recently, there is a need for new methods to detect and diagnosis of psoriasis in the early stages. The application of Differential Scanning Calorimetry (DSC) should be as a new diagnostic method for psoriasis detection and monitoring using human plasma. We aimed to detect liquid plasma components with DSC in psoriasis patients. The study included 18 white adults (8 men and 10 women; median age 55.7 years) who had underwent a full skin examination for psoriasis and completed a standardized questionnaire. The Psoriasis Area Severity Index (PASI) is an index used to express the severity of psoriasis. It combines the severity (erythema, induration and desquamation) and percentage of affected area. Taking in consideration the severity of symptoms, we stratified them in 3 groups based on the above scoring system PASI: 0 (symptomless), PASI: 1–10 (minimal symptom), PASI: above 11 (symptom). Peripheral blood samples were collected from these patients and from healthy controls. Human blood plasma components were analyzed by DSC technique. In this preliminary study we observed that thermal changes (Tm, calorimetric enthalpy) in blood plasma showed closed correlation with psorasis stages. Further studies are needed to elucidate these relationships, but our application of the DSC method has provided a potential new tool for the early diagnosis and monitoring of psoriasis patients.

P027

The role of miR-146a in innate immunity of keratinocytes

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Previously, our group performed a genome-wide screen for microRNAs in psoriasis skin, and showed a distinct pattern of deregulated microRNA expression. However, the specific role of the deregulated miRNAs in the complex cellular context of psoriasis is not fully understood.

In this study we focused on miR-146a, which was one of the microRNAs we found to be deregulated in psoriasis skin. This miRNA plays a vital role in innate immunity and acts as a gatekeeper of autoimmunity. However nothing is known about its role in keratinocytes.

Therefore, we aimed to study the regulation and function of miR-146a in keratinocytes. First, we tested the effect of different Toll-like receptor (TLR) ligands in keratinocytes. We found that Zymosan, quickly induced expression of miR-146a in keratinocytes already 1 h after treatment in a TLR2-dependent manner. Interestingly, while the production of TNF-alpha, IL-1beta, IL-8, CCL20 and beta-Defensin 2, which were all induced by Zymosan, was diminished 24 h after stimulation, the expression of miR-146a remained at a continuously high level for several days (up to 96 h) upon stimulation. Overexpression of miR-146a in keratinocytes effectively decreased both base-line and TLR-ligand-induced production of cytokines and chemokines and could thus block the effects of Zymosan stimulation. In accordance, the specific inhibition of miR-146a led to an increased production of cytokines and chemokines in unstimulated keratinocytes. These results suggest that miR-146a provides a negative feedback of NF-kB signaling in keratinocytes and thus helps to dampen inflammation. Altogether our data provide evidence that miR-146a regulates the production of inflammatory mediators in keratinocytes and thus might be an interesting target for therapeutic approaches.

P028

FC gamma receptors in active psoriatic arthritis

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Introduction: In autoantibody inflammatory rheumatic diseases an important role of Fc receptors has been proposed but not fully clarified. In psoriatic arthritis (PsA) multiple disease-phenotypes are known, but our knowledge of Fc receptor function and the interplay between the humoral and adaptive immunity is limited. The aim of this study was to characterize Fc receptors in active PsA.

Methods: Peripheral blood was collected from 23 patients with active polyarticular PsA and 33 healthy blood donors. Immunoglobulin, autoantibody levels and C-reactive protein (CRP) were analyzed. Disease activities were characterized with DAS28, HAQ, stiffness-VAS, pain-VAS and PASI. Fc alpha (CD89) and Fc gamma (CD16, CD32a + b, CD64) receptor status as well as cell bound IgG on CD14 + blood monocytes were studied using flow cytometry. Monocyte subpopulations were characterized for degree of CD14 and CD16 expression. IgG immune complex binding and IgG-stimulated TNF-alpha production in MACS purified monocytes were analyzed using a rosetting technique and a sandwich-TNF-ELISA.

Results: IgG1-, IgG2-, IgG3-levels were increased in the PsA patients. The proportion of CD14 + monocytes correlated positively with DAS28, CRP and total serum IgG in the patients. CD64 + monocytes were more abundant in PsA patients and displayed increased cell-surface bound IgG. The CD16 + monocyte subpopulation was decreased in compared to healthy controls. IgG3 stimulated TNF-production in monocytes from patients was decreased, especially in patients on immunosuppressive medications. Immune complex handling correlated with tender joint count, patient reported stiffness/pain and DAS 28CRP.

Conclusions: Alternations in monocytic Fc gamma receptors is observed in active PsA and these could be used as markers for characterization of disease activity. Handling of immunocomplexes via these receptors is probably affected due to occupancy with increased amount of IgG. This study shows a possible interaction between humoral and adaptive immunity in PsA.

P029

Evaluation of cardio-protective role of methotrexate in psoriasis

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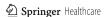
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Introduction: Psoriasis is a chronic inflammatory skin disease that affects 1–3% of population The underlying pathogenesis of psoriasis is characterized by T cell activation and subsequent immune/inflammatory cell trafficking within the skin, promoting keratinocyte proliferation and epidermal hyperplasia leading to psoriatic plaque formation.

Suppression of inflammatory process with treatment may reduce cardiovascular risk in patients with psoriasis and rheumatoid arthritis. The presence of comorbid conditions in patients with psoriasis affects the clinical management of the disease. As psoriasis and its associated comorbidities share common inflammatory mechanisms, thus suggesting that therapies targeting underlying inflammation may be effective in treating both psoriasis and these comorbidities.

Aims: To evaluate the cardioprotective role of methotrexate in psoriasis.

Materials and Methods: 60 patients of moderate to severe psoriasis having BSAI >10% and PASI >10 were studied. Serum cholesterol, triglycerides, plasma glucose, serum C-Reactive protein (CRP) were analysed along with recording of electrocardiogram (ECG) which were repeated after 8 weeks of methotrexate therapy. Metabolic syndrome was diagnosed by the presence of three or more criteria of the modified version of National Cholesterol Education Programme's Adult Panel III (ATP III).

Results: CRP was reactive in 10 (16.6%), ischemic heart disease (IHD) in 6 (10%) and septal hypertrophy in 1 (1.6%) patient. After 8 weeks of MTX therapy, serum CRP became non-reactive in 4 (40%) whereas ischemic changes on ECG were reversed to normal in 3 (50%) patients.

Conclusions: Methotrexate was found to be cardioprotective in 50% of psoriasis patients having associated IHD in our study. So the cardioprotective role of methotrexate should be kept in mind while selecting treatment modalities in psoriasis patients associated with IHD.

P030

Immune regulation at the border of psoriatic lesions

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Background: Psoriasis is strongly associated with CD4 + T helper 17 (Th17) cells. Th17 cells are highly pro-inflammatory T cells and produce IL-17. CD4 + CD25 + Foxp3 + regulatory T cells (Tregs) play an important role in maintaining immune tolerance and preventing autoimmunity.

Objectives: We performed a descriptive study using the border of a psoriatic lesion as an approach to study cellular infiltrates in the different phases of psoriasis, with the emphasis on IL-17 producing cells and Tregs.

Methods: From nine patients with mild-to-moderate chronic plaque psoriasis 3 mm punch biopsies were obtained from the centre and the margin of the lesion, perilesional skin and distant uninvolved skin. The tissues were processed for immunohistochemistry and immunofluorescence using several markers.

Results: In the transition from clinically uninvolved to lesional skin, we found a marked increase in the presence of CD3, CD4 and Foxp3 expressing cells, while IL-17 producing cells only slightly increased. Moreover, we found standard levels of IL-17, present in the perilesional and distant uninvolved skin. Regardless of biopsy location, a minority of IL-17 was related to CD4 + cells and neutrophils, while most of the IL-17 expression was related to mast cells.

Conclusions: We found a discrepancy in trends of CD3+, CD4+ and Foxp3+ T cells versus IL-17 producing cells in the transition from clinically uninvolved to lesional psoriatic skin. While CD3, CD4 and Foxp3 expression was higher in the perilesional skin compared to the distant uninvolved skin, IL-17 expression did not differ between the two biopsy locations. Although IL-17 production is supposed to be an important driver in the psoriatic process, it does not act as a marker for a specific phase in the pathogenesis of psoriasis. Moreover, most of the IL-17 expression was related to mast cells, while a minority was related to T cells and neutrophils. Further studies are necessary, to assess the role of IL-17 producing T cells versus mast cells in the pathogenic process of psoriasis.
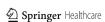
P031

Comparison between involved and uninvolved psoriatic skin in a pathological skin model produced with the self-assembly approach

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Current research on psoriasis suggests that uninvolved psoriatic skin could demonstrate characteristics associated with both normal or involved psoriatic skins. However, the triggering factor allowing the conversion of uninvolved skin into a psoriatic plaque is not fully understood. This work strives to develop and characterize a psoriatic skin model produced with involved or uninvolved cells, in order to reach a better understanding of the differences between these psoriatic skins regarding several characteristics such as histology as well as lipid organization and permeability of the stratum corneum. The self-assembly approach were used for the production of normal, involved and uninvolved psoriatic skin substitutes. Skin biopsies were taken and histological, physico-chemical and permeability analyses were performed. Results showed that involved substitutes had a thicker epidermis as well as a more permeable and disorganized stratum corneum compared with normal substitutes. Results obtained with uninvolved cells showed two different profiles: profile 1 in which substitutes mimicked those produced with normal cells and profile 2 in which substitutes shared characteristics with those produced with involved cells. In brief, uninvolved substitutes of profile 1 had a thin and well-organized epidermis such as observed with normal substitutes, while uninvolved substitutes of profile 2 showed an inverse trend i.e. a thicker epidermis as well as a more disorganized and more permeable stratum corneum such as observed with involved substitutes. The results suggest that uninvolved substitutes could demonstrate characteristics associated with both normal or involved psoriatic skins. It is interesting to note that the self-assembly approach lies in the possibility of dissecting step by step the contribution of each different cell type involved in such a complex pathology as psoriasis. Even today, the exact cause of psoriasis is still unknown, but we believe that

uninvolved cells could give us some very interesting clues on the development of this complex pathology and that our psoriatic skin substitute model could become a powerful tool in making these discoveries possible.

P032

Clinical and immunological response to treatment of psoriasis in the Blue Lagoon compared with narrow-band UVB monotherapy

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Introduction: The Blue Lagoon is a geothermal lagoon located in Iceland. Blue Lagoon based psoriasis treatment, that includes bathing in the lagoon combined with UVB phototherapy, has proven to be highly effective but its mechanism of action remains unclear. In this study the therapeutic and immunological effect of psoriasis treatment in the Blue Lagoon was evaluated and compared to traditional UVB phototherapy.

Materials and Methods: Seventy patients with psoriasis were randomized into three therapeutic arms. (1) (n = 22) received out-patient treatment for 6 weeks in the Blue Lagoon (BL out-patient group), (2) (n = 24) received in-patient treatment for 2 weeks in the Blue Lagoon followed by maintenance UVB phototherapy three times/week for 4 weeks (BL in-patient group), and (3) (n = 24) received out-patient UVB phototherapy treatment for 6 weeks (UVB group). Disease severity (Psoriasis Area and Severity Index; PASI) was recorded and blood samples obtained before, during and after treatment. Circulating T cells were evaluated for several important inflammatory adhesion-, receptors- and secretory mediators.

Results: There was a significant decrease in the frequency of circulating T cells that co-expressed the skin-homing molecule CLA, the chemokine receptor 4 (CCR4) and the CD103 integrin. A significant reduction of the Th17 + (Th17: CD4 +/IL-17 +/IL-22 +) and Tc17 phenotype (Tc17: CD8 +/IL-17 +/IL-22 +) was also observed in both BL treatment groups, but not in UVB phototherapy group. This anti-inflammatory response in the blood was reflected in the clinical evaluation after 6 weeks of treatment, where more patients receiving in- and out-patient treatment in the Blue Lagoon achieved PASI 75 (20/26 and 15/22) compared to UVB phototherapy alone (4/24) ($p < 0.05$). In addition, more patients achieved PASI 90 in in-patient Blue Lagoon group (11/26) compared to both of the other groups ($p < 0.01$).

Conclusion: Treatment in the Blue Lagoon is a highly efficacious treatment for psoriasis and its beneficial therapeutic effect is directed at potentially pathogenic Th17 and Tc17 inflammatory T cells in this disease.

P033

Systemically elevated Th1-, Th2- and Th17-associated chemokines in psoriasis

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Introduction: Psoriasis is a Th1/Th17-characterized immune disease. In psoriasis there is an infiltration of T cells to the skin and a local secretion of cytokines, chemokines and growth factors. While the disease manifests in the skin, there is also a systemic inflammation which may explain the increased risk for co-morbidities in psoriasis patients. The aim was to investigate circulating chemokines in psoriasis patients and to study how they are affected by narrowband ultraviolet (UV)B treatment.

Method: The chemokines CXCL8, CXCL9, CXCL10, CXCL11, CCL17, CCL20 and CCL22 were measured in plasma from 27 patients and matched controls using a multiplex assay. 15 patients were followed-up after 6 and 12 weeks of narrowband UVB treatment. Peripheral blood mononuclear cells (PBMCs) were isolated from the 10 patients with the highest PASI and were stimulated with LPS or anti-CD3/anti-CD28 antibodies to activate antigen-presenting cells (APCs) and T cells, respectively, to study the systemic levels of cytokines up-stream of the chemokine production.

Results: Analysis of plasma levels of chemokines revealed an increased expression of CXCL9, CXCL10, CCL17, CCL20 and CCL22 in psoriasis patients. CCL20 correlated with disease severity. Narrowband UVB therapy reduced skin symptoms, but did not affect plasma levels of the chemokines. Anti-CD3/anti-CD28-mediated activation of PBMCs gave rise to a higher secretion of the Th2 cytokine IL-13 by PBMCs from psoriasis patients than from healthy controls. The cytokine release by activated PBMCs was not affected by narrowband UVB treatment.

Discussion: Analysis of plasma chemokines revealed an elevated expression of the Th1-associated CXCL9 and -10, Th2-associated CCL17 and -22, and the Th17-associated CCL20. Narrowband UVB therapy reduced skin symptoms, but did not affect the levels of chemokines in plasma, nor did it affect the cytokine release by activated T cells or activated APCs. These results suggest that the effect of UVB

may be more focused on local inflammation rather than the systemic, and that the reduction in skin symptoms is not primarily due to altered systemic APC and T cell activation.

P034

Characterization of skin resident T cells in psoriasis treated with UVB or anti-TNFalpha therapy

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Psoriasis is characterized by massive infiltration of T cells into the skin. The pathogenic role of skin infiltrating T cells in psoriasis has been shown in both clinical and experimental settings. In a xenotransplant model of psoriasis, the entry of VLA-1 expressing T cells into epidermis has been shown to drive the development of psoriasis. We propose that pathogenic T cells remain in the skin after treatment and drive recurrent disease in previously inflamed areas of the skin. The focus of our current work is characterization of skin resident T cells in successfully treated lesions under different treatment regimes. Patients undergoing systemic anti-TNFalpha (aTNFa, n = 4) treatment or UVB treatment (n = 7) in combination with topical vitamin D analogues/corticosteroid were recruited and compared to healthy controls (n = 10). T cells derived from enzymatically treated punch biopsies were analyzed using flow cytometry. Preliminary results suggest that a population of T cells remains in successfully treated lesions as compared to healthy controls and nonlesional skin regardless of the treatment regime. This population of T cells is predominantly found in the epidermal compartment of the skin and express VLA-1. These results may suggest that T cells from UVB or aTNFa-treated lesions may exhibit different functionality as compared to healthy skin.

Epidemiology

P035

Psoriasis and psoriatic arthritis among natives and mestizos from the Andean mountains region of Peru

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Background: Previous epidemiological studies described that both Psoriasis (Ps) and Psoriatic Arthritis (PsA) are diseases with negligible prevalence among Natives from the Andean mountains of Peru. We herein first report the presence of Ps and PsA as well as the clinical status of Peruvian Natives and Mestizos with psoriatic disease.
Objectives: Our purpose was to describe the most salient demographic and clinical features of Peruvian Natives and Mestizos with Ps and PsA from Juliaca, Puno in the Andean mountains region of Peru.
Methods: During October 1st 2008 to December 31st 2010 consecutive patients attending the rheumatology clinic at the Hospital III in Juliaca, Puno (Southern Peru) at 3,824 meters above sea level were carefully assessed for the presence of PsA satisfying the CASPAR classification criteria. The diagnosis of Ps was confirmed by a dermatologist. Descriptive statistics were used to describe the study population.
Results: Twelve patients with a mean (SD) age of 49.3 (10.7) years fullfilling CASPAR classification criteria were identified. There were 7 (58%) men and 5 (42%) women. 7 PsA patients were Natives of Quechua Ancestry and 5 Mestizos of European and Quechua mix. At the time of first clinical visit all Natives with PsA had no family history of both Ps and PsA and exhibited an established disease (ranging from 12–72 months), were more likely to have a polyarticular disease, and a more severe disease phenotype evidenced by the presence of radiographic damage than Mestizos with PsA. Methotrexate exposure (dose ranging from 15–20 mg/wk) was almost universal in both Natives and Mestizos as was the absence of exposure to biological agents in spite of radiographic damage.
Conclusions: We first report Ps and PsA in the absence of a family history among Natives of the Andean Mountains of Peru in whom the CASPAR criteria was successfully applied to classify PsA patients. At the time of first visit PsA among the indigenous appeared to be chronic and more severe as most of these patients had radiographic damage.

P036

The Swedish Early Psoriatic Arthritis (SwePsA) registry. 5-year follow-up: Worse outcomes for women compared to men

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Objective: SwePsA intends to describe the course of early psoriatic arthritis (PsA) in a real life clinical setting in Sweden.

Method: In 6 centres patients with signs suggestive of PsA were included in the registry within 2 years from symptom onset. Two-hundred and eight patients fulfilling CASPAR (1) or ASAS (2) criteria had passed the 5-year follow-up. Disease activity was measured by DAS-28 and DAPSA (3). Remission and Minimal Disease Activity (MDA) (4) were used as outcome measures.

Results: Mean age at baseline was 46 years, younger in male than female patients (43 vs. 48 years).

Mean DAS-28 values were 3.4 at baseline and 2.6 at follow-up, significantly higher in women (3.7 and 2.9) than in men (3.0 and 2.1) at both visits. Likewise DAPSA scores were significantly higher in women. The degree of improvement (delta DAS-28, delta DAPSA) was similar. More men achieved MDA or remission (50 vs. 31%, 24 vs. 12% respectively). While women had significantly more polyarthritis at baseline (52 vs. 33%) and after 5 years (21 vs. 15%), axial or mono/oligoarticular disease predominated in men.

Independent predictors of MDA at 5-year follow-up were male gender, axial disease, shorter symptom duration at inclusion and low baseline HAQ. Despite the higher disease activity in women, there was a trend towards less DMARD treatment in women.

Conclusion: In early PsA male gender, axial disease, short delay between symptom onset and diagnosis, as well as preserved function at diagnosis are predictors of favourable outcome at 5-year follow-up. Early recognition of PsA and active treatment may be important particularly in women with polyarticular disease.

P037

Latent tuberculosis infection or tuberculin hiperergy? A three-year retrospective study on patients with psoriasis in an endemic area

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Background: The introduction of anti TNF-alpha agents has intensified the screening for tuberculosis infection before biologic therapy.

Aims: The aim of this study was to determine the prevalence of positive tuberculin skin test (TST) in psoriatic patients, compared with other groups.

Materials and methods: We screened 268 subjects for latent tuberculosis infection (LTBI) in a 3-year retrospective study. The screening included epidemiological studies, history of Bacillus Calmette-Guerin vaccination, and TST with 2 units of purified protein derivate. The cutoff for a positive skin test was accepted as an area of induration of more than 5 mm. For statistical analysis, we used the ANOVA test and was performed with the InStat software of GraphPad. P value <0.05 was considered statistically significant.

Results: We enrolled 68 patients (mean age: 50 years) with moderate-to-severe psoriasis (PASI, BSA >10) and 200 patients without psoriasis, tuberculosis suspects or subjects with close contact with infected individuals: 100 adults (mean age: 50.3 years) and 100 children (mean age: 12.7 years). Positive TST results were observed in 70.5% (48/68) of patients with psoriasis (TST mean value: 9.6 mm), higher than those observed in subjects with suspicion of tuberculosis or with close contact with infected individuals: 51% (51/100) in adults group (TST mean value: 6.4 mm) and 30% (30/100) in children group (TST mean value: 4 mm).

Conclusions: The incidence of LTBI evaluated with TST in psoriatic group is higher than the general rate described in control groups. These results support the possibility of false positive TSTs in psoriatic patients. The tuberculin hyperergy is common in psoriatic patients, possibly due to subjacent immunological mechanisms.

Keywords: Psoriasis, Tuberculin skin test, Latent Tuberculosis.

P038

PSOLAR: Global update of a multicentre, open registry of psoriasis patients

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Objective: To determine the baseline characteristics of Canadian participants in the PSOLAR registry for patients with psoriasis who are candidates for systemic treatment. Baseline demographics of the enrolled cohort are presented here.

Methods/Results: PSOLAR (PSOriasis Longitudinal Assessment Registry) is a multicenter, prospective, longitudinal, 8+ years, observational study in academic and community-based settings. Eligible patients are aged ≥18 years, have a diagnosis of psoriasis and are currently receiving or are candidates to receive systemic therapies for psoriasis. Demographics and medical/family history are collected at enrollment. Collections at 6 month intervals include: adverse events, disease activity, quality of life, economic status, healthcare utilization and interval therapies. International sites in

North America and Europe recruited 9,495 patients as of 23 August 2011. The baseline characteristics were as follows: median age: 49.0 (range 18–100 years), 61.8% of patients ≥45 years, 54.5.0% male, 82.4% white, mean BMI 31.1 (SD 7.3), disease duration of 17.4 years (SD 13.6 years) since diagnosis. Medical history includes: 38.8% cardiovascular disorders, 14.9% pulmonary disorders, 21.0% psychiatric disorders, 19.0% endocrine disorders, and 6.4% skin cancer. Infections requiring treatment in the last 3yrs occurred in 26.0% of which 23.1% were bacterial infections. Mean BSA coverage at enrollment was 12.5% (SD 18.0%), mean PGA 2 (SD 1.2); 96.8% of patients presented with plaque type psoriasis. Medication (current and historical) included topicals (97.3%), phototherapy (54.8%), systemic steroids (24.6%), immunomodulators (46.2%), and biologics (78.7%).

Conclusions: As a disease directed registry, PSOLAR offers the ability to collect disease activity/outcomes associated with many therapies in actual clinical practice.

P039

Genital involvement in Indian patients with psoriasis

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Background: Genital involvement in psoriasis can have significant physical and psychosocial morbidities; however there is little data available on burden of disease from Indian subcontinent.
Aim: To analyse the genital involvement in psoriasis at our centre.
Materials and methods: All consecutive patients attending the psoriasis clinic past 6 months were screened for genital involvement due to disease. Data regarding demography, body surface area, psoriasis area and severity index (PASI) and morphology of genital lesions was recorded. The severity of genital involvement was graded as mild, moderate and severe.
Results: Among 852 cases screened, 100 had genital psoriasis, giving a prevalence of 11.7%. The mean age was 37.09 ± 13.46 years; male to female ratio being 3:1. The average duration genital involvement was 19.3 ± 40.91 months. The genital involvement was the initial site of presentation in 3.8% patients. Itching or burning sensation in genital lesions noted in 67.5% patients. The commonest site affected was scrotum (37.5%) followed by glans/labia/prepuce (22.3%) and corona (16.3%). Erythematous scaly plaques were commonest type of lesions seen in 87.6%, associated fissuring was observed in 53.1% of these lesions and thin non scaly plaques commonly described in genital psoriasis was seen in only 8.8% of patients. Unusual lesions like erythematous pin-point papular eruption

were seen in 6 patients. Less common variants observed were pseudo circinate balanitis, annular psoriasis and pustular psoriasis in 1.3% patients each. Associated flexural and nail disease was seen in 22.5 and 48.8% respectively. Chronic smoking, alcoholism was present in 17.6% of patients. There was no significant correlation of genital involvement with PASI.
Conclusion: The prevalence of genital psoriasis in our patients was 11.7% usually associated with nail and flexural disease having no significant correlation to severity of disease. Larger studies involving more number of subjects will shower some light over this poorly reported side of psoriasis.
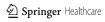
P040

Advanced cardiometabolic phenotyping in psoriasis: links between psoriasis and cardiovascular disease?

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Psoriasis is a Th-1/17 inflammatory disease associated with increased risk of major adverse cardiac events (MACE), however, the mechanisms underlying this association remain poorly understood. Systemic inflammation has been implicated in: (1) metabolic and adipokine derangement leading to an insulin resistant (IR) state; (2) lipoprotein particle dysfunction; (3) increased generation of cell membrane vesicles, or microparticles (MP) which are predictive of MACE. We sought to determine if modulation of these pathways implicated in atherosclerosis may provide a link between psoriasis and MACE. We prospectively enrolled a consecutive sample of patients with psoriasis (n = 122) and compared these cardiometabolic risk factors with health controls (n = 129). We performed metabolic assessment for IR and adiposity (n = 122), lipid particles by NMR spectroscopy (n = 122), HDL efflux by a J774 macrophage system (n = 78) and microparticles for endothelial cells, T cells and platelets after fluorescent labeling and characterization by flow cytometry (n = 51). In fully adjusted models, psoriasis patients demonstrated more insulin resistance (HOMA-IR: 3.5 (2.3–6.6) vs. 1.4 (.94–2.1), $p < 0.001$), lower adiponectin [7.1 (4.9–11.3) vs. 14.5 (8.4–24.2), $p < 0.001$], a more adverse lipid particle profile by NMR (increased LDL particle number [1,271 ($\pm$413) vs. 1,139 ($\pm$328), $p = 0.002$], decreased LDL size [20 ($\pm$0.7) vs. 21 ($\pm$0.7), $p < 0.001$] and HDL size [8.9 ($\pm$0.6) vs. 9.1 ($\pm$0.3), $p = 0.01$]), decreased HDL function by cholesterol efflux (0.86 ± 0.13 vs. 1.18 ± 0.11; $p = 0.002$) and higher absolute MP levels (2.6-fold; $p < 0.01$) and MP

concentration (per μL, 50-fold; $p = 0.01$). Characterization of these MPs revealed a predominance of endothelial-, platelet-, and T lymphocyte-derived MPs, all present in higher absolute levels in psoriasis patients ($p < 0.05$). We demonstrate that assessment of established and novel CV biomarkers reveals a more atherogenic profile in psoriasis, a finding which persisted after adjustment for traditional MACE risk factors and BMI. These findings may provide links between the association of psoriasis and MACE.

P041

Prevalence of doctor-diagnosed psoriasis and psoriatic arthritis in southern Sweden

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The prevalence of psoriasis (PSO) and psoriatic arthritis (PsA) leading to a doctor consultation needs to be more described in detail with up-to-date information. This study estimates the prevalence of doctor-diagnosed PSO and PsA in southern Sweden, using a health care register covering the entire population in the region.

In the Skåne Health Care Register (SHCR) (covering 1/8 of the total Swedish population), information on all primary health care and specialized outpatient and inpatient care are continuously collected for individuals living in the county of Skåne with personal identification number (PIN), age, sex, health care provider, date of visit and ICD-10 diagnosis codes. From the SHCR, we selected individuals who at any time during the period Jan. 1, 1998 and Dec. 31, 2010 had consulted a doctor and at that time received an ICD-10 diagnosis code (L40.0, L40.1, L40.4, L40.5, L40.8, L40.9) consistent with PSO. From this group we selected those with any of the following PsA diagnosis codes: M07.0, M07.1, M07.2, M07.3 and M09.0. Those diagnosed using code L40.5 or a combination of a PSO and a PsA diagnosis code were defined as having PsA. By cross-referencing with PIN from the Population Register (total pop. in southern Sweden Dec. 31, 2010 = 1,242,669) individuals who were deceased or had relocated out of the county by Dec. 31, 2010 were excluded. Hence, we calculated the point prevalence estimates for both PSO and PsA by Dec. 31, 2010. During 1998–2010, we identified 20,625 individuals who fulfilled the inclusion criteria for PSO and were still alive and resident in the county. This means a doctor-diagnosed PSO prevalence estimate of 1.95% (95% CI 1.93–1.98) in the population of southern Sweden. Out of the individuals diagnosed with PSO, 3,596 (13.5%)

individuals were identified as having PsA, yielding a prevalence of doctor-diagnosed PsA of 0.34% (95% CI 0.33–0.35) by the end of 2010.

In this study we have demonstrated how a register of true health care consumption can be used to estimate the prevalence of PSO and PsA. This information is of particular interest in further studies on the burden of the disease and costs associated with PSO and PsA.

P042

Nail psoriasis: epidemiology and the burden of disease.

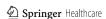Klaassen, Karlijn[1]; Pasch, Marcel[2]; van de Kerkhof, Peter[2]

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Background: Nail manifestations in psoriasis are an often overlooked symptom of the disease. The documented prevalence of nail disease among psoriasis patients varies between 15 and 79%, with an estimated lifetime incidence of 80–90%. The aim of this investigation was to gain knowledge about the epidemiology of nail psoriasis and the burden of disease.
Methods: A structured self-administered questionnaire was distributed to all members (n = 5,400) of the Dutch Psoriasis Association. The questionnaire enquired about socio-demographic patient characteristics and psoriasis-related data. Patients reported their nail manifestations after instruction with photographs. The questionnaire included validated instruments concerning quality of life (Dermatology Life Quality Index; DLQI) and psoriasis severity (Self Administered Psoriasis Area and Severity Index; SAPASI). Patients with nail psoriasis were compared with patients without nail psoriasis with regard to former mentioned items.
Results: A total of 1,479 (27.0%) questionnaires were returned and included. Of all respondents, 66.0% was diagnosed with nail psoriasis. The most frequent observed psoriatic nail manifestation was pitting (65.4%). The group of patients with nail involvement had more severe psoriasis (SAPASI score 6.6 vs. 5.3), longer disease duration (32.4 vs. 30.3 year) and younger age at diagnosis (24.4 vs. 28.3 year) compared to the patients without nail involvement. Patients with both nail bed and nail matrix manifestations showed a significant worse quality of life and more severe psoriasis compared with patients with either nail bed or nail matrix involvement (DLQI: 5.3 vs. 4.3 and 4.3; SAPASI 7.2 vs. 5.6 and 5.8). Sixteen percent of patients received treatment for their nail psoriasis.
Discussion: Nail psoriasis is a relevant manifestation of psoriasis. Psoriasis severity and quality of life are influenced by nail psoriasis. Combination of nail bed and nail matrix manifestations is related to a higher

severity of psoriasis and inferior quality of life. Management of psoriasis should include a focus on nail involvement to improve quality of life in psoriasis patients.

P043

Comparative analysis of the cohorts with early and established psoriatic arthritis (PsA)

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Aim: Early PsA diagnosis/management could prevent disease progression, associated with destructive joint damage, disability, and increased cardiovascular risk. The aim of this study was to analyze the differences in clinical presentation and patient quality of life (QoL) in early (EPsA) versus established PsA, defined as <2 and $\geq$2 years from diagnosis, respectively.

Methods: PsA patients (CASPAR criteria) were recruited from a rheumatology clinic specializing in PsA and followed prospectively. Clinical assessment included TJC, SJC, standard joint radiography, blood tests, number of involved entheses, PASI, PASQ, HAQ, and DAS28. QoL was assessed with the SF-36 and EQ-5D (EQ-VAS) questionnaires.

Results: A total of 196 patients were included, among whom 84 (42.9%) and 112 (57.1%) belonged to the early and established cohort, respectively. Gender distribution (52.4 vs. 48.2% females) and age (48.0 vs. 49.7 years) were comparable. EPsA patients were older at Psoriasis (38.7 vs. 34.1; $P = 0.030$) and PsA (47.9 vs. 44.3; $P = 0.037$) onset; they also had a significantly higher incidence of DIP involvement (OR = 1.78, 95% CI 1.00–3.15; $P = 0.049$). Mean TJC and SJC did not differ significantly. The Established PsA cohort had a significantly higher number of abnormal, clinically relevant changes in almost all joints compared to EPsA. EPsA patients had significantly higher PASQ score (11.3 vs. 6.2; $P < 0.001$), DAS28-3 (CRP) (3.8 vs. 3.3; $P = 0.011$), and Pain VAS (33.2 vs. 23.8; $P = 0.017$). At baseline, NSAID use was non-significantly higher in EPsA patients (81.0 vs. 71.4%), while patients with Established PsA were more frequently treated with MTX (46.4 vs. 31.0%; $P = 0.039$), sulfasalazine, adalimumab, etanercept, and infliximab. Significant between-group differences were observed in QoL with EPsA patients reporting improved physical (PCS 57.2 vs. 42.6; $P = 0.003$) and mental functioning (MCS 62.1 vs. 46.2; $P < 0.001$), as well as General Health Status (EQ-VAS 65.7 vs. 50.2; $P < 0.001$).

Conclusions: The results of our study suggest that early diagnosis and management of PsA can effectively help in reducing the burden of disease, preventing the permanent joint damage and improving the patients QoL.

P044

Biologic therapies in the treatment of psoriasis: their association with the development of specific inflammatory comorbid conditions among a cohort of the Newfoundland and Labrador population
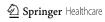
Gulliver, Wayne[1]; Gladney, Neil[2]; Collins, Kayla[2]; Morrissey, Andrea[2]; MacDonald, Don[2]

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This is a retrospective cohort study investigating the association between particular inflammatory conditions including uveitis, ankylosing spondylitis, psoriatic arthritis, Crohn's disease, ulcerative colitis, myocardial infarction and stroke and treatment type received (biologics versus non-biologics). We hypothesize that a decreased frequency of such inflammatory conditions will be seen in psoriasis patients receiving biologic therapy. Such a hypothesis stems from the rationalization that biologics target important aspects of the immune system including T lymphocytes and cytokines which cause the inflammatory aspects of psoriasis. Because biologics are targeted to reduce chronic inflammation of psoriasis, it follows that they might also have an impact on inflammation in the eye, joints, bowel and coronary arteries. A retrospective cohort study linking medical records of over 10,000 confirmed cases of psoriasis who have received either biologic or non biologic treatment. Cases come from a private dermatology clinic in St. John's (NewLab Life Sciences Inc.), as well as administrative health databases of the Newfoundland and Labrador Centre for Health Information, St. John's, Newfoundland and Labrador. The following data sources will be linked through a multi-step data linkage process.

1. The NewLab Psoriasis Clinical Database (1989–2011)
2. The NewLab Biologics Treatment Database (1999–2011)
3. The Clinical Database Management System (CDMS; hospital separation database) (1995/96–2009/10)
4. The Newfoundland and Labrador Medical Care Plan (MCP) fee-for-service physician claims database (FFS) (1995/96–2009/10)

Descriptive statistics will be generated to describe the distribution of psoriasis patients by treatment type, demographic and prognostic. Analyses will be performed to determine if there is a difference in the occurrence of specific inflammatory comorbidities between treatment groups. Analyses will be performed to investigate possible associations between inflammatory conditions and treatment type (biologics or non-biologics).

P045

An examination of biologic treatment groups of psoriasis patients in a cohort of the Newfoundland and Labrador population

Gulliver, Wayne[1]; Morrissey, Andrea[2]; Gladney, Neil[2]; Dowden, Jeffrey[2]; Collins, Kayla[2]; Alaghehbandan, Reza[2]; MacDonald, Don[2]

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Research regarding biologics treatment for psoriasis is quite limited given that biologics treatments were introduced to the market only within the past 10 years. In this study, the distribution of psoriasis patients by biologic treatment type, demographic factors and prognostic factors was examined. Health service utilization (hospital and physician visits) and comorbidities among psoriasis patients by biologic treatment type was also described. The odds of developing particular comorbid conditions was examined based on whether or not a patient received biologics treatment. Preliminary findings suggest the majority of patients receiving biologics treatment had moderate/severe psoriasis. Signs and ill-defined conditions, skin/sub-cutaneous diseases, respiratory disease, nervous system/sense organs disease and musculoskeletal/connective tissue diseases were some of the most common comorbidities found across all biologic classes. Among biologics patients, 63.7% had at least one unique hospital separation, and 96.3% had at least one physician visit. The Charlson Comorbidity Index (CCI) which predicts 1 year mortality for patients with many comorbid conditions was significantly higher in female patients (2.37) as compared to male patients (1.93) $p < 0.05$ on biologics. Of the biologics patients whose Psoriasis Area and Severity Index (PASI) scores were available, 86.1% saw improvements after biologics treatment. An important limitation of this study is its design as a cross-sectional, descriptive study looks only at a snapshot of a population at a particular time.

P046

PSOLAR: Canadian update of a multicentre, open registry of psoriasis patients

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[6]University of British Columbia, Department of Dermatology and Skin Science, Vancouver, Canada; [7]Probity Medical Research, Waterloo, Canada; [8]Janssen Inc, Toronto, Canada; [9]Janssen Services, LLC, Horsham, USA
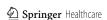
Objective: To determine baseline characteristics of Canadian participants in PSOLAR (PSOriasis Longitudinal Assessment Registry) for patients (pts) with PsO who are candidates for systemic treatment. Baseline demographics of the enrolled cohort are presented.
Methods/Results: PSOLAR is a multicenter, prospective, longitudinal, 8 + years, observational study in academic and community-based settings. Eligible pts are aged ≥18 years, have a diagnosis of PsO and are currently receiving (or are candidates for) systemic therapies for PsO. Demographics and medical/family history are collected at enrollment. Collections at 6 month intervals include: adverse events, disease activity, quality of life, economic status, healthcare utilization and interval therapies. 35 Canadian sites recruited 1,366 pts (representing 14.4% of the total global population) as of August 23, 2011. Number of pts discontinuing to date is 38 (2.8%) with reason of "withdrawal of consent" [15 (1.1%)] and "presumed lost to follow-up" [16 (1.2%)] documented as the top 2 reasons. The baseline characteristics were: mean age: 49.2 (SD 12.1), 28.0% of pts ≥45 years, 62.5% male, 90.7% white, mean BMI 31.5 (SD 6.9), 73.4% in a committed relationship, 55.0% with college/university education, disease duration is 11–20 years in 30.1%, and 21–30 years in 27.1%. Medical histories reported [category (% patients)]: cardiovascular (43.2%), pulmonary (11.2%), psychiatric (22.8%), skin cancer (2.8%), endocrine (20.4%). Infections requiring treatment (during the past 3 years) occurred in 19.2, 16.9% of which were bacterial infections. Mean disease activity (peak historical disease activity and disease activity at entry) were: BSA 24.5% (SD 18.5) and 8.1% (SD 12.7); PGA 3.4 (SD 0.7) and 2 (SD 1.2);. mean baseline PASI was 5.9 (SD 6.8). 99.1% of pts presented with plaque type PsO. Medication (current and history) included (not mutually exclusive) topical (97.2%), phototherapy (73.7%), systemic steroids (9.6%), immunomodulators (56.0%), and biologics (87.0%).
Conclusions: As a disease directed registry, PSOLAR offers the ability to capture multiple features of pts using (or eligible to use) systemic therapies.

P047

Psoriatic arthritis mutilans in the Nordic countries; demographics and disease status

Gudbjornsson, Bjorn[1]; Leif, Ejstrup[2]; Jan Tore, Gran[3]; Lars, Iversen[4]; Ulla, Lindqvist[5]; Leena, Paimela[6]; Thomas, Ternowitz[7]; Mona, Ståhle[8]

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Denmark; [3]Oslo University Hospitals, Department of Rheumatology, Oslo, Norway; [4]Aarhus University Hospital, Department of Dermatology, Aarhus, Denmark; [5]Uppsala University, Department of Medical Sciences, Uppsala, Sweden; [6]Helsinki University Central Hospital, Department of Rheumatology, Helsinki, Finland; [7]Stavanger University Hospital, Department of Dermatology, Stavanger, Norway; [8]Dermatology Unit, Department of Medicine, Karolinska Institutet Stockholm, Stockholm, Sweden

Objectives: Determine the prevalence and demographics of psoriatic arthritis mutilans (PAM) in the Nordic countries based on initiative and guardianship of the Nordic Psoriasis Associations Cooperation Group, NORDPSO.

Methods: Patients with PAM 18 years of age or older, living in four Nordic countries (Denmark, Norway, Iceland and Sweden), were located in collaboration with dermatologic and rheumatologic departments in four Nordic countries. 59 patients were identified and examined for verification of their skin and joint disease according standardized procedures.

Results: Prevalence of PAM in the adult Nordic population was estimated to be 4.48 per 1,000,000 inhabitants (95%CI 1.14–8.81). The female to male ratio 1:1. The mean age of skin disease onset was 25 years of age and 30 years for the onset of joint disease. Onset of skin disease was 2 years earlier among female patients. Mean duration of arthritis for male was 27 ± 11 and 33 ± 11 years for female patients. The PAM was most frequently seen in the DIP joints of the toes, followed by the IP joint of the thumb and DIP-joint of the little finger. Evaluation of the peripheral joints demonstrated that 32 patients (54%) had painful joint on palpation and 28 patients (47%) had swelling over their joints at the time of evaluation. Enthesitis was found in 19 patients (32%), while 38 patients (64%) had a history of dactylitis, whereas no patient was found to have active dactylitis on the time of clinical evaluation. 23 of these 38 patients (61%) had dactylitis in the same finger/toe as they had their PAM.

At the time of inclusion, 45% of the patients were found to have clear or almost clear skin, 35% had mild to mild-moderate skin involvement and only 11% of the patients had moderate to severe skin involvement according to assessment by the physician.

The majority of the patients (61%) had a familiar history of psoriasis, but fewer had family history of PsA (24%), among their first-degree family members.

Conclusions: PAM in the Nordic countries has a low prevalence, or only three cases per million inhabitants. Further studies, e.g. on genetics, bone markers, quality of live and imaging are in progress.

P048

Psoriasis–epidemiology characteristics and patients' quality of life; Palestine 2011

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Background: Psoriasis is a multifactorial, complex, disfiguring, chronic inflammatory skin disease with a worldwide distribution. It is well known to be associated with psychological morbidity. The database on this aspect from developing countries is limited. The aim of this work is to describe the epidemiological characteristic of psoriatic patients and to assess the quality of life (QOL) among a group of them.

Methods: This study is a retrospective descriptive survey of patients seen at a general dermatology clinic in North Palestine during a 5 years period; from Jan 2006 to Dec 2011. It presents the epidemiological and clinical characteristics of all psoriatic patients. For the purpose of assessing quality of life, a cross sectional study was conducted on 46 psoriatic patients using the Dermatology Life Quality Index (DLQI) questionnaire.

Results: During the above mentioned period, a total of 29,155 patients were treated for dermatologic conditions, among them 772 patients were diagnosed with Psoriasis; 2.6% occurrence rate. Files of theses psoriatic patients were studied; 51% of the patients were male, 56.2% of the patients were ≤30 years of age, and 11.2% had family history of psoriasis. Plaque Psoriasis was the most frequent type and the scalp and trunk were the most affected body sites. Psoriasis affects the life of about 90% of the patients, most of whom reported moderate effect on their QOL; mostly due to feeling and symptoms of the diseases. Other affected aspects of life were work, leisure, and social relations.

Conclusion: Psoriasis is a common disease among patients attending dermatology clinics in Palestine. It is equally distributed between both genders and most of patients are young. On the other hand, Psoriasis is not just a cosmetic nuisance; it also has a negative impact on QOL among Palestinian patients.
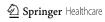
P049

Natural course of psoriasis: a preliminary study

Alpsoy, Erkan[1]; Donmez, Levent[2]; Nazlim, Berna[3]; Ozkesici, Birgul[3]; Akman-Karakas, Ayse[3]; Yilmaz, Ertan[3]

[1]Akdeniz University, Dermatology and Venerology, Akdeniz University, Dept. of Dermatology and Venerology, Antalya, Turkey; [2]Akdeniz University, Public Health, Antalya, Turkey; [3]Akdeniz University, Dermatology and Venerology, Antalya, Turkey

Objective: The natural course of psoriasis is not fully known. In this preliminary study, we aimed to determine the occurrence of the clinical presentations and individual symptoms retrospectively in chronologic order in psoriasis patients.

Patients and Methods: A total of 54 patients (35 female, 19 male; aged, 40.24 ± 2.18 years) were involved in the study. Clinical presentations and individual symptoms of the disease were recorded in the time order of the manifestations per patient retrospectively. Kaplan–

Meier survival analysis was used for obtaining the mean occurrence duration of each clinical presentation.

Results: Skin was the most common onset area (n:52; 96.2%) followed by nails (n:4; 7.4%) and joints (n:1; 1.8%). Plaque psoriasis was the most commonly observed clinical subtype (n:51; 94.4%). Additionally, 1 guttate psoriasis, 1 inverse psoriasis and 1 palmoplantar pustular psoriasis were seen. Change in clinical morphology has been obtained in 14 patients (11 guttate psoriasis, 1 plaque psoriasis, 1 generalized pustular psoriasis, 1 guttate and inverse psoriasis). Scalp (n:12; 22.2%) was the most commonly affected skin area at onset of the disease, followed by knee and elbow (n:11; 20.3%), and arm, leg and palms (n:5; 9.2%). The duration between the occurrence of the first symptom and the diagnosis of psoriasis was found to be 2.39 ± 0.48 (mean $\pm$ SE) years. In survival analysis, average time period between the appearance of the first symptom and skin involvement, nail involvement, and articular involvement was calculated to be 0.21 ± 0.11, 25.41 ± 3.25 and 43.99 ± 1.17 (mean $\pm$ SE) years, respectively.

Conclusions: Our study indicates that at onset, skin is far more frequently affected area than nails and joints. Plaque psoriasis is the most commonly observed clinical subtype, and scalp, knee and elbow are the most commonly affected skin area at onset of the disease. During the natural course, although attacks of the disease are generally similar to original clinical subtype, guttate psoriasis was the most frequently observed change in clinical morphology.

P050

Childhood psoriasis: characteristics of the disease among Saudi population

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Psoriasis is a chronic inflammatory, immunologically mediated disorder in which one-third of patients suffer under the 18 years of age (childhood psoriasis). In this study, we present our experiences with 36 children having psoriasis who visited the dermatology and phototherapy unit from January 2000 to December 2005. Of the 36 children with psoriasis, 12 (33.33%) had the generalized (plaque type) psoriasis, 8 (22.22%) had the guttate psoriasis, 4 (11.11%) had the mixed guttate and plaque type; while 6 (16.67%) had the localized lesions on elbows and knees, 4 (11.11%) had the localized pustular lesions on hands and feet and 1 (2.77%) had localized lesions on the scalp. The age of children was ranging from 8 months to 18 years (mean = 11.27 years). The duration of the disease was ranging from 2 months to 11 years (mean = 3.04 years). The number of male patients was 15 and the females were 21, hence the male and female ratio was 1:1.4. The family history was positive in 10 children (27.78%). Most of patients were treated with topical medications (corticosteroid, vitamin D derivatives and tacrolimus) and/or narrow-band ultraviolet-B phototherapy treatment with reasonable control. Two of the cases with guttate psoriasis developed plaque psoriasis later. One child was given etanercept with good response and minimal side effect. Psoriatic arthritis was not noticed in our group of children. We conclude that childhood psoriasis is more common in girls and plaque type psoriasis is the commonest in our community. Psoriatic arthritis has not been documented in our group. At present, topical therapy (corticosteroid, vitamin D derivatives and tacrolimus) the narrow-band ultraviolet-B phototherapy are sufficient for most of the children and showed decent safety and efficacy.

Comorbidities

P051

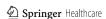### Atherosclerosis in patients with psoriasis: role of systemic inflammation

Yeung, Chi Keung[1]; Yiu, KH[1]; Zhao, CT[1]; Siu, CW[1]; Tam, Sydney[2]; Wong, CS[3]; Yan, GH[3]; Yue, WS[2]; Khong, PL[3]; Chan, Henry[1]; Tse, HF[1]

[1]The University of Hong Kong, Medicine, Hong Kong, Hong Kong; [2]The University of Hong Kong, Clinical Biochemistry, Hong Kong, Hong Kong; [3]The University of Hong Kong, Diagnostic Radiology, Hong Kong, Hong Kong

Introduction: Patients with psoriasis are prone to premature atherosclerosis; nonetheless the prevalence and extent of atherosclerosis in the coronary and carotid arteries in relation to systemic inflammation are unknown.

Methods: The prevalence and extent of coronary and carotid arterial atherosclerosis in 70 patients with psoriasis (46 ± 9 years, 71% male) without known cardiovascular diseases was compared with 51 age-and gender-matched controls (45 ± 7 years, 71% male). Coronary arterial atherosclerosis was determined by the coronary calcium score (CCS) measured by multi-detector computed tomography. Carotid atherosclerosis was assessed by high-resolution ultrasound derived carotid intima media thickness (cIMT).

Results: Patients with psoriasis had a significantly higher prevalence of CCS > 0 as compared to controls (28.6 vs. 3.9%, $p < 0.01$). Moreover the degree of coronary atherosclerosis estimated by the mean CCS was more severe in patients with psoriasis (67.4 ± 349.2 vs. 0.5 ± 3.0, $P < 0.05$). Carotid atherosclerosis was greater in patients with psoriasis (cIMT 0.73 ± 0.11 mm vs. 0.67 ± 0.08 mm, $p < 0.01$). Importantly, the presence of significant coronary atherosclerosis defined by CCS > 10 was independently associated with hs-CRP. In contrast, only age was independently associated with increased cIMT.

Conclusion: The present results demonstrated that patients with psoriasis had early onset, diffuse arterial atherosclerosis over coronary and carotid arteries as

compared to age-and-gender matched controls. Importantly, hs-CRP was independently predictive of significant coronary atherosclerosis, suggesting a link between systemic inflammation and subclinical atherosclerosis in patients with psoriasis.

P052

Considerations in the study of TNF-alpha inhibitor and methotrexate therapy on metabolic factors in psoriasis/psoriatic arthritis and rheumatoid arthritis patients

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Objective: To understand the impact of treatment with a TNF inhibitor (TNFi) or methotrexate (MTX) on metabolic factors in psoriasis (PsO), psoriatic arthritis (PsA), and rheumatoid arthritis (RA) patients.
Methods: The study population consists of adult patients diagnosed with prevalent or incident PsO/PsA/RA between January 1, 2002 and July 31, 2011 from a large HMO. Patients exposed to a TNFi (etanercept, adalimumab, infliximab, golimumab, and certolizumab pegol) ± MTX exposure comprised the TNFi group. Patients in the TNFi group were matched to patients exposed to MTX but not a TNFi (MTX group). Drug exposure status was determined based on exposure status within 15–45 days prior to the lab measurements. The groups were matched on inflammatory condition (PsO/PsA/RA), diabetes status, and the date of TNFi initiation/prevalent MTX exposure (index date). All patients had metabolic factor measurements within 1-year before and after the index date. Unadjusted mean percent change from baseline and 95% confidence intervals (CI) in HbA1C, fasting glucose (FG), and triglycerides (TG) was determined in both exposure groups.
Results: The study population had a mean age of 62 + 12 years (SD), about 27% were male, 22% had PsO, 12% PsA and 86% RA. For HbA1c, 78% of those with this measure had diabetes mellitus type 2 (DM). The HbA1c mean percent change was +0.8% in TNFi (CI: −0.4, 2.0, n = 550) and +2.0% in MTX (CI:1.4, 2.7, n = 1,979). For FG, 31% had DM. The FG mean percent change was +4.2% in TNFi (CI: 2.2, 6.1, n = 644) and +3.5% in MTX (CI: 2.7, 4.3, n = 3,944). For TG, 24% had DM. The TG mean percent change was +10.2% in TNFi (CI: 7.4, 12.9, n = 983) and +5.5% in MTX (CI: 4.2, 6.8, n = 4,194). Analysis of other metabolic factors and comparisons between treatment groups while accounting for differences in medications and demographic and clinical factors are in process.

Conclusion: TG and FG significantly increased in TNFi and MTX groups and HbA1c significantly increased in the MTX group. Further analyses will provide information on the contributions of TNFi and MTX therapy and other patient characteristics and treatments on changes in these and other metabolic factors.

P054

Do TNF alpha-blockers influence male fertility?

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Fertility of male psoriasis patients is rarely addressed and included in therapeutic decisions. However, with this regard young patients are often uncomfortable about short and long term consequences of systemic treatment of their disease. Apparently, TNF alpha plays a major role in male fertility as motility and apoptosis are negatively influenced. Conversely, therapeutic TNF blockage may exert positive effects. Clinical studies on this aspect are, however, not available. In patients aged 18–50 years with psoriasis several fertility parameters were examined before and during a 52 week treatment with TNF blockers and fumaric acids (number of spermatocytes, apoptosis, biochemical parameters like fructose and citrate). Exclusion criteria were concomitant drug treatment with possible effects on male fertility or known decrease or loss of fertility. Two consecutive spermiograms within 2 weeks were performed per date at weeks 0, 12, 24, 38 und 48. 10 patients, four on etanercept were included with no relevant changes of spermatocyte numbers, motility and acrosomal reaction over 24 weeks. Though undulation of the examined parameters over time were found, no relevant deterioration nor improvement of male fertility were found. Accordingly, parameters seem grossly unchanged by therapy.

P055

Ophthalmic manifestations in psoriatic patients in a Brazilian referral center

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Background: Psoriasis is a chronic inflammatory systemic disease that affect about 1–3% of the world population. Ocular manifestations in psoriasis are poorly reported in the literature. The purpose of this study was to identify the prevalence of ophthalmic manifestations in psoriatic patients treated at a referral outpatient clinic in Salvador (Bahia/Brazil).

Materials and methods: It was conducted an analytical cross-sectional study, including 43 patients (24 males and 19 females). A dermatologic evaluation included measurement of the PASI and registration of the topography of the lesions. The ophthalmological examination included Schirmer-I test, the Rose Bengal test and slit lam examination. The results were analyzed by Fisher's exact test and associations were considered significant when the p value <0.05. Informed consent was obtained from all subjects.

Results: Ocular abnormalities were detected in 36 (83.72%) patients, and the most frequent was Meibom gland dysfunction, in 31 (72.09%) patients. Only 2 patients (4.65%) reported no ocular symptoms. There was a statistically significant correlation between the presence of lesions on the face and the occurrence of Meibom gland dysfunction ($p = 0.046$).

Discussion: Data from this study certainly are the first reports of the prevalence of eye diseases in psoriasis in Brazil. The frequency of Meibom gland dysfunction in the general population is 3.5%, suggesting that psoriatic patients are more likely to have that. Studies with animal models and other inflammatory diseases suggest that this correlation is probably due to both hyperkeratinization along the duct of the Meibom gland and exacerbated Th17 immune response. However, in agreement with previous studies, it can be hypothesized that psoriasis is itself a risk factor other eye diseases. Further investigation is required to elucidate the prevalence and nature of the ophthalmologic manifestation in patients with psoriasis.

P056

Vitamin D, body fat composition and parameters of atherogenesis and inflammation in psoriatic patients treated with narrow-band UVB

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Introduction: Psoriasis is a chronic inflammatory skin disease that has been related to metabolic syndrome.

Objectives: The objectives included the evaluation of anthropometric and laboratory markers of metabolic syndrome in psoriatic patients and matched controls, and their modification after narrow-band UVB phototherapy.

Materials and methods: We compared 50 psoriatic patients with 50 sex, body mass index and age-matched controls without psoriasis in a cross-sectional study. Additionally, we evaluated the effect of narrow-band UVB over the studied parameters. Patients eligible for narrow-band UVB phototherapy were recruited excluding the months of high solar irradiance. Controls without psoriasis were matched to the patients' characteristics. Patients with psoriatic arthritis were excluded, along with patients and controls with a list of chronic inflammatory diseases. The evaluation was performed at baseline in controls and patients, and after phototherapy in patients, and included a panel of laboratory and anthropometric determinations.

Results: With an identical body mass index, psoriatic patients showed a higher body fat content as calculated by electric bioimpedance, which correlated positively with waist circumference, and higher plasma concentrations of LDL-cholesterol, leptin and apo-B. Vitamin D was low both in patients and controls, and increased in the patients and the end of the phototherapy course. No correlation of its increase with PASI improvement was noted. At the end of the treatment a decrease in ferritin levels was noted, and it was correlated with total cumulative UVB dose.

Conclusions: We identified a different metabolic and anthropometric profile in psoriatic patients without arthritis when compared to matched controls. Both patients and controls had vitamin D insufficiency. The increase in vitamin D levels after phototherapy did not correlate with PASI improvement.

P057

Adipocytokine expression and correlation with atherogenesis and inflammation markers in psoriatic patients treated with narrow-band UVB phototherapy

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Introduction: Psoriasis is a chronic inflammatory skin disease that has been related to metabolic syndrome.

Objectives: We evaluated several parameters related to metabolic syndrome and the expression of adipocytokines related to cutaneous and systemic inflammation in psoriatic patients, and their changes after a course of narrow-band UVB phototherapy.

Materials and methods: We compared 50 psoriatic patients with 50 age, sex and body mass index-matched controls in a cross-sectional study. Additionally, we evaluated the changes related to a course of narrow-band UVB phototherapy in a longitudinal study. Patients eligible for narrow-band UVB phototherapy were recruited excluding the months of high solar irradiance. Controls without psoriasis were matched to the patients' characteristics. Patients with psoriatic arthritis were excluded, along with patients and controls with a list of chronic inflammatory diseases. The evaluation was performed at baseline in controls and patients, and after phototherapy in patients. It included the determination of leptin, resistin, omentin, Il-6, Il-17, S-TNFR, and the lipocalins A-FABP, RBP-4 and lipocalin-2. The multivariant study included a principal components analysis, in order to understand the relationships between the study variables.

Results: Patients showed increased serum concentrations of leptin, RBP-4, lipocalin-2 and S-TNFR when compared to controls. These adipocytokines correlated with several parameters of inflammation and atherogenesis. Initial PASI correlated with basal concentrations of RBP-4 and lipocalin-2, and with high sensitivity C-reactive protein. At the end of the phototherapy course patients experimented a decrease in Il-6 levels. Principal components analysis yielded a component with a protective action over metabolic syndrome in controls, but not in patients. Psoriatic patients showed, when compared to healthy controls, a different positioning of omentin, lipocalin-2, resistin and RBP4 in the principal components' factorial map.

Conclusion: Our results contribute to ascertain the function of several adipocytokines in the genesis of inflammatory and metabolic abnormalities in psoriasis.

P058

Prevalence of metabolic syndrome in psoriatic patients

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Introduction: Psoriasis is a chronic inflammatory skin disease, that affects 2% of the general population. It has been stated that there is a higher prevalence of metabolic syndrome (MS) and obesity in psoriatic patients than in the general population.

Objective: To assess the prevalence of metabolic syndrome (MS) and its components in the psoriatic patients compared with a control population with the same age, sex and body mass index (BMI).

Patients and methodology: We examined an "n" of 102 patients in each group, both psoriatic and control (with a 6% of accuracy), estimating a prevalence of about 30% of MS in the psoriatic patients. Both the psoriatic patients and the controls were matched in age, sex and body mass index.

Study protocol: Anamnesis: Diabetes mellitus records, Blood pressure, Dyslipidemia and Psoriasis: (age of onset, duration, type and severity according to the PASI index) Lifestyle: Diet, Smoking, and Exercise Physical examination: Weight, Body mass index (BMI), Blood pressure, Waist circumference. Blood Test: Lipid profile, Glucose tolerance test (75 g/OGT), level of Insulin (according to the Homa index). Classification of MS based on the 2009 Consensus criteria.

Results: 102 psoriatic patients participated in this study (55 men/47 women) with an average age of 49.32 ± 13.47 years and BMI 27.7 kg/m^2 (18.9–41.79), and 102 control subjects (55 men/47 women) with an average age of 48.71 ± 13.84 years and BMI 27.36 kg/m^2 (18.24–40.5). The psoriatic patients had higher systolic blood pressure and a greater Insulin resistance, additional to a higher frequency of known Diabetes mellitus (13.7 vs. 3.4%, $p = 0.024$). Metabolic syndrome prevalence was also higher (52 vs. 34.3%, $p = 0.016$). The multivariate analysis showed that age (RR 1.086), BMI (RR 1.375), sex (RR 2.714) and psoriasis (RR 3.73) are independent markers of MS.

Conclusion: Psoriasis can be associated with a higher prevalence of Metabolic Syndrome and this association is independent from the presence of obesity.

P059

Use of brachial-ankle index for assessing cardiovascular risk in patients with psoriatic arthritis, psoriasis alone and controls: a pilot study
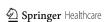
Magro-Checa, César[1]; Rosales-Alexander, José Luis[2]; Orgaz-Molina, Jacinto[3]; Salvatierra, Juan[2]; Arias-Santiago, Salvador[3]; Cantero-Hinojosa, Jesús[2]; Ruiz-Carrascosa, José Carlos[3]; Raya-Álvarez, Enrique[2]

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Background: Patients with psoriatic arthritis (PsA) and with chronic plaque psoriasis (PS) have a higher prevalence of cardiovascular (CV) risk factors and atherosclerosis. The Ankle-Brachial pressure Index (ABPI), a non-invasive and inexpensive tool for the assessment of CV risk, can be used to identify individuals who are at high CV risk. An ABPI <0.90 suggests high risk of developing CV disease.

Objective: To determine the prevalence of an abnormal ABPI in patients with PsA, PS and healthy controls and to correlate with clinical and serological parameters.

Methods: This study included 63 consecutive patients who fulfilled the CASPAR criteria, compared to 63

patients with cutaneous PS alone and 63 age and sex matched controls. Patients with a previous CV event and diabetics were excluded. The ABPI was measured using a Mini Doppler. A ratio of <0.90 was considered abnormal. Multivariate regression analysis was used to adjust for the following variables: sex, age, body mass index, classic CV risk factors, lipid profile, time since diagnosis, clinical patterns, treatment, disease activity, and inflammatory markers ($p < 0.05$ was considered significant).

Results: The mean age of all the patients was 48.73 ± 10.98 (mean $\pm$ SD). The ABPI in the group of PsA patients was 0.94 ± 0.09, and 13 patients (22.22%) had an abnormal index (<0.90), three of them (4.76%) were mildly symptomatic (ABPI < 0.80). The mean for the ABPI calculated in PS patients was 0.93 ± 0.1, and 12 patients (19.04%) were reclassified below the threshold (<0.90), four of them (6.34%) <0.80. In the group of controls, the mean was 1.03 ± 0.14, with 5 patients (7.93%) below the threshold, none of them <0.80. Multivariate regression analysis showed that the most important prognostic factor for predicting the ABPI was the age ($p < 0.05$) followed by a sedentary lifestyle ($p < 0.05$). Clinical patterns of the PsA and Psoriasis, treatment and activity of the disease were not associated with atherosclerosis.

Conclusions: PsA and PS patients present an increased prevalence of an abnormal ABPI comparing with controls implying an increased risk of CV disease.

P060

Cardiovascular risk assessment in patients with psoriatic arthritis: comparison of European SCORE and two calibrated national guidelines

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Background/Purpose: EULAR task force recommendations in the cardiovascular (CV) risk in patients with inflammatory arthritis were published in 2010. EULAR recommends the use of the SCORE when no local guidelines are available. In our country, two charts have been calibrated, the SCORE table (cSCORE), and the Framingham-Wilson score known as REGICOR scale.

Objective: To assess the CV risk in Psoriatic Arthriths (PsA) patients using the SCORE for low risk European countries (eSCORE) and compare it with the cSCORE and REGICOR. To analyzed the correlation of several clinical and serological variables with these SCOREs indexes and the % of patients that received adequate therapy for the management of CV risk.

Methods: We included 147 consecutive pts who fulfilled the CASPAR criteria. The following data were recorded for analysis: sex, age, BMI, classic CV risk factors, lipid profile, time since diagnosis, clinical patterns of the PsA, treatment, and inflammatory markers. The three guides were calculated and concordance (Kappa Index) between them was compared.

Results: The mean eSCORE was $1.36 \pm 2.25\%$ (mean $\pm$ SD) and 18 pts (11.4%) were above the threshold of high or very high CV risk ($\geq 5\%$). The mean cSCORE was $2.23 \pm 3.48\%$ and REGICOR was $4 \pm 3.4\%$. Therefore, 34 pts (21.5%) and 20 pts (12.7%) were reclassified above the threshold of high and very high CV risk respectively. The most important prognostic factor for predicting the cSCORE was the age ($p = 0.000$) followed by systolic blood pressure. Of notice, the ESR was also a prognostic factor of the SCORE. Both eSCORE and REGICOR showed a bad concordance (Kappa Index 0.63 and 0.55 respectively) with cSCORE. Analyzing the % of high and very high risk pts that received adequate therapy for the management of CV risk (antihypertensive and lipid-lowering therapy): according to the eSCORE 75 and 85%, with cSCORE 65.21 and 35.29%, and with REGICOR 55.55 and 22.22% respectively.

Conclusions: eSCORE and REGICOR lead to an underestimation of the CV risk comparing with cSCORE, which have an impact on the correct management of these pts. Sustained inflammation could play a role in the increase of CV risk.

P061

Psoriasis and psoriatic arthritis: large waist circumference and severity assessment
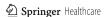
Kogan, Nora[1]; Gusis, Simon[2]; Veira, Rosana[1]; Crespo, Alejandra[1]; Chaparro, Elena[1]; Amabile, Pilar[1]; Kreimer, Jennifer[1]; Castelli, Andrea[2]; Montoya, Sandra[2]; Kerzberg, Eduardo[2]

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Introduction: The large waist circumference is a very important risk factor for metabolic syndrome in Psoriasis (28%).

Objective: To assess correlation between large waist circumference and severity assessment in Psoriasis patients with or without arthritis.

Materials and methods: In 185 patients with Psoriasis: 132 without arthritis (67 female and 65 male) and 53 with arthritis (33 female and 20 male) we evaluated the degree of severity of psoriasis with or without arthritis (Mild Mi, Moderate Mo, Severe Se) and the large waist circumference. We considered four groups: females (up to 59.9; 60–79.9; 80–87.9; 88 or more) and males (up to 68.9; 69–93.9; 94–101.9; 102 or more). We used Chi Square test (Yates correction).

Results: In 67 females without arthritis there were: up to 59.9: 0; 60–79.9 (Mi 1 Mo 7 Se 0); 80–87.9 (Mi 2 Mo 8 Se 2); 88 or more (Mi 8 Mo 17 Se 22).

In 65 males without arthritis there were: up to 68, 9: 0; 69–93.9 (Mi 2 Mo 9 Se 6); 94–101.9 (Mi 1 Mo 6 Se 3); 102 or more (Mi 3 Mo 14 Se 21).

In 33 females with arthritis there were: up to 59, 9: 0; 60–79.9 (Mi 2 Mo 0 Se 1); 80–87.9 (Mi 4 Mo 1 Se 0); 88 or more (Mi 15 Mo 6 Se 4).

In 20 males there were: up to 68.9: 0; 69–93.9 (Mi 3 Mo 2 Se 1); 94–101.9 (Mi 5 Mo 2 Se 0); 102 or more (Mi 4 Mo 3 Se 0).

There was no correlation between the large waist circumference and a greater degree of severity in patients with Psoriasis without arthritis ($p > 0.05$) and Psoriatic arthritis ($p > 0.05$).

Conclusions: There was no correlation between the large waist circumference and a greater degree of severity in patients with Psoriasis without arthritis ($p > 0.05$) and Psoriatic arthritis.

P062

Psoriasis and psoriatic arthritis: body mass index and severity assessment

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Introduction: Overweight or obesity is a frequent comorbidity in psoriasis (32%).
Objective: To assess correlation between body mass index (BMI) and severity assessment in patients with psoriasis with or without arthritis.
Materials and methods: In 185 patients with Psoriasis: 132 without arthritis and 53 with arthritis we evaluated the degree of severity (Mild Mi, Moderate Mo, Severe Se) and body mass index (BMI). We considered low weight: <20, normal weight: 20–24.9; overweight 25–29.9 and obese 30 or more. We used Chi Square test (Yates correction).
Results: In 132 patients with cutaneous psoriasis there were: 4 low weight (Mo:3, Se:1); 26 normal weight (Mi:4, Mo:19, Se:3), 55 overweight (Mi:7, Mo:26, Se:22); 47 obese (Mi:6, Mo:13, Se:28).

There was correlation between greater BMI and greater degree of severity in patients with psoriasis without arthritis ($p < 0.01$).

In 53 patients with Psoriatic arthritis there were: 0 low weight; 9 normal weight (Le:5, Mo:2, Se:2), 22 overweight (Le:4, Mo:12, Se:6); 22 obese (Le:7, Mo:12, Se:3).

There was no correlation between greater BMI and greater degree of severity in patients with psoriatic arthritis ($p > 0.05$).

Conclusions: There was correlation between greater BMI and greater degree of severity in patients with psoriasis without arthritis and there was no correlation in patients with psoriatic arthritis.

P063

Psoriasis and cardiovascular screening rates in the United States

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Background: Guidelines to screen for cardiovascular (CV) risk factors in psoriasis patients have been established. However, the frequency with which dermatologists and non-dermatologists screen psoriasis patients for CV risk factors is not well characterized.
Purpose: To determine how frequently psoriasis patients are screened for CV risk factors in the outpatient setting. To identify factors affecting screening rates.
Methods: Data from the 2005–2009 National Ambulatory Medical Care Survey (NAMCS) were analyzed to determine screening rates for blood pressure, glucose, cholesterol, and body mass index. The probability of a patient having at least 1 of the 4 risk factors screened was determined and termed the "composite" score. Screening rates were assessed by physician specialty, patient demographics and clinical practice characteristics.
Results: There were an estimated 11.4 million psoriasis visits from 2005 to 2009. Blood pressure, glucose, cholesterol, and body mass index were evaluated at 32.2, 5.9, 9.0, and 26.0% of psoriasis visits, respectively, with a composite score of 41.2%. Patients without psoriasis were screened for these CV risk factors at 59.0, 6.0, 8.0, and 38.1% of outpatient visits, respectively, with a composite score of 66.3%. Psoriasis had a statistically significant negative association with CV risk screening rates. Screening rates were relatively equal across age groups. Screening rates were higher if the patient was of male gender, African American race, or non-Hispanic ethnicity. Higher screening rates were associated with the following clinical practice characteristics: primary care specialties; faculty practices; community health clinics with contracted physicians; and clinics that utilized Electronic Medical Recorders. Limitations: NAMCS data is cross-sectional permitting assessment of screening rates based on visits but not on patients.
Conclusions: Screening for high blood pressure, diabetes, hypercholesterolemia and obesity are not performed at most outpatient visits for psoriasis. Care should be taken to ensure patients receive appropriate screening for comorbidities associated with psoriasis.

P064

Association of renal cancer in a psoriasis cohort from the Newfoundland and Labrador founder population

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Psoriasis is a common chronic immune-mediated inflammatory disorder of the skin which has several associated comorbidities. Recently a number of patients with psoriasis have also been diagnosed with renal cancer. A cross section observational study investigated hospital-coded comorbidities associated with psoriasis in comparison to the general Newfoundland and Labrador hospital population. Patients with psoriasis died significantly younger than the general population, with patients having early onset of psoriasis (<25 years) dying almost 12 years younger than those of a later age of onset (>25 years). The mean age of death was 59.3 versus 71.2 ($P = 0.001$). Psoriasis patients were hospitalized more frequently for severe systemic disorders than the general population. Neoplasm was the underlying cause of death in 37.5% in psoriasis patients versus 27.6% in the general population ($P = 0.015$). Recently in a cohort of 3,500 patients five patients have been diagnosed with renal cancer (140/100,000) versus 90 renal cancers in a population of 525,000 in Newfoundland and Labrador (17/100,000). This study reports possible association between certain malignancies, including renal carcinoma.

P065

Risk of developing cancer among psoriasis patients as compared to non-psoriasis patients

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In this descriptive study, we assessed whether or not there is an increased risk of developing cancer among psoriasis patients as compared to non-psoriasis patients. We did this by assessing psoriasis patients' health care utilization in terms of hospital visits and fee-for-service physician visits, and compared such with non-psoriasis patients (controls).

In addition, we assessed whether or not psoriasis patients receiving biologics treatment specifically have an increased risk of developing cancer as compared to psoriasis patients not receiving biologics treatment.

Research also indicates age, gender and psoriasis severity have an impact on risk of cancer; therefore, we will provide descriptive analysis with such demographic factors. Descriptive study involved linking medical records of 10,000 confirmed cases of psoriasis who have received either biologic or non biologic treatment. Data obtained from a private dermatology clinic as well as administrative data bases using the unique identifier, Newfoundland and Labrador Medical Care Plan (MCP). A number of the following sources were linked through multi step data linkage process.

1. The NewLab Psoriasis Clinical Database (1989–2011)
2. The NewLab Biologics Treatment Database (1999–2011)
3. the Clinical Database Management System (CDMS; hospital separation database) (1995/1996–2009/2010)
4. the Newfoundland and Labrador Medical Care Plan (MCP) fee-for-service physician claims database (FFS) (1995/96–2009/10)

Initial data indicates that neoplasm was an underlying cause of death in 37.9% of psoriasis patients versus 27.6% in the general population ($P = 0.015$).
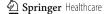
P066

Association between pediatric psoriasis and the metabolic syndrome

Goldminz BA, Ari[1]; Au MD, Shiu-Chung[1]; Kim MD, Noori[1]; Loo MD, Daniel[1]; Dumont, Nicole[1]; Levine MD, Danielle[1]; Lizzul MD PhD MBA MPH, Paul[1]; Volf MD, Eva[1]; Michelon MD, Melissa[1]; Wang MD, Andrew[1]; Yaniv BA, Shimrat[1]; Kerensky MD, Todd[1]; Brown MD, Mary[2]; Kulig MD MPH, John[2]; Lopez-Benitez MD, Jorge[2]; Natter MD, Mark[2]; Miller MD, Laurie[2]; Pelajo MD MSc, Christina[2]; Davis MD, Trevor[2]; Gottlieb MD PhD, Alice[1]

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The increased risk of cardiovascular disease and the metabolic syndrome (MetS) in adults with psoriasis has been demonstrated in numerous studies, yet limited data is available assessing cardiovascular risk factors in the pediatric psoriasis population. We designed an assessor-blinded study to determine if children with psoriasis or psoriatic arthritis have an increased prevalence of the MetS. Twenty subjects between 9- and 17-years-old with moderate-to-severe psoriasis (≥5% body surface area, current or by documented history) or psoriatic arthritis were enrolled, and a control group of 1,563 subjects was created using the NHANES 2007–2008 database. The MetS was defined by the presence of at least three of the following: triglycerides ≥100 mg/dl, HDL-C <50 mg/dl for females or <45 mg/dl for males, fasting blood glucose ≥110 mg/dl, waist circumference >75th percentile for age and gender, systolic or diastolic blood pressure >90th percentile for age, gender, and height. Six of the 20 psoriasis subjects (30%) were found to have the

MetS compared to 115 of 1,563 (7.4%) NHANES control subjects ($p = 0.045$). No statistically significant difference was found between mean BMIs for the psoriasis and NHANES cohorts, 22.7 and 22.3, respectively ($p = 0.74$). Our data indicate that the MetS occurs more frequently in children with psoriasis despite no statistically significant increases in BMI compared to controls. While larger studies should be performed to substantiate our findings, a more aggressive approach toward primary prevention of cardiovascular disease in children with psoriasis may be warranted.

P067

Coronary risk estimation and other cardiovascular comorbidities in moderate to severe psoriasis patients in Spain: RECOR study

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Background and objectives: Psoriasis (PsO) is a chronic immune mediated skin disease. There are several risk factor frequently associated with the appearance and progression of the disease, including obesity, smoking and alcohol consumption. Moreover, PsO is often associated with other systemic diseases as type-2 diabetes, dyslipidemia, hypertension and metabolic syndrome. The objective of the study was to assess the prevalence of cardiovascular risk factors, including metabolic syndrome, as well as other comorbidities in a population of patients with moderate to severe PsO, when comparing with a control population including patients with dermatological diseases different from PsO. The main objective of the study was to estimate the 10-years moderate to severe coronary heart disease (CHD) risk using the calibrated Framingham function and SCORE.
Methods: Non-interventional, cross-sectional study conducted in 81 dermatological units in Spain in 2010–2011. A total of 477 patients were included in the analysis; of them, 238 (44.9%) were patients with moderate to severe PsO (cases) and 239 (50.1%) were controls.
Results: Psoriatic patients presented, when comparing with controls, a significant higher prevalence of coronary risk factor, such as obesity, body mass index, smoking and alcohol consumption, as well as significantly higher levels of triglycerides, LDL-c and HDL-C ($p < 0.05$, all determinations).. A significant higher percentage of PsO patients presented a 10-years moderate to severe CHD as assessed by the Framingham function (38.5 vs. 23.4%, cases and controls, respectively) ($p < 0.05$). Though no overall significant differences between groups were observed in the prevalence of metabolic syndrome, PsO patients with moderate to severe CHD risk presented a significant higher prevalence of metabolic syndrome, when comparing with PsO patients with low CHD risk (47.9 vs. 13.6%, respectively) ($p < 0.05$).

Conclusions: Psoriatic patients presented in our study, when comparing with a dermatological control population, a significant increase in the overall 10-years moderate to severe coronary heart risk. Study promoted by Pfizer Spain, S.L.U

P068

Association between systemic anti-psoriatic drugs and cardiovascular risk in patients with psoriasis and psoriatic arthritis: a nationwide cohort study

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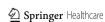
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Objectives: Psoriasis is associated with ischemic heart diseases (IHD). Prior studies suggest that methotrexate (MTX) may improve vascular disease in psoriasis and rheumatoid arthritis. The aim of this study was to compare the risk of new ischemic heart diseases (IHDs) among patients of psoriasis taking MTX and other nonbiologic anti-psoriatic drugs.
Methods: A retrospective cohort study among 179,200 patients with a diagnosis of psoriasis or psoriatic arthritis on at least 3 visits. We conducted the analyses by using the National Health Insurance Research Database of Taiwan. The risk of new IHD hospitalizations was compared between psoriasis patients taking MTX monotherapy (MTX cohort) and those taking nonbiologic anti-psoriatic drugs other than MTX (reference cohort). Additional adjustments were made for cardiovascular risk factors, number of hospital visits, Charlson score and use of other anti-inflammatory drugs. The study cohorts consisted of 6,578 patients in MTX cohort and 5,471 subjects in reference cohort between January 1996 and December 2008.
Results: The incidence rates of IHDs were 666 and 830 cases per 100,000 person-years in MTX-treated cohort and reference cohort, respectively ($p = 0.027$, unadjusted). Increasing age, males, hypertension, diabetes, and use of phototherapies were independent risk factors for new IHD hospitalizations in study cohorts. However, the multivariate adjusted hazard ratio for hospitalized IHD was 0.97 (95% confidence interval 0.79–1.19) for MTX, in comparison with other nonbiologic anti-psoriatic drugs after adjustment of age, gender, comorbidity index, hospital visits and treatments of psoriasis.
Conclusions: Among patients with psoriasis and psoriatic arthritis, the adjusted risk of hospitalized IHD for individuals starting MTX was comparable with those starting with other nonbiologic anti-psoriatic drugs.

P069

The use of ustekinumab in a patient with severe psoriasis and positive HBV serology

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Objectives: Psoriasis is a chronic, immune-mediated, inflammatory skin disorder. The biologic therapy have been shown to improve the lives of many patients with psoriasis. Issues concerning the potential risks of reactivating chronic hepatitis B virus (HBV) arise when the use of biologics agents is imperative in patients with concurrent psoriasis and HBV infection.
Method: We report a 53-years-old man that presented with a 27-years history of recalcitrant severe psoriasis. With a PASI 61.2/BSA 81%, poor quality of live and history of inefficacy, intolerance or toxicity with standard systemic treatment for psoriasis it was indicated ustekinumab. Pretests HBV serology revealed the following results: anti-HBc positivity; low titer anti-HBs (2 mIU/ml), and negativity for anti-HBc IgM, HBsAg, HBeAg and anti-HBe. Before starting the biologic therapy he was vaccinated against HBV, achieving anti-HBs positivity. Lamivudine 75 mg per day was started at the same day of the ustekinumab.
Results: The treatment significantly improved the lesions. In 1 year follow up he keeps a PASI 3.8/BSA 13%, normal liver tests and no adverse effects.
Conclusions: We presented a patient that probably developed immunity to HBV after the contact with HBV. It is known that the HBV integrates with the host genome and is able to remain indefinitely in the nucleus of hepatocytes in the form of ccc-DNA. There are several reports of HBV reactivation after immune suppression. Psoriasis treatment ustekinumab did not reactivate HBV in this patient possibly because his HBsAg was negative, his anti-HBs titers were increased before treatment and an antiviral with activity against HBV replication was initiated concomitantly. To date we haven't find on the literature an association between anti-IL-12/23 and reactivation of occult hepatitis B, however there are reports with other drugs such as rituximab and infliximab. Given the high prevalence of chronic viral infections in patients who are candidates for biologic therapy, and given the potential for these agents to reactivate viral illness, randomized controlled studies are needed to assess the risks and benefits of such therapy in these populations.
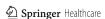
P070

Prevalence of overweight/obesity in psoriasis population and its therapeutic consequences in clinical setting: experience from biobadaderm

Carrascosa, Jose-Manuel[1]; Vilavella, Marta[2]; García-Doval, Ignacio[3]; Ferrandiz, Carlos[1]; Rivera, Raquel[4]; Carretero, Gregorio[5]; Dauden, Esteban[6]; Herrera, Enrique[7]; Alsina, Merce[8]; Ferran, Marta[9]; Lopez-Estebaranz, Jose-Luis[10]; Gomez, Francisco[11]; Hernanz, Jose-Manuel[12]; Vanaclocha, Francisco[4]; Biobadaderm, group[13]

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It has been suggested from clinical trials that BMI (Body Max Index) may condition both the severity of psoriasis and the response to treatment. However, information about the prevalence of overweight/obesity in psoriasis population as well as its therapeutic consequences in clinical setting is scarce. To describe the prevalence of overweight/obesity in patients with moderate to severe psoriasis included in Biobaderm database-Spanish registry of moderate to severe psoriatic patients on classic/biologic systemic therapy. Furthermore, the relationship between BMI and survival of biological treatments was evaluated. A total of 1,162 patients on systemic treatment registered in Biobadaderm until November 2011 were included. 31.73% had a normal weight, overweight was detected in 39.50 and 28.72% were obese (BMI > 30).
When compared with general Spanish population (Data Instituto Nacional de Estadistica 2009), significant differences were only detected regarding obese patients (29 vs. 16% $p < 0.001$). No significant differences were observed in the percentage of patients receiving biologics or classical systemic therapies for different subgroups of BMI, ($p = 0.58$). Patients receiving infliximab (mean BMI: 29.1) and ustekinumab (mean BMI: 28.8) had a significantly higher BMI with respect to patients treated with classical systemic therapies (mean

BMI: 27.8). While the risk of cessation by remission (efficacy) was not associated with BMI—univariate analysis, we detected a linear trend of decreasing survival related to increased BMI in those who stopped biologic therapy due to adverse events and lack/loss of efficacy. However, after matching patients by age and biologic drug in a multivariated analysis, the decreasing survival related to increased BMI was only kept for cessation of biologic therapy due to lack/loss of efficacy (effect by 5 units of BMI: 1.09 (95% CI:1.01–1.17). Patients with moderate to severe psoriasis in our environment have a significantly higher prevalence of obesity when compared with the Spanish general population.

Increased BMI is associated with an increased risk of discontinuation of biological treatment due to lack of efficacy or loss of efficacy.

Current and new therapeutic modalities

P071

Management of severe cases of psoriasis: some interesting cases

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Erythrodermic psoriasis and generalized pustular psoriasis (GPP) are severe forms of psoriasis. Both forms are associated with significant morbidities or even mortality. The management of severe cases of the two clinical forms of psoriasis is challenging. So far traditional medications including acitretin and cyclosporine are still the first-line choices of erythrodermic psoriasis or GPP, though new biologics are being tried in more and more cases. The experience of the management of some cases of severe erythrodermic psoriasis and GPP is shared here. Some interesting cases are reviewed.

P072

Successful treatment of generalized pustular psoriasis in an 8 year old male with infliximab

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Objective: Psoriasis is a common inflammatory disorder affecting 2–3% of the population worldwide. Plaque type psoriasis is the most common form accounting for approximately 80 percent, whereas generalized pustular psoriasis (GPP) is rare. Treatment of GPP is still considered a challenge, especially in children.
Materials and methods: An 8 year old boy presented with erythematous annular lesions located at the trunk and extremities which were studded with marginal pustules. The patient was in otherwise good health and was on no medications.
Results: A 4 mm punch biopsy was performed and was compatible with pustular psoriasis. Topical as well as UVB 311 treatment were initiated. Despite this treatment and due to a gastrointestinal infection the patient's psoriasis exacerbated. After recovering from his gastrointestinal infection treatment with methotrexate was started. However, GPP tended to exacerbate even while treated with methotrexate. During exacerbation of his psoriasis the patient experienced severe malaise and fever. Therefore treatment with infliximab (5 mg/kg) combined with low dose methotrexate (15 mg po once weekly) was initiated. One week after the first infliximab infusion nearly complete remission of his pustular psoriasis was noted. Infliximab has been administered at weeks 0, 2, 6 and every 7 weeks thereafter. GPP has been well controlled for 16 months. So far no serious side effects due to infliximab therapy did occur in our patient.
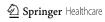*Conclusion:* As data concerning treatment of GPP in children are still lacking, this case highlights the efficiency and safety of infliximab in treating childhood GPP.

P073

A randomized, double-blind, placebo-controlled study of ustekinumab in Chinese patients with moderate to severe plaque psoriasis: LOTUS trial results

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Objective: To report LOTUS trial results on the efficacy and safety of ustekinumab (UST) treatment in Chinese patients with moderate to severe plaque psoriasis.
Methods: In this double-blind, placebo-controlled trial, patients with baseline moderate to severe plaque type psoriasis were randomized to receive subcutaneous UST45 mg or placebo (PBO) at weeks 0 and 4. Patients randomized to PBO crossed over to receive UST45 mg at week 12 and 16 (PBO → UST). Patients randomized to UST received an additional UST45 mg at week 16. Primary endpoint was the proportion of patients who achieved PASI75 response at week 12. Efficacy was assessed through week 28 and safety through week 36.
Results: 322 patients were randomized to either UST 45 mg (n = 160), or PBO (n = 162). Baseline

demographics and disease characteristics were comparable between groups; majority (77%) were male, mean (SD) body weight was 69.9 (12.2) kg. At week 12, 82.5% (132/160) and 78.8% of UST-treated patients achieved PASI75 response and PGA score of clear/minimal versus 11.1% (18/162) and 14.8% of PBO-treated patients ($p < 0.001$), respectively. After week 12, in UST45 mg group, the proportions of patients achieving PASI75 and PGA clear/minimal continued to increase and reached maximum at week 24 (91.6%) and week 20 (86.9%), respectively. The response was maintained through week 28 at 91.5% [140/153] and 86.3% [132/153], respectively. Similar response rates were also observed in PBO → UST group after week 12. With follow-up through week 36, 48.7% of UST-treated patients experienced an adverse event (AE) compared with 42.5% through week 12. Through week 36, there were no deaths, opportunistic infections, active tuberculosis, malignancies, or serious cardiovascular events reported.

Conclusions: UST 45 mg injections at weeks 0, 4 and 16 can significantly improve moderate to severe psoriasis in Chinese patients. UST was well-tolerated with a favorable benefit/risk profile through week 36.

P074

Efficacy and safety of secukinumab (a fully human anti-interleukin-17A antibody) in a phase II regimen-finding study for the treatment of moderate-to-severe plaque psoriasis

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Psoriasis is a chronic, immune-mediated skin disorder associated with increased levels of Interleukin (IL)-17A. In an earlier study, secukinumab has shown therapeutic potential in treatment of plaque psoriasis1. This double-blind, parallel group, placebo-controlled phase II study evaluated the efficacy and safety of secukinumab in patients with moderate-to-severe plaque psoriasis.

Patients (n = 404) were randomized (1:1:1:1) to either one of the three subcutaneous secukinumab 150 mg regimens: "Single" (at Week 0; n = 66), "Early" (at Weeks 0, 1, 2, 4; n = 133) and "Monthly" (at Weeks 0, 4, 8; n = 138) or placebo (n = 67). PASI 75 response at Week 12 was the primary efficacy endpoint. After the 12-week induction period, PASI 75 responders were further randomized (1:1) to one of the two maintenance regimens: the fixed-interval regimen (n = 65 patients received secukinumab 150 mg at Weeks 12 and 24) or the treatment at start-of-relapse regimen (n = 67 patients received secukinumab 150 mg at visits at which a start-of-relapse was observed).

Different treatment arms showed comparable baseline disease characteristics. At week 12, PASI 75 responses were statistically higher in "Early" and "Monthly" induction regimens compared to placebo (55 and 42% vs. 2%; $p < 0.001$ for both). Similarly, the "Early" and "Monthly" arms attained significantly greater PASI 90 responses than placebo (32 and 17% vs. 2%; $p < 0.001$ for both). In maintenance period, at week 24, 71% of the subjects in the fixed-interval regimen maintained their PASI 75 response. 16 weeks after last secukinumab administration, 30% of patients had experienced a start-of-relapse.

Serious adverse events and AE rates (including infections) were comparable between the secukinumab regimens and placebo (during the induction period), and between the fixed-interval and the start-of-relapse treatment arms (during the maintenance period).

In conclusion the primary efficacy endpoint of this study was met and the results reported here indicate that secukinumab may be useful in the treatment of psoriasis in induction and maintenance and warrant larger phase III studies.

Reference: 1. Hueber et al. 2010. Sci Transl Med. 2(52):52ra72.

P075

Recombinant bacterial system for local delivery of anti-TNFα biomolecules
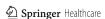
Ravnikar, Matjaz[1]; Berlec, Ales[2]; Obermajer, Natasa[2]; Lunder, Mojca[1]; Strukelj, Borut[1]

[1]Faculty of Pharmacy, University of Ljubljana, Ljubljana, Slovenia; [2]Jozef Stefan Institute, Ljubljana, Slovenia

Anti-tumor necrosys factor alpha (TNFα) therapy with monoclonal antibodies proved to be an efficient approach for a wide range of chronic inflammatory-related diseases including psoriasis. Downsides of this treatment are the enteral application of these TNFα-binding biomolecules, the risk of side effects due to systemic immunosupression and high production costs of such biodrugs.

A new system that enables local delivery of TNFα-binding biomolecules has been developed. TNFα-binding affibody has been expressed on the surface of lactic acid bacteria Lactococcus lactis as a fusion protein containing AcmA anchor peptide and Usp45 signal peptide. L.lactis is a lactic acid bacteria widely used in biotechnology that has a status of a safe organism (GRAS) and is highly resistant to acid and enzyme degradation. Surface protein expression has been determined using SDS page electrophoresys and the functionality of the recombinant TNFalpha-binding proteins was determined by using flow-cytomerty. The maximum binding capacity for TNFα was determined with ELISA and the acid resistance of the recombinant bacteria was determined with flow-cytometry after exposure in simulated gastric juice.

In vitro data confirmed the capability of the recombinant bacteria to express sufficient amount of active TNFα-binding molecules on their surface and the

ability of bacteria to retain most of the TNFα-binding capacity under simulated gastric conditions.

This represents a promising new delivery system for the local anti-inflammatory treatment that is patient friendly due to the topical application and avoids the risk of systemic side effects. In vivo efficiency and safety of the delivery system is currently being tested on animal models.

P076

Psoriasis patients required to discontinue adalimumab therapy have worsening in their quality of life out of proportion to worsening in the objective signs of disease: subanalysis of REVEAL

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Aims: To compare dermatology life quality index (DLQI) and psoriasis area and severity index (PASI) scores, while on therapy versus after discontinuation among adalimumab-treated psoriasis patients who undergo protocol-mandated treatment discontinuation.

Methods: REVEAL was a 52-week, placebo-controlled Phase III trial of patients with moderate to severe psoriasis (NCT00237887). 240 patients were randomized to adalimumab at baseline, achieved ≥PASI 75 responses at week 16 and 33, and were re-randomized to placebo. This post hoc analysis compares DLQI and PASI scores at week 4 (early in adalimumab treatment initiation) and at week 52 (after up to 19 weeks of treatment discontinuation), using last observation carried forward (LOCF) to impute missing data.

Results: At baseline, the mean PASI score was 19.5 and mean DLQI score was 11.6. At week 4, the mean PASI score was 8.0 and mean DLQI score was 4.3. At week 33, the mean PASI score was 1.2 and mean DLQI score was 1.0. At week 52, the mean PASI score was 6.7 and mean DLQI score was 5.3.

Conclusion: For patients who responded to adalimumab but were required by the study protocol to discontinue treatment, mean PASI scores were lower yet mean DLQI scores were higher than they had been early in treatment (week 4 vs. 52). We hypothesize that this hysteretical uncoupling of DLQI and PASI scores occurs because patients are distressed to see their psoriasis recurring after it had been effectively controlled. These results may have general implications about the disutility of discontinuing, even temporarily, effective psoriasis therapies in patients who have achieved excellent control of their disease.

P077

Phase IIa randomized, double-blind, placebo-controlled, sequential dose-escalation study to evaluate the efficacy and safety of ASP015K, a novel Janus kinase (JAK) inhibitor, in patients with moderate-to-severe psoriasis
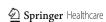
Papp, Kim[1]; Pariser, David[2]; Wierz, Gina[3]; Ball, Greg[3]; Akinlade, Bola[3]; Zeiher, Bernhardt[3]

[1]Probity Medical Research, 135 Union Street, East Waterloo, Canada; [2]Eastern Virginia Medical School and Virginia Clinical Research, Inc., Norfolk, USA; [3]Astellas Pharma Global Development, Inc., Deerfield, USA

Objective: ASP015 K is an oral Janus Kinase (JAK) inhibitor with in vitro activity vs. JAK 1, 2, 3 and Tyk2. JAKs have increased expression and mediate pathogenic cellular activation in immune-mediated diseases, including psoriasis. This phase IIa study examined the efficacy and safety of ASP015 K in moderate-to-severe psoriasis.

Methods: Adult patients with stable, moderate-to-severe plaque psoriasis affecting ≥10% body surface area (BSA) were randomized in this double-blind, placebo-controlled, sequential dose-escalation (10, 25, 60, 100 mg BID or 50 mg QD or placebo) 6 week study. The primary efficacy outcome was change in Psoriasis Area Severity Index (PASI) score from baseline to end of treatment (EOT). Secondary outcomes included change from baseline to EOT in BSA, and Physician Static Global Assessment (PSGA) score, and proportion of patients achieving success at EOT (PSGA score, 1 [almost clear] or 0 [clear]). Overall treatment effect was analyzed using analysis of covariance for PASI, PSGA, and BSA, and the Cochran–Mantel–Haenszel test for PGSA success.

Results: 124 patients were enrolled; mean baseline BSA, PASI, and PSGA were 20.3, 15.4, and 3.3%, respectively. The primary analysis, reduction in mean PASI score at EOT, favored ASP015K ($P < 0.0001$) (range: 10 mg BID, −6.4; 100 mg BID, −11.9; placebo, −4.2). All secondary analyses were significant: PSGA score ($P = 0.0002$) (range: 50 mg QD, −0.95; 100 mg BID, −1.69; placebo, −0.44), PSGA success ($P = 0.002$) (range: 25 mg BID, 14.3%; 60 mg BID, 47.4%; placebo, 0%), and BSA ($P = 0.0003$) (range: 25 mg BID, −4.84; 60 mg BID, −11.16; placebo, −3.02). There were no dose-related increases in adverse events (AEs) and the incidence of AEs occurring in ≥2 patients was similar across all groups. 3 patients discontinued the study because of drug-related AEs (decreased neutrophils [60 mg BID], neutropenia [100 mg BID], vomiting [100 mg BID]).

Conclusions: ASP015K was generally well tolerated (dose range: 20–200 mg/d) for 6 weeks in patients with moderate-to-severe psoriasis. Dose-dependent reductions in mean PASI were noted and similar

reductions were seen with ASP015K (50 mg/d) whether dosed QD or using a BID regimen.

P078

Improvement of psoriasis in subjects with and without prior brodalumab (AMG 827) treatment in an open-label extension study

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[1]Probity Medical Research, Waterloo ON, Canada; [2]St Louis University, St Louis, USA; [3]Baylor University Medical Center, Dallas, USA; [4]Hopital de l'Archet, Nice, France; [5]Amgen Inc, Thousand Oaks, USA

Introduction: The pro-inflammatory cytokines interleukin-17A (IL-17A), IL-17C, and IL-17F are over expressed in psoriatic skin.
Objective: To compare efficacy and safety of brodalumab (AMG 827), a human anti-IL-17 receptor monoclonal antibody, in subjects with moderate to severe plaque psoriasis with and without prior brodalumab treatment.
Methods: This was a week 48 analysis of an open-label extension (OLE) study in subjects who had received brodalumab (70, 140, or 210 mg Q2WK or 280 mg Q4WK) or placebo in a 16-week phase 2 study (last dose of brodalumab at week 8 [280 mg Q4WK] or 10 [70, 140, and 210 mg Q2WK]). All subjects who enrolled in the OLE (n = 33 placebo; n = 148 brodalumab) received 210 mg Q2WK brodalumab. Measurements of efficacy included % change in PASI and PASI75/90/100 from parent study baseline. Safety was assessed by monitoring adverse events (AE).
Results: At baseline of the OLE, mean (SD) PASI in placebo subjects was 17.3 (8.2), comparable to mean PASI at parent study baseline in subjects randomized to receive active treatment. Upon receiving treatment, prior placebo subjects showed a rapid clinical response with PASI improvements from parent study baseline observed as early as week 2 (mean [SD] improvement in PASI 67% [27]; N = 33) and by week 8 (PASI75/90/100 in 94%/76%/61% of subjects; N = 33) the responses were comparable to those of subjects originally treated with brodalumab. All of the subjects achieved PASI75 by week 12 (PASI90/100 in 79%/64% of subjects). The improvements in PASI were maintained through week 48 (PASI75/90/100 in 95%/90%/63% of subjects; N = 19), as were the responses in those originally treated with brodalumab. Serious AEs were reported in 9 subjects with 1 leading to death (aortic aneurysm rupture in 1 subject from the prior 280 mg Q4WK group). None of the SAEs occurred in more than 1 subject.
Conclusion: Subjects in the placebo group responded rapidly to treatment with brodalumab following initiation of therapy in the OLE study. Their responses were compara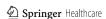ble to those of subjects on active treatment in the parent study. The risk: benefit ratio of brodalumab appears to warrant continued development.

P079

Long term efficacy and safety of ustekinumab in patients with moderate to severe psoriasis through 5 years of follow-up: results from the PHOENIX 1 long-term extension

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[1]Probity Medical Research, Waterloo, Canada; [2]Harvard Medical School and Massachusetts General Hospital, Boston, USA; [3]Janssen Research and Development, LLC, Spring House, USA; [4]Innovaderm Research, Inc, Montreal, Canada; [5]Dermatology Research Associates, Los Angeles, USA; [6]North Shore University Health System and University of Chicago Pritzker School of Medicine, Chicago, USA

Objective: To report efficacy and safety of ustekinumab (UST) through 5 years of follow-up in PHOENIX1.
Methods: Pts with moderate to severe PsO (n = 766) were randomized to PBO, UST 45 mg, or 90 mg at Wk0 and Wk4. UST pts continued with q12wk dosing. PBO pts crossed-over to UST45 mg or 90 mg at Wk12. PASI75 responders receiving UST from Wk0 (n = 322) were re-randomized at Wk40 to continue maintenance on their original dose until end of study, or withdraw from UST and reinitiate treatment upon loss of 50% of their Wk40 PASI improvement. Partial responders (Wk28 PASI50 <75 orWk40 PASI75) switched to q8wk dosing. Efficacy (Wk244) and safety (Wk264) evaluations included all pts who received ≥1 UST dose. Results:68.7% (517/753) of treated pts received UST through the last scheduled yr5 dose, with similar high retention rates observed in 45 mg and 90 mg grps. In overall population analysis, PASI75 responses were 63.4 and 72.0% and PASI90 responses were 39.7 and 49.0%, for the 45 and 90 mg grps, respectively. Among Wk40 PASI75 responders randomized to continue maintenance, efficacy was similarly sustained; PASI75 responses were 79.1 and 80.8% and PASI90 responses were 47.8 and 58.9%, for the 45 and 90 mg grps, respectively. Among partial responders switched to q8wk dosing, PASI75 responses were 57.6 and 55.1% and PASI90 responses were 27.2 and 27.5%, for the 45 and 90 mg grps, respectively. UST was generally well-tolerated thru 5 years (3,104 pt yrs of follow-up[PY]). Rates of adverse events (AEs), serious AEs, and infections per 100PY for the 45 and 90 mg grps, respectively, were 220.9 and 209.0, 5.3 and 5.4, and 83.7 and 81.6. Rates of serious infection, non-melanoma skin cancer, other malignancy and investigator-reported major adverse CV events (CV death, MI or stroke) per 100PY for the UST grps combined were 1.03, 0.4 (BCC:SCC ratio = 13:1), 0.48, and 0.35, respectively. No apparent dose effect was observed, and rates were consistent with those reported at 3 years of follow-up.

Conclusion: Consistent with data reported thru yr3, majority of pts remained on UST thru up to 5 years and maintained clinical responses. UST was generally well-tolerated, without evidence of cumulative toxicity with increased duration of exposure.

P080

Secukinumab for treatment of moderate-to-severe plaque psoriasis: results of a phase II dose-ranging study

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[3]Novartis Pharma AG, Basel, Switzerland

Interleukin-17A (IL-17A) has been reported to be upregulated in psoriatic lesional skin. Secukinumab, a fully human anti-IL-17A antibody, has shown efficacy in the treatment of psoriasis1. This phase II study assessed the efficacy and safety of different doses of secukinumab in patients with moderate-to-severe plaque psoriasis.

Patients ($n = 125$) were randomized (1:1:1:1:1) to receive subcutaneously either placebo ($n = 22$) or secukinumab [1×25 mg ($n = 29$), 3×25 mg ($n = 26$), 3×75 mg ($n = 21$), 3×150 mg ($n = 27$)] at Week 0, 4 and 8. At the end of 12-week treatment period, patients entered a 24-week follow-up period. At Week 12, PASI 75 (primary) and PASI 90 response (secondary) were assessed as efficacy endpoints.

Baseline disease characteristics were comparable between treatment groups. At Week 12, PASI 75 response rates for secukinumab 3×150 and 3×75 mg were superior as compared to placebo (81 and 57% vs. 9%; $p < 0.001$ and $p = 0.002$; respectively). Higher PASI 75 response rates were maintained throughout the follow-up period for secukinumab vs. placebo (Week 32: 56 and 24% vs. 5%; Week 36: 26 and 19% vs. 5%). At Week 12, PASI 90 response rate reached statistical significance for only secukinumab 3×150 mg versus placebo (52 vs. 5%) and remained higher vs. placebo consistently during the follow-up period up to Week 36 (11 vs. 5%).

Secukinumab 3×150 mg group reported slightly higher AEs (89%) compared with the other secukinumab dose cohorts (73–76%) which were similar to the placebo group (73%). Most AEs were mild or moderate in severity. 2 patients in secukinumab 3×25 mg group, 1 in secukinumab 3×75 mg group and 2 in placebo reported SAEs. One patient died in the placebo group.

In conclusion, secukinumab 3×75 and 3×150 mg cohorts achieved the primary endpoint of PASI 75 response at Week 12 and the higher response vs. placebo was maintained over 36 weeks. Overall, secukinumab had a comparable safety profile to placebo. These findings indicate that secukinumab given every 4 weeks is efficacious for the treatment of moderate-to-severe plaque psoriasis and warrant larger phase III studies.

1. Hueber et al. 2010. Sci Transl Med. 2(52):52ra72

P081

Novel EP4 antagonists as a new therapy for auto-immune diseases

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Helper T cell (Th) subsets, Th1 and Th17 cells, play an important role in the development of autoimmunity in human diseases. Recently, prostaglandin E2-EP4 receptor signaling was demonstrated to induce Th1 cell differentiation and Th17 cell expansion (Ref). We investigated the EP4 pharmacology using RQ-00000007 (RQ-7) and RQ-00000008 (RQ-8), potent, selective and structurally distinct small molecule EP4 antagonists. The Ki values for RQ-7 and RQ-8 are 13 and <10 nM, respectively, in a recombinant human EP4 receptor-transfected HEK293 cell assay system. Selectivity for the EP4 was demonstrated against more than 100 enzymes and receptors that included the other prostanoid receptors. In vitro, RQ-7 and RQ-8 suppressed PGE2-induced IL-23 production in human dendritic cells with IC50 values of 3.1 and 5.0 nM, respectively. RQ-7 also inhibited PGE2 and Con-A-induced IL-6 production in human peripheral blood mononuclear cells. In vivo, RQ-7 and RQ-8 demonstrated oral activities in a variety of autoimmune disease models, i.e., psoriasis, inflammatory bowel disease and rheumatoid arthritis. Specifically, RQ-8 demonstrated oral activity in a mouse picryl chloride-induced contact hypersensitivity model at 3 mg/kg, bid, and a mouse dextran sulfate sodium-induced colitis model at 30 mg/kg, qd. RQ-7 and RQ-8, significantly suppressed paw edema, and bone destruction in rat adjuvant-induced arthritis model at 29, and 0.3 mg/kg bid, respectively. In conclusion, EP4 antagonist RQ-7 and RQ-8 are attractive development candidates for the treatment of a variety of autoimmune diseases with high unmet medical needs.

Reference: C. Yao, et al., Nat Med. (2009). 15(6):633–40.

P082

Serendipity opens new avenues: a pilot study to evaluate the efficacy of saxagliptin in combination with cyclosporine and acitretin in diabetic psoriasis patients

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Background: Psoriasis is a chronic inflammatory skin disease, accompanied by obesity, diabetes mellitus (DM), or metabolic syndrome. Despite the availability of several treatments, psoriasis is often a therapeutic

challenge due to its unpredictable course, adverse effects and variable response to treatments. Since dipeptidyl peptidase IV (DPP-IV) dysregulation is present in DM and psoriasis, DPP-IV inhibitors (saxagliptin) can be useful for both conditions.

Aim: To assess the efficacy and safety of combination of saxagliptin with cyclosporine or acitretin in patients with refractory psoriasis and type 2 DM.

Methods: Ten patients of resistant psoriasis with type 2 DM with severe disease (mean baseline PASI > 20) were randomly divided into two groups; group A received cyclosporine 3 mg/kg/day and saxagliptin 5 mg/day whereas group B received acitretin 25 mg daily and saxagliptin 5 mg/day. In both the groups, patients were treated for 12 weeks and then followed up for 12 weeks after stopping cyclosporine or acitretin. The severity of psoriasis was accessed by the PASI at baseline and 4, 8, 12 and 24 weeks after the initiation of treatment. Quality of life (QoL) was assessed by DLQI scoring at 0, 12 and 24 weeks.

Results: Seven patients (70%) (4 in group A and 3 in Group B) attained PASI 50 and three of these (30%) (2 group A and 1 group B) patients attained PASI 75 at week 12 of therapy. One patient had exacerbation 4 weeks after starting saxagliptin and treatment was stopped; 2 patients did not show any improvement. QoL score improved significantly in both groups. The clinical response was maintained at week 24 in patients who improved with therapy after stopping acitretin/cyclosporin. No serious adverse events were observed in this study.

Conclusion: We observed that saxaglptin in combination with cyclosporine and acitretin is an effective treatment option in patients of severe psoriasis with type 2 DM. Further long term studies with larger patient cohort are needed to evaluate the efficacy of saxagliptin in non diabetics psoriasis patients, as a monotherapy and in combination with other systemic or topical agents.

P083

Secukinumab, a fully human anti-interleukin-17A antibody, improves signs and symptoms of psoriatic arthritis: a 24-week, double-blind, placebo-controlled, multicenter trial

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This study assessed the safety and preliminary efficacy of secukinumab inhibiting Interleukin-17A, a novel target for the treatment of psoriatic arthritis (PsA). 42 patients with active PsA who fulfilled CASPAR criteria were randomized 2:1 to receive two injections of secukinumab (10 mg/kg) or placebo, given 3 weeks apart. The primary efficacy endpoint was the proportion of ACR20 responders at Week 6 in active versus placebo (one-sided p < 0.01).
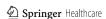
35 (83.3%) patients (25 on secukinumab, 10 on placebo) completed the study. 5 patients (4 secukinumab and 1 placebo) were excluded from the efficacy analysis due to protocol violations and 7 (3 secukinumab and 4 placebo) discontinued prematurely for lack of efficacy or withdrawal of consent. Demographics and baseline characteristics were balanced between groups including parameters: mean ± SD SJC (secukinumab vs. placebo): 8.3 ± 5.6 vs. 9.5 ± 5.4; TJC 23.5 ± 19.4 vs. 22.6 ± 11.0; DAS28 4.8 ± 1.2 vs. 4.8 ± 1.2; MASES 3.0 ± 4.1 vs. 3.4 ± 2.3. Co-existing psoriasis, prior TNFi exposure and co-medication with DMARDS were present in 23, 11 and 21 patients on secukinumab and in 11, 5 and 10 on placebo, respectively. ACR20 responders on secukinumab versus placebo were 39 versus 23% (P = 0.27) at Week 6, 39 vs. 15% at Week 12, 43 vs. 18% at Week 28. ACR50 and ACR70 responders on secukinumab versus placebo were 17 versus 8% and 9 versus 0%, respectively at Week 6. CRP reductions at Week 6 were greater on secukinumab (median [range] at baseline versus Week 6: 4.9 [0.3, 43.0] vs. 3.0 [0.2, 15.2]) than on placebo (6.2 [1.3, 39.7] vs. 5.0 [0.8, 29.6]). Overall rate of adverse events (AEs) was comparable in secukinumab 26 (93%) versus placebo 11 (79%). 7 serious AEs were reported in 4 secukinumab patients and 1 in placebo. Infections were reported in 16 (57%) patients on secukinumab and 7 (50%) on placebo. In conclusion, the primary endpoint was not met, though patients showed rapid and sustained improvements of clinical scores and CRP levels up to Week 28. The safety profile of secukinumab was favorable. These findings warrant further larger phase III clinical trials in PsA.

P084

Combined treatment of psoriasis with methotrexate and narrowband UVB phototherapy compared with methotrexate alone and narrowband UVB alone

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Background: Wide spread psoriasis has significant negative effects on the quality of life. Effective and rapid response in treatment of psoriasis is needed.

Objectives: To compare the efficacy of combined methotrexate and NBUVB with NBUVB and methotrexate each one alone in the treatment of wide spread plaque-type psoriasis.

Patients and methods: A total of (120) patients with wide spread plaque-type psoriasis were enrolled but only (113) patients completed the study. These (113) patients were divided into three groups, group MN (n = 38) received methotrexate plus NBUVB, and group N (n = 38) received NBUVB alone, and group M (n = 37) received methotrexate alone.

End point of treatment was 90% reduction in PASI Score (clearance), or up to 8 month. Follow-up was performed for 1 year after clearance for assessment of relapse rate, and the relapse was defined as PASI scores returned to 50% of the original ones.

Results: The mean number of weeks (wks) required for clearance was 6.11 ± 1.28 wk in group (MN), and 11.42 ± 2.36 wk in group (N), and 20.87 ± 4.21 wk in group (M) (P = 0.0001). The mean number of phototherapy sessions was 17.86 ± 3.74 sessions in group (MN), and 33.51 ± 6.9 sessions in group (N) (P = 0.0001). The mean total cumulative dose of NBUVB for clearance was 12.13 ± 4.02 J/cm^2 in group (MN), compared with 34.48 ± 13.13 J/cm^2 in group (N) (p = 0.0001). The mean total cumulative dose of methotrexate for clearance was 116.04 ± 20.47 mg in group (MN) compared with 298.63 ± 60.26 mg in group (M) (p = 0.0001). The percentage of patients relapsed during follow-up period was 8.33% in group (MN), and 14.28% in group (N), and 21.62% in group (M) (p = 0.314).

Conclusions:

1 -Methotrexate and NBUVB phototherapy provides more rapid clinical improvement with shorter duration of therapy, and less cumulative doses of both therapy. Compared with NBUVB monotherapy and methotrexate alone in the treatment of wide spread plaque-type psoriasis.
2 -NBUVB monotherapy was superior to methotrexate alone in treatment of wide spread plaque-type psoriasis.
3 -The combination of methotrexate and NBUVB lead to decrease in percentage of relapsed patients

P085

Treatment in mono-/oligo- and polyarthritic patients: a 5 year study on the Swedish early psoriatic arthritis cohort (SwePsA)

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Background: The diverse features of psoriatic arthritis (PsA) with clinical classification changes over time and with difficulties to outline treatment recommendations cause suboptimal assessment in many patients.

Objectives: Patients with symptoms of PsA have been documented in SwePsA since 1999. This is a presentation of classification, medical assessment and outcome in six rheumatologic clinics.

Methods: Patients referred to the clinics within 2 years of onset were followed up according to the program by the same rheumatologist. Classification according to CASPAR was done.
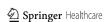
Results: On inclusion patients with mono- or oligoarticular (MO) disease were most frequent with 47% of 208 patients. Forty-two percent were classified as polyarticular (P) patients. Nine percent had axial involvement, 2% were in remission defined as no tender or swollen joints and with E-SR and CRP within the reference range. One-third of patients with MO disease were treated with DMARD. At reclassification 80% remained MO patients and 18% were in remission. Fifty-five % of the patients with P disease were treated with DMARD or anti-TNF-alpha and at reclassification 40% had MO disease and 8% were in remission. Significantly more MO patients were in remission at 5-year followup compared to P patients (p = 0.041). Minimal disease activity (MDA) was assessed and patients with MO disease had more frequent MDA compared to P patients at 5-year followup (p = 0.047) and treatment with DMARD in MO patients did not improve the number of patients reaching MDA. Neither was there any significant difference between numbers of treated and untreated MO patients reaching remission at 5-year followup. Treatment with DMARD and/or TNF-alpha did not increase the number of P patients that reached MDA or remission. On the contrary all P patients that reached remission were non-treated patients (p = 0.006). There was a gender difference with more men reaching MDA (p = 0.006) and remission (p = 0.043) at 5-year followup, more frequent in patients before 40 years of age.

Conclusions: The effects of treatment in early PsA patients in clinical practice are not clear-cut and need to be further evaluated.

P086

Content validity of a novel patient-reported psoriasis symptom diary for patients with moderate-to-severe plaque psoriasis

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Moderate-to-severe plaque psoriasis significantly impacts the daily life of patients. There are no currently available psoriasis symptom-based patient-reported instruments consistent with current regulatory expectations. Using instrument development methods recommended by regulatory agencies, the specific aims of this study were to (a) highlight which concepts are important and relevant to patients with chronic plaque psoriasis, and (b) describe methods of this work and how the results may be utilized for evaluating perceived patient benefit associated with treatments designed for moderate-to-severe plaque psoriasis.

Qualitative patient interviews with moderate-to-severe psoriasis patients were utilized to develop a 20 item patient reported Psoriasis Symptom Diary. The key elements in measure development included (1) conducting patient interviews to identify key plaque psoriasis-related symptoms and impacts (N = 29); (2) development of an initial set of items capturing the key patient experiences; and (3) conducting cognitive interviews to test patient understanding of the items selected for inclusion in the new psoriasis symptom measure (N = 16). A variety of symptoms were noted by the patients, with plaque-related pain (including related sensations of burning and stinging), changes in skin appearance, and itching being reported by all patients. Patients also expressed notable embarrassment and avoidance of social situations, due to the appearance of plaques, and limited mobility. The Psoriasis Symptom Diary assesses the severity and impact of symptoms using a 24-h recall period, in order to reduce recall bias and error.

In conclusion, qualitative evidence-based research in this disease indicates that itching, pain, scaling, skin color, stinging and burning, and pain due to skin-cracking are the most important and relevant psoriasis related symptoms. The Psoriasis Symptom Diary assesses important symptoms and disease-related impact in a manner that is consistent with guidelines for establishing the content validity of new PRO instruments. Following quantitative psychometric testing, the Psoriasis Symptom Diary may support efficacy endpoints in clinical trials.

P087

Safety and efficacy of adding topical therapy to etanercept in patients with moderate to severe plaque psoriasis

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Background: This study examined efficacy and safety of addition of clobetasol propionate (CP) foam to etanercept (ETN) compared with ETN monotherapy in patients (pts) with moderate to severe plaque psoriasis. *Methods:* This phase 3b study enrolled adults with Psoriasis Area and Severity Index (PASI) $\geq$10 and affected body surface area $\geq$10%. Pts were randomized (1:1) to ETN 50 mg twice weekly (wkly) for 12 wks followed by ETN once wkly for 12 wks or ETN (same dose schedule) +CP as needed to clear for two up-to-2-wk courses (wks 11–12, 23–24). Outcomes included PASI 75 at wk 12 (primary endpoint), static Physician Global Assessment (sPGA), pt satisfaction with treatment, and adverse events (AEs). Last-observation-carried-forward imputation was used for missing data. Significance testing for primary/secondary endpoints was ba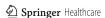sed on sequential testing and Hommel procedure. *Results:* 592 pts enrolled; 295 and 297 were randomized to ETN + CP and ETN arms, respectively. PASI 75 was achieved at wk 12 by 65.2 and 48.3% of pts in ETN + CP and ETN arms ($P < 0.001$), respectively, and 69.3 and 63.6% at wk 24 ($P = 0.135$). At wk 12, sPGA of clear/almost clear (score 0/1) was achieved by 63.1 and 47.3% of pts in ETN + CP and ETN arms ($P < 0.001$), respectively, and 61.7 and 54.8% at wk 24 ($P = 0.135$). At wk 12, pt satisfaction with treatment was significantly greater in ETN + CP arm than in ETN arm ($P = 0.006$). Pt satisfaction also favored ETN + CP at wk 24 (exploratory endpoint; nominal P value <0.05, without multiplicity adjustment). Comparable numbers of AEs were reported in the ETN + CP (56.6%) and ETN (60.5%) arms. 16 serious AEs in 13 pts were reported: 7 (2.4%) in the ETN + CP arm and 6 (2.0%) in the ETN arm. 3 fatal AEs occurred in the ETN + CP arm: death unknown; gunshot wound; cardiorespiratory arrest and pneumonia. No imbalances in infections and skin events were observed. *Conclusions:* Addition of CP to ETN yielded increased efficacy compared with ETN alone in pts with moderate to severe psoriasis as measured by wk 12 PASI 75, sPGA, and pt satisfaction. Wk 24 PASI 75 and sPGA response rates were numerically higher in the ETN + CP arm but differences were not statistically significant.

P088

Secukinumab for treatment of moderate-to-severe plaque psoriasis: Results of a double-blind, parallel-group, placebo-controlled, phase II dose ranging study

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Interleukin (IL)-17A has been reported to be upregulated in psoriatic lesional skin. Secukinumab, a fully human anti-IL-17A antibody, has shown efficacy in the treatment of psoriasis1. This phase II study assessed the efficacy and safety of different doses of secukinumab in patients with moderate-to-severe plaque psoriasis.

Patients (n = 125) were randomized (1:1:1:1:1) to receive subcutaneously either placebo (n = 22) or secukinumab [1 × 25 mg (n = 29), 3 × 25 mg (n = 26), 3 × 75 mg (n = 21), 3 × 150 mg (n = 27)] at Week 0, 4 and 8. At the end of 12-week treatment period, patients entered a 24-week follow-up period. At Week 12, PASI 75 (primary) and PASI 90 response (secondary) were assessed as efficacy endpoints.

Baseline disease characteristics were comparable between treatment groups. At Week 12, PASI 75 response rates for secukinumab 3 × 150 and 3 × 75 mg were superior as compared to placebo (81 and 57% vs. 9%; $p < 0.001$ and $p = 0.002$; respectively). Higher PASI 75 response rates were maintained throughout the follow-up period for secukinumab vs. placebo (Week 32: 56 and 24% vs. 5%; Week 36: 26 and 19% vs. 5%). At Week 12, PASI 90 response rate reached statistical significance for only secukinumab 3 × 150 vs. placebo (52 vs. 5%) and remained higher versus placebo consistently during the follow-up period up to Week 36 (11 vs. 5%). Secukinumab 3 × 150 mg group reported slightly higher AEs (89%) compared with the other secukinumab cohorts (73–76%) which were similar to the placebo group (73%). Most AEs were mild or moderate in severity. 2 patients in secukinumab 3 × 25 mg group, 1 in secukinumab 3 × 75 mg group and 2 in placebo reported SAEs. One patient died in the placebo group. In conclusion, secukinumab 3 × 75 and 3 × 150 mg cohorts achieved the primary endpoint of PASI 75 response at Week 12 and the higher response vs. placebo was maintained over 36 weeks. Overall, secukinumab had a comparable safety profile to placebo. These findings indicate that secukinumab given every 4 weeks is efficacious for the treatment of moderate-to-severe plaque psoriasis and warrant larger phase III studies.

Reference: 1. Hueber et al. 2010. Sci Transl Med. 2(52):52ra72.

P089

Our experience with naphtalan therapy in Danish psoriasis patients

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Introduction: The Naftalan Special Hospital for Medical Rehabilitation is a unique institution both in Europe and worldwide for the management of psoriasis, psoriatic arthritis and rheumatic diseases. Naphthalan as a specific form of medicinal earth oil is rare, and naphthalan found at the Kriz oil field near Ivanic Grad in Croatia is the only one in Europe.

Subjects and methods: During the 2006–2011 period, 63 psoriasis patients (25 female and 38 male) from Denmark were referred by Denmark insurance company for treatment at Naftalan Hospital. The mean patient age was 46.3 (range 15–78) years; 43.9 (15–76) years in female and 48.8 (18–78) years in male patients. The mean length of treatment was 21 (18–28) days. During their stay at Naftalan Hospital, the patients received baths in naphthalan oil tubs for 15 min/day for 6 days, naphthalan oil temperature 38 C. Naphthalan cream was applied once daily. During their stay at Naftalan Hospital, three female and two male patients continued taking methotrexate and one male patient cyclosporine, initiated in Denmark. The effect of naphthalan oil therapy was monitored by PASI score and photo documentation.

Results: PASI score at the beginning and at the end of treatment in 63 Danish patients (25 female and 38 male) is reported. The mean initial PASI score was 16 (female 15 and male 17), while the mean final PASI score was 4.5 (female 3.6 and male 5.4). PASI 90 was achieved in six (24%) female and three (7.9%) male patients; PASI 75 in eight (32%) female and 11 (28.9%) male patients; PASI 50 in seven (28%) female and 18 (47.4%) male patients; and PASI < 50 in four (16%) female and six (15.8%) male patients. Naphthalan oil therapy was well tolerated by the patients and no side effects were observed.

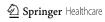Conclusion: Naphthalan is a useful topical agent for the treatment of mild to moderate psoriasis.

P090

Investigator-initiated, open-label trial of ustekinumab for the treatment of moderate to severe palmoplantar psoriasis

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Background: Palmoplantar psoriasis (PP) is a variant of psoriasis resistant to many forms of treatment. There is no standard management for PP with only small studies and case reports showing varied responses to topical and systemic treatments as well as phototherapy. The Th17/interleukin (IL)-23 pathway is thought to play an important role in the pathogenesis of psoriasis, and ustekinumab, an IL-12/23 inhibitor, is FDA-approved for the treatment of plaque-type psoriasis. Yet, there is limited data on its use and efficacy for the treatment of PP.

Methods: Twenty subjects with moderate-to-severe psoriasis of the palms and soles, 50% with pustules at baseline, were treated with ustekinumab at weeks 0, 4, 16. All subjects had previously failed topical corticosteroids. During the treatment phase, subjects were restricted from concomitant use of other systemic psoriasis therapies, including PUVA, UVB, systemic corticosteroids, methotrexate, cyclosporine, oral retinoids, and biologic therapies. Dosing was 45 milligrams (mg) subcutaneously for subjects weighing <100 kilograms (kg) and 90 mg for subjects weighing ≥100 kg. The primary endpoint was the percent of subjects achieving clinical clearance at week 16, defined as Palm-Sole Physician's Global Assessment ≤1.

Results: After 16 weeks of treatment, 35% (7/20) of subjects achieved clinical clearance. 60% (12/20) improved two or more points on the Palm-Sole Physician's Global Assessment scale. 67% (6/9) of those receiving the 90 mg ustekinumab dose achieved clinical clearance compared to 9% (1/11) receiving 45 mg ($p = 0.02$). At 24 weeks, mean values showed 56% improvement in Dermatology Life Quality Index, and 34% improvement in pain Visual Analogue Score (all $p < 0.05$).

Limitations: Assessment tools for palmoplantar psoriasis are not yet validated. Five subjects withdrew or were lost to follow up.

Conclusion: This study demonstrates that ustekinumab dosed at 90 mg is effective in controlling signs and symptoms of palmoplantar psoriasis. This may suggest higher dosing may be required to achieve clinical clearance in patients with PP compared to current recommendations for plaque-type psoriasis.

P091

Ustekinumab in patients with active psoriatic arthritis: results of the phase 3, multicenter, double-blind, placebo-controlled PSUMMIT I study

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Objective: To assess efficacy and safety of ustekinumab (UST) in PsA.

Methods: Adult PsA pts (n = 615) with active disease (≥5 SJC and ≥5 TJC; CRP ≥ 0.3 mg/dL) despite DMARD and/or NSAIDs were randomized to UST45, 90 mg, or PBO at wks 0.4, and q12wks. At wk16, pts with <5% improvement in TJC and SJC entered blinded early escape (PBO → UST45 mg; UST 45 → 90 mg; 90 → 90 mg). Stable concomitant MTX was permitted but not mandated. Pts treated with prior anti-TNF agents were excluded. Primary endpoint was ACR20 response at wk24; secondary endpoints: ACR 50/70, DAS28-CRP response, change from baseline (BL) in HAQ-DI, PASI75 response (in pts with ≥3% BSA), and % change from BL in enthesitis and dactylitis scores (in pts affected at BL).

Results: At wk24, ACR20 responses were 42.4, 49.5, and 22.8% for the UST 45 mg, UST 90 mg, and PBO grps, resp ($p < 0.001$). Significant (sig) improvements were also observed with UST45 mg and 90 mg versus PBO for ACR50/70 responses and DAS28-CRP responses. Changes from BL in HAQ-DI at wk24 were sig greater in the UST versus PBO, and sig greater proportions of UST-treated pts had a clinically meaningful change from BL in HAQ-DI (≥0.3). Nearly half used concomitant MTX at BL; this did not alter likelihood of benefit of UST versus PBO. While ACR responses were greater with UST than PBO regardless of MTX use, differences were numerically larger among pts not taking MTX. Of 440 pts with ≥3% BSA involvement at BL, PASI75 was achieved in 57.2, 62.4, and 11.0% of UST45 mg, UST 90 mg, and PBO, resp ($p < 0.001$). Among pts with enthesitis (n = 425) or dactylitis (n = 286) at BL, greater improvements in enthesitis and dactylitis were observed at wk24 in the UST grps versus PBO ($p < 0.001$, each). Through wk16 (PBO-controlled period), prop of pts with ≥1 AE was similar between pts receiving UST (41.8%) and PBO (42.0%), with infections being the most common AE; 1.7% (UST) and 2.0% (PBO) had ≥1 SAE. No malignancies, SIE, TB, opportunistic infections, or deaths occurred through wk24.

Conclusions: UST sig reduced signs and symptoms of arthritis, improved physical function, enthesitis and dactylitis, and plaque psoriasis vs. PBO-treated pts at wk24. Safety profiles were similar between UST and PBO.

P093

ASP015K: a novel JAK inhibitor demonstrated potent efficacy in a chronic oxazolone-induced dermatitis model in rats

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Background: The janus kinase (JAK) family of enzymes play a key role in cytokine signaling, which are involved

in the pathogenic events of immune-mediated disorders such as psoriasis.

Methods: In vitro enzyme inhibition assays and cell-based assays were performed to evaluate the potency and selectivity of ASP015K against JAK and tyrosine kinase 2 (TYK2) enzymes. Cell-based assays were also performed to assess the selectivity of ASP015K for signaling via JAK3/JAK1 over JAK2/JAK2. The efficacy of orally administered ASP015K was explored in a repeated oxazolone-induced contact dermatitis model in rats.

Results: ASP015K inhibited JAK1, JAK2, JAK3 and TYK2 enzyme activities with IC50 values of 3.9, 5.0, 0.71 and 4.8 nM, respectively. ASP015K inhibited the IL-2-induced proliferation (JAK3/JAK1-mediated reaction) of human T cells with an IC50 value of 18 nM. Moreover, ASP015 K was 14-fold more potent against JAK3/JAK1 than JAK2/JAK2 on the basis of erythropoietin-induced proliferation of human leukemia cells (JAK2/JAK2-mediated reaction). This selectivity suggests that ASP015 K has the potential to demonstrate JAK3/JAK1-mediated immunomodulatory effects without the occurrence of JAK2-mediated hematopoietic effects such as anemia. The efficacy of ASP015K was examined in a rat ear model of chronic oxazolone-induced dermatitis, in which sustained ear swelling and marked epidermal hyperplasia were observed in control animals. By contrast, oral administration of ASP015K at doses of 3, 10 and 30 mg/kg suppressed ear swelling in a dose-related fashion. Histopathological studies revealed that ASP015K suppressed the infiltration of inflammatory cells and suppressed epidermal thickening, one of the most prominent features of psoriasis.

Conclusion: ASP015K is a novel, orally administered JAK inhibitor with selectivity for JAK3/JAK1 over JAK2/JAK2 that demonstrated dose-dependent efficacy in a rat ear model of oxazolone-induced dermatitis. These data suggest that ASP015K may have potential for the oral treatment of psoriasis as well as other autoimmune disorders. Early clinical studies in patients with moderate to severe psoriasis showed improvement in disease activity.

topical treatments in chronic plaque psoriasis, and ultimately, to propose recommendations for combination treatment.

Methods: According to standardized procedures a literature search from January 1985 to May 2011 in PubMed, EMBASE, and the Cochrane Controlled Clinical Trial Register was carried out, and a level of evidence according to the Oxford Center for Evidence-based Medicine Levels of Evidence was determined.

Results: Literature search revealed 2,787 studies, of which 61 studies on combinations with topical treatments were included. The majority of combination regimens are at least as effective as monotherapies, and are generally well tolerated.

Conclusions:

1. Methods of classical treatments are not standardized and different protocols in different treatment settings were used. Therefore the interpretation of results of studies cannot be generalized and conclusions should be drawn with caution.
2. The combination of topical corticosteroids and the penetration enhancer salicylic acid proved to be more effective as compared to monotherapy with either component, and can be recommended (Grade B).
3. The combination of dithranol with superpotent corticosteroids may be preferred above both monotherapies and the combination of dithranol and coal tar above coal tar monotherapy (Grade C).
4. The highest level of evidence was found for the combination of potent and superpotent corticosteroids with vitamin D analogues, and this combination proved to be more efficacious and faster than monotherapy with either active component (Grade A).
5. Combinations of corticosteroids/tazarotene and corticosteroids/calcineurin inhibitors do not provide an advantage above corticosteroid monotherapy (Grade B–C).
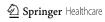
P094

Efficacy and safety of topical combination treatments in chronic plaque psoriasis: a systematic literature review

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Background: Most psoriasis patients suffer from mild to moderate disease and are treated with topical therapies. Although evidence based guidelines on combinations of topical therapies are lacking, the majority of patients will be treated with these combinations at some point during their life-long treatment.

Objectives: To systematically review all available literature on the efficacy and safety of combinations of

P095

Psoriasis treatment expectations and healthcare provider relationships for patients in Europe, the USA and Canada

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Background: Psoriasis can have a serious impact on patients' quality of life. Adherence to therapies is often poor, which has been associated with low treatment satisfaction. Effective treatment adherence depends on a

concordance process, based on a collaborative patient-health care professional (HCP) relationship. We explored factors that could affect adherence; including patient factors, symptom burden, beliefs about treatment and HCP relationships, to inform a holistic understanding and approaches to disease management.

Methods: A quantitative questionnaire was developed based on the results of a previous in-depth qualitative study involving 56 patients with psoriasis, from seven countries (data on file), to enhance validity. The 68-part questionnaire survey was completed on-line by 3,822 adult patients with psoriasis and/or psoriatic arthritis, also from seven countries in Europe and North America.

Results: The impact of psoriasis on life was scored as moderate–high for 73% of patients and 49% were prescribed medication(s) for their psoriasis. Most patients saw either a GP (34%) or dermatologist (39%) most often. Many felt knowledgeable about their psoriasis (61%) and familiar with treatment options (56%). However, 70% stated that they expect a cure when trying a new treatment and 78% said that they expect fast results. Of patients seeing a doctor for their psoriasis, most (79%) felt that they do not find it difficult to discuss their psoriasis with their doctor, 83% said that they follow their doctor's recommendations and 80% felt that their doctor gives clear instructions.

Conclusions: To date, this is the largest multinational study to investigate these patient-centric issues. It indicates that the vast majority of patients have a positive, collaborative relationship with their doctor. However, although many patients feel knowledgeable about treatments, many appear to have unrealistic expectations of the effectiveness and speed of action of current treatments, which could impact on adherence. We plan further analysis of this data set, ultimately aiming to help optimise treatment adherence and outcomes through informing individualised care strategies.

P097

Use of modern psychometric techniques to demonstrate improvement in fatigue in RA patients treated with secukinumab

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Background: Fatigue is recognized as a clinically and patient relevant treatment outcome in RA. A large proportion (40–80%) of RA patients report significant levels of fatigue and absence of this symptom is included in the characterization of disease remission. As such, EULAR and the ACR expert panels have added fatigue to the core set of recommended endpoints for RA clinical trials. The FACIT-F and the SF-36v2 vitality (VT) scale have been used to measure fatigue in RA.

Objective: To improve the sensitivity of detecting treatment effects on fatigue in RA.

Methods: 237 adults with RA on methotrexate were randomized to receive s.c. injections of secukinumab 25, 75, 150, 300 mg or placebo. The SF-36v2 and FACIT-F were administered at baseline, weeks 2, 4, 8, 12, and 16. A generalized partial credit IRT model was used to cross-calibrate the items of the SF-36 VT and FACIT-F scales and weighted maximum likelihood estimation was used to score a composite index. Change scores for the composite index and the SF-36 VT and FACIT-F scales were calculated. Analysis of variance and effect sizes were used to evaluate and compare the sensitivity of each measure. A ratio of F-statistics was calculated to determine the relative validity of each measure in responding to treatment in both a within groups and between groups analysis.

Results: The composite index was found to be the most responsive to treatment across dose groups (effect size for composite index was 11–93% larger than the effect sizes observed for the SF-36 VT and FACIT-F scales). F-statistics testing the difference in change score from 0 within each of the dose groups was largest for the composite fatigue index, indicating a greater response. The 75 mg (mean difference of 3.3, $F = 3.9$, $p < 0.05$) and the 150 mg (mean difference of 3.5 points, $F = 5.1$, $p < 0.05$) doses showed significantly greater improvement on the composite index compared to placebo. No significant differences in change scores between the 75 and 150 mg doses and placebo was observed with either the SF-36 VT or FACIT-F scales alone.

Conclusion: A fatigue composite index offers more sensitive assessment of fatigue in patients with RA.
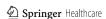
P098

Association between reduction in disease activity, pain severity and health-related quality of life (HRQoL) among rheumatoid arthritis (RA) patients treated with secukinumab

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Objective: Evaluate the HRQoL benefits associated with reductions in disease activity and pain among RA patients treated with secukinumab in a phase 2 randomized controlled trial.

Method: RA patients (n = 237) on methotrexate were randomized equally to receive monthly injections of secukinumab or placebo. Secondary efficacy endpoints consisted of physician (PH-GADA) and patient (PT-GADA) global ratings of disease activity and VAS pain

severity, each measured using a 0–100 scale. HRQoL was assessed using the SF-36v2 Health Survey, the Health Assessment Questionnaire-Disability Index (HAQ-DI), and the Functional Assessment of Chronic Illness Therapy-Fatigue (FACIT-F). Changes from baseline to week 16 were calculated for secondary endpoints and HRQoL measures. Patients treated with secukinumab were categorized into responder (improvement of >10 points) and non-responder groups (improvement <10 points) on each secondary endpoint measure. ANOVA was used to test differences in mean changes in HRQoL scores across responder and non-responder groups.

Results: Significant changes in HRQoL scores were observed among responders on each secondary efficacy measure. Among PT-GADA responders, relatively small improvements of 11–20 points was associated with significant improvements on most HRQoL scales ranging from 1.4–4.9 points across SF-36v2 scales, 5.9 points on FACIT-F, and −0.32 points on HAQ-DI. Patients showing greater improvement (>20 points) on the PT-GADA showed incrementally larger improvement in HRQoL scores. Larger improvement in PH-GADA (>20 points) were required to see significant improvement in HRQoL. The range of score improvement was 1.7–5.9 points across SF-36 scales, 4.1 points on FACIT-F, and −0.28 points on HAQ-DI. Lastly, significant improvement in HRQoL scores was observed among patients showing clinically meaningful reduction in pain. Mean score improvement ranged from 3.8 to 8.9 points across SF-36v2 scales, 7.2 points on FACIT-F, and −0.47 points on HAQ-DI among pain responders.

Conclusion: Greater reduction in disease activity and pain severity was associated with significant HRQoL benefits among patients treated with secukinumab.

P099

Evaluation of high and low intensity physical functioning in secukinumab treated RA patients: an application of IRT methodology

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To fully evaluate the impact of RA treatment on physical functioning, two scales are typically employed: HAQ-DI and SF-36v2 physical functioning (PF) scales. Items of the HAQ-DI assess lower intensity functioning, such as eating, dressing, and reaching, while SF-36 PF scale assesses relatively higher intensity, such as lifting or climbing stairs. Utilization of a combination of these scales may improve the ability to detect treatment effects by extending the range of physical functioning measured.

To create a single composite index of physical functioning and evaluate the ability of such index to detect treatment effects utilizing modern psychometric methods. 237 adult RA patients on methotrexate were randomized to receive injections of secukinumab 25, 75, 150, 300 mg or placebo. The SF-36v2 and HAQ-DI were administered at baseline, weeks 2, 4, 8, 12, and 16. A generalized partial credit IRT model was used to cross-calibrate the items of SF-36 PF and HAQ-DI scale and weighted maximum likelihood estimation was used to score a composite PF index. Change scores were calculated. Response to treatment was assessed using ANOVA and effect sizes for each measure. A ratio of F-statistics was calculated to determine the relative validity of each measure in within groups and between groups analysis.

The composite PF index was found to be the most responsive to treatment for the 25, 75 and 150 mg groups. The effect size for the composite index was 10–40% larger than observed for the SF-36 PF and HAQ-DI scales for each dose group. The F-statistic was largest for the composite PF index, indicating a greater response to treatment. In the between groups analyses, the 150 mg dose group showed significant improvement in physical functioning. The composite PF index was most sensitive (effect size of 0.49 vs. 0.43 for the HAQ-DI and 0.32 for the SF-36 PF). The F-statistic was largest for the composite PF Index (F = 6.6, $p < 0.01$, RV = 1.0) compared to the HAQ-DI (F = 4.4, $p < 0.05$, RV = 0.67) and SF-36 PF (non-significant).

Physical functioning may be more fully measured in RA patients utilizing composite PF index.

P100

Etanercept in psoriasis and psoriatic arthritis: an Indian experience

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Background: Psoriasis has been increasing rapidly in India especially in urban set up in recent decades due to life pattern changes. One-fifth of Indian patients have BSA more than 26–50%. Interestingly PASI score has no positive correlation with quality of life in them. Many psoriatics are refractory to conventional drugs or develop toxicity to these agents due to high incidence of alcoholism, fatty liver and dyslipidemia in Indians. Thus need for biologics become really true in the scenario of psoriasis management in India. Our object was to assess clinical outcome of Indian psoriasis patients to etanercept, an anti-TNFα not requiring in-house admission, in this open trial.

Method: Patients were chosen as per BAD guideline for biologics in psoriasis and screened for pre-therapy investigations especially to exclude tuberculosis. They were given etanercept injection 25 mg S/C twice in a week for 3–6 months with proper monitoring.

Results: Among total 14 patients (10 M 4F), age ranging from 17 to 68 year, suffering from psoriasis for 8 to 15 years, 4 had erythroderma, 4 pustular psoriasis, 4 plaque psoriatic associated with psoriatic arthritis, 1 extensive (BSA >50%) refractory plaques, 1 limited involvement on cosmetically disfiguring area with high DLQI. Impressive therapeutic response was seen 85.7% (n = 12) patients. Rest 2 overweight patients having erythroderma did not adequately respond. No tuberculosis flare or other adverse effect was seen in any one. However 2 previously negative patients showed positive TB gold test after 6 months treatment; one showed non-specific axillary lymph gland swelling. After three months post-therapy 57.1% (n = 8) had moderate relapse being controlled by methotrexate or acetretin with UVB NB, 14.3% (n = 2) had severe relapse responding only to cyclosporine and 14.3% (n = 2) had no relapse at all. Rebound flare was not seen in anyone.

Conclusion: Etanercept in Indian psoriasis perspective is quite effective and safe if patients are properly chosen and screened. Moderate post-therapy relapse, however, can occur in good number of patients.

Keywords: Psoriasis, Psoriatic arthritis, Etanercept, PASI, Biologics, Quality of life.

P101

Secukinumab improves signs and symptoms in patients with active rheumatoid arthritis: results of dose-finding, double blind, randomized, placebo controlled, phase II study

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The interim analysis results of this study presented earlier suggested that secukinumab improved clinical outcomes in active rheumatoid arthritis (RA) patients. Herein, we report the long term results up to Week (wk) 52 of the same study.

In this study (NCT00928512), RA patients (≥18 years; n = 237) with inadequate response to methotrexate (MTX) were randomized (1:1:1:1:1) to receive monthly s.c injections of secukinumab 25, 75, 150, 300 or placebo. After wk16, secukinumab responders remained on the same dose, while doses were escalated in non-responders at wk20 (except in patients initially on 300 mg). All placebo patients were switched to secukinumab 150 mg. Primary endpoint was the proportion of patients achieving ACR20 at wk16 followed through wk52.

Demographics and baseline characteristics were comparable across all groups. ACR20 responders at wk16 were higher (but not statistically significant) with secukinumab 75 mg (47%), 150 mg (47%) and 300 mg (54%) versus placebo (36%) and maintained their ACR responses through wk52 [75 mg (57%), 150 mg (90%), 300 mg (71%)]. ACR50/70 responses at wk24 and wk52 were highest in patients who remained on secukinumab 150 mg (ACR50/70: wk24 = 50/20%, wk52 = 55/40%), as did responders who switched from placebo to secukinumab 150 mg (ACR50/70: wk24 = 39/6%, wk52 = 50/22%). In secukinumab responders, DAS28-CRP reductions were sustained up to wk52 along with improved HAQ scores (wk24 = 0.6, wk52 = 0.8). Non-responders did not gain much additional efficacy after dose escalation as assessed by ACR20/50/70 and DAS28-CRP. The overall rates of AEs from wk20–60 were comparable to those observed up to wk20 (60—70%). Most AEs were mild to moderate in severity and did not lead to study discontinuation. From wk20—60, infection rate was 31.9% with six infections reported as SAEs. In total, 28 SAEs were reported in 21 patients. There were 3 malignancies reported and no deaths.

RA patients on secukinumab who achieved an ACR20 response at week 16 maintained their response and demonstrated a reduction in disease activity over time. There were no safety signals with secukinumab related to specific organ class and the frequency of AEs remained stable over time.
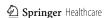
P102

Effect of secukinumab treatment on ACR50, HAQ-DI and EULAR remission rates in patients with rheumatoid arthritis

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Secukinumab, a fully human anti-IL-17A monoclonal antibody has shown improvement in signs and symptoms of patients (pts) with active rheumatoid arthritis (RA) in this phase II trial. Here we report the effect of secukinumab on disease activity in pts with active RA despite stable methotrexate (MTX) treatment. Adult RA pts (n = 237) on MTX were equally randomized to receive monthly subcutaneous

secukinumab 25, 75, 150, 300 mg or placebo. After Week (wk) 16, responders on secukinumab remained on the same dose whereas doses were escalated in non-responders at wk20 (except pts initially on 300 mg who remained on the same dose). At wk20, all placebo pts were switched to secukinumab 150 mg. All pts were followed up to wk52. Primary endpoint was proportion of pts achieving ACR20 at wk16. Secondary endpoints include ACR50, HAQ-DI and EULAR remission rate (DAS28-CRP $\leq$2.6). Demographics and baseline characteristics were comparable between groups. The primary endpoint was not achieved. ACR50 response rates at wk24 (50%) and wk52 (55%) were highest in pts who remained on secukinumab 150 mg for the entire study. HAQ scores improved over time in responders on secukinumab 150 mg (wk24 = −0.6; wk52 = −0.8). At wk16, the EULAR remission rates were higher with secukinumab vs. placebo (25 mg-11.3%, 75 mg-6.1%, 150 mg-11.6%, 300 mg-14.6 vs. 6% placebo) which increased overtime and was highest in pts on secukinumab 150 mg (wk24 = 30%, wk52 = 40%). Pts who responded to placebo but switched to secukinumab 150 mg at wk20 had similar EULAR remission response rate (wk24 = 29.4%; wk52 = 38.9%). No additional efficacy benefits were observed with non-responders even after dose escalation. Overall rates of adverse events (AEs) at wk52 were comparable to wk20 data. Most AEs were mild to moderate in severity and did not led to study discontinuation. In conclusion, this study did not meet its primary objective. Substantial proportion of pts who either remained on or escalated to secukinumab 150 mg achieved ACR50, HAQ-DI and EULAR remission rates and showed consistent improvement till wk52. These results suggest the potential role of secukinumab in RA and warrant larger phase III studies.

P103

Maintenance therapy of psoriasis with cyclosporine: comparison between continuous and weekend therapy

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Introduction: Many reports have confirmed that cyclosporine (CsA) is effective in both induction and maintenance regimen for the treatment of moderate-to-severe psoriasis. Intermittent therapy is used in order to minimize the risks without loss of clinical benefits.
Objectives: Evaluate the efficacy, safety and tolerability of CsA in the maintenance treatment of psoriasis. Two different treatment methods were compared: continuous therapy (low-dose ranging from 2 to 3 mg/Kg/day) and intermittent therapy (5 mg/kg/day for two consecutive days/week), during 20 weeks.

Methods: Twenty-one patients with psoriasis (PASI > 15) were submitted to induction treatment with cyclosporine (4 mg/Kg/day) for 12 weeks. The patients who achieved clinical remission (PASI 75) following continuous CsA therapy were divided into the two different groups described above, for maintenance therapy.
Results: After 12 weeks of continuous therapy with CsA (induction treatment), 19 patients achieved PASI 75. Of these, 9 patients started the continuous low-dose regimen and the remaining 10 were submitted to intermittent therapy with CsA. Before starting the maintenance therapy, there was no significant difference in the mean PASI between the 2 groups. Also, at the end of the study, no statistically significant difference in the mean PASI score was found between the regimens. However, adverse effects and drop-outs were more frequent in patients under continuous maintenance therapy. The mean daily dose was higher in the latter and the twice-weekly dosing schedule was more convenient for patients.
Discussion and results: Both treatment regimens showed comparable efficacy. However, patients treated with intermittent regimen received lower daily CsA doses and had fewer side effects. Thus, the use of weekend maintenance treatment seems to be reasonable.

P104

Formulation of anthralin in liquid solution for the treatment of scalp psoriasis

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Anthralin is one of the effective drugs in the treatment of psoriasis. The efficacy of anthralin as a topical treatment of psoriasis has been repeatedly established over a half century of use. The drugs available so far are either ointment or O/W type cream. This form of drug is not suitable to be applied in the treatment of scalp psoriasis. For this purpose we have done some researches about the preparation of anthralin solutions which have had considerable results. Anthralin ointment and cream suffer from two clinical disadvantages: (1) Since the formulation has high viscosity, it is not rapidly penetrated into the skin, most of the application remains on the surface. (2) It is not easy to remove the ointment or cream from the scalp hairs with just soap and water. The advantages of applying anthralin solution are as follows: (1) It is more penetrable than ointment and cream. (2) Easily applicable and washable. (3) The stability of anthralin is low in cream form and most of the drug in ointment and cream equivalents remains in the form of small scattered insoluble

particles, therefore anthralin solution is more potent than the equivalent strengths of ointment and cream. In recent study, many anthralin derivatives have been developed and formulated as solution forms which are suitable for the treatment of psoriasis with SCAT (short contact anthralin therapy) method. In this method the treatment must be started with low concentration of anthralin and then it should be increased little by little. These solutions were tested in ten patients with scalp psoriasis as a pilot study. The duration of treatment was 21 days. Modified psoriasis area severity index (PASI) scores were determined before and after treatment. PASI scores were significantly lowered where the formulated solutions had been applied. In determining PASI scores, three factors, erythema scaling and thickness, were evaluated; all were significantly lower where the formulated solutions had been applied ($P = 0.002$, $P = 0.001$, $P = 0.001$).

P105

Secukinumab induces higher assessment of spondyloarthritis international society responses over placebo in patients with moderate-to-severe ankylosing spondylitis: Results of 28-week, double blind, randomized, placebo-controlled trial

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IL-17 may play a role in the inflammatory process of ankylosing spondylitis (AS). This proof-of-concept study assessed the preliminary efficacy and safety of secukinumab, a fully human monoclonal antibody, for targeted IL-17A blockade as a novel therapeutic strategy in the treatment of moderate-to-severe AS.

In this study (NCT00809159), 30 patients (pts) with active AS randomly (4:1) received two i.v. infusions of secukinumab 10 mg/kg or placebo, given 3 weeks (wk) apart (at days 1 and 22). Primary endpoint was the proportion of pts achieving Assessment of SpondyloArthritis international Society (ASAS) 20 response at wk 6. Historical placebo information from 8 representative AS trials was included in a Bayesian analysis of the primary endpoint.
Demographics and baseline characteristics were comparable between groups. 5 pts (placebo 3 and secukinumab 2) discontinued the study before wk 6. At wk 6, 61% (14/23) pts on secukinumab achieved ASAS20 responses vs. 17% (1/6) pts on placebo (99.8% probability that secukinumab response rate larger than placebo rate; 95% credible interval of response difference [12, 56%]). At wk 6, ASAS40 and ASAS5/6 response of pts on secukinumab were 30 and 35%, respectively and mean (range) BASDAI change from baseline was −1.8 (−5.6−0.8). ASAS response rates were greater at wk 6, and gradually declined thereafter out to wk 28, consistent with the preliminary dose regimen. Post hoc subgroup analyses showed TNFi naive pts have greater ASAS20 response rates (85%; 11/13) vs. TNFi pre-exposed (30%; 3/10) pts. Secukinumab PK profile was as expected for an IgG1 mAb and similar to those seen with secukinumab in other indications. Overall, 30 infections (22 mild, 7 moderate, 1 severe) were reported in 18 pts. 2 SAEs (placebo: BP increased; secukinumab: subcutaneous abscess) and no death were reported in this study.
The primary endpoint of this study was met, as the treatment with secukinumab significantly improved the signs and symptoms of AS as measured by ASAS20 at wk 6 compared to placebo. No early safety signals were noted in this study population. These findings warrant larger long term trials on safety and efficacy of secukinumab in AS.
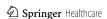
P106

Secukinumab treatment has no effect on the lipid profile in patients with rheumatoid arthritis: results from a randomized, double-blind, placebo-controlled, phase II study

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Active rheumatoid arthritis (RA) is associated with an unfavorable lipid profile leading to higher atherogenic index. Secukinumab, a fully human anti-IL-17A

monoclonal antibody improved signs and symptoms of patients with active RA in this phase II trial. Efficacy and safety of this study group did not report any cardiovascular event. Here, we report the effect of secukinumab on the lipid profile and atherogenic indices in patients with active RA, despite stable methotrexate (MTX) treatment.

Adult RA patients (n = 237) on MTX were randomized equally to receive monthly s.c injections of secukinumab 25, 75, 150, 300 mg or placebo. After Week (wk) 16, responders on secukinumab remained on the same dose. At wk20, secukinumab doses were escalated for non-responders (except for patients on 300 mg) and placebo patients were switched to 150 mg and followed up to wk52. Demographics, baseline characteristics and lipid parameters were normal and comparable across all treatment arms. There was no effect of secukinumab on the lipid profile (total cholesterol [TC], high-density lipoprotein cholesterol [HDLc], low-DLc [LDLc], triglycerides [TG], apolipoprotein (Apo) A-I and Apo B) during the first 16 wks compared to placebo. Mean change $\pm$ SD (mmol/L) from baseline to wk16 were, for TC: 0.092 ± 1.02, 0.015 ± 0.56, 0.212 ± 0.83, 0.017 ± 0.73, -0.093 ± 0.66; HDLc: 0.053 ± 0.24, -0.051 ± 0.24, 0.063 ± 0.24, 0.026 ± 0.23; 0.055 ± 0.23; LDLc: -0.158 ± 0.89, 0.01 ± 0.5, 0.12 ± 0.74, -0.008 ± 0.61; 0.082 ± 0.58; TG: 0.028 ± 0.47, 0.122 ± 0.48, 0.062 ± 0.58, -0.002 ± 0.62; 0.147 ± 0.56 for secukinumab 25, 75, 150, 300 mg and placebo respectively. Atherogenic indices (mean change $\pm$ SD; TC/HDLc: -0.133 ± 0.64, 0.095 ± 0.5, -0.021 ± 0.58, 0.068 ± 0.53; -0.216 ± 0.67; ApoB/Apo A-1: -0.041 ± 0.15, -0.023 ± 0.1, -0.022 ± 0.13, -0.012 ± 0.1; -0.042 ± 0.12 for secukinumab 25, 75, 150, 300 mg and placebo respectively). TC/HDLc and Apo B/Apo A-I ratios remained unchanged during the first 16 wks of therapy and throughout the study period (wk0–52) in patients switching to secukinumab150 mg from placebo at wk20. Secukinumab treatment was not associated with changes in the lipid profile or atherogenic risk in patients with RA.

P107

Phototherapy of psoriasis in the era of biologics: our experience

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Introduction: Biologics have temporarily shifted the conventional systemic antipsoriatic therapy including phototherapy aside. However, because of its efficacy, cost, availability and minimal side effects, phototherapy remains the therapy of choice for a large number of psoriatic patients. Phototherapy is known to be frequently combined with various local and systemic therapeutic options to improve overall efficacy.

Methods: In the last 3 years, 1,208 patients were treated at our Phototherapy Unit. Narrow band UVB (NBUVB) was the first choice among the phototherapy methods used, whereas photochemotherapy (PUVA) was applied in cases of low clinical response to NBUVB.

Results: PASI 75 was achieved by 72 and 88% of patients after 4–6 weeks of NBUVB and PUVA, respectively. No maintenance phototherapy was used, but the majority of the patients combined various topical therapies to enhance clinical response to phototherapy. Patients mostly combined NBUVB with dithranol as a so-called 'short contact therapy' and calcipotriol. In patients responding with inadequate disease clearance, phototherapy and photochemotherapy were combined with systemic drugs, mainly retinoids, (acitretin). In 8 patients having received methotrexate for a longer period due to psoriatic arthritis and skin psoriasis and showing favorable effect on the joints and skin, NBUVB was applied in the phases of skin psoriasis exacerbation. Considering the geographical position of our country and the possibility for our patients to stay at seaside during summer, natural UV therapy combined with sea bath (heliomarinotherapy) is recommended. As biologic therapy has to date been used in a relatively small number of our patients, we have not acquired much experience in combining photo- and biologic therapy.

Conclusion: Even in the era of biologics, phototherapy remains an important modality of treating psoriasis, especially in combination with various local and systemic therapeutic options. The advantage of combination therapy is the possibility of decreasing the UV irradiation dosage to reduce its side effects, while at the same time achieving an additive or synergistic effect.
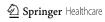
P108

Utilization of narrow-band UVB light therapy and etanercept for the treatment of psoriasis/characteristics of PASI responders

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Clinical trials in psoriasis often use the psoriasis area and severety index (PASI) 75 (indicating a 75% or greater improvement from baseline in PASI score), as a measure of response to therapy. PASI scores range from 0 to 72 on a severety scale, whit higher score indicatting, worse disease. Because of the high rate complete psoriasis clearance-as measured by attaiment of PASI 100 responses-in the utilization of NB-UVB light therapy and Etanercept for the treatment of psoriasis (unite) trial, we are able to examine the characteristics of patients with severe psoriasis who achieeved these response rates when receiving the combination of etanercept with NB-UVB.

Adult patients with chronic plaque psoriasis and PASI score of 15 or greater at baseline received 50 mg etanercept twice-weekly (BIW) in combination with

NB-UVB 3 times- weckly (TIW) for 12 weeks in this open-label, single-arm study the primary endpoint was the proportion of patients achieving PASI 90 and 100.

Analyses included all patients who received at least 1 dose of etanercept and NB-UVB phototherapy; analyses were conducted using a last-observation-carried-forwad approach, of the 86 patients who received at least 1 dose of etanercept and NB-UVB phototherapy, analyses were conducted using a last-observation-carried-forwad aproach, of the 86 patients who recieved treatment-20% achieved a PASI 100 response at weeck 12.58% achieved PASI 90, and 85%, achieved PASI 75, potential relation ships between patient characteristcs and the likelihood of achieving a PASI 100 in this study will be presented, including comparisons of baseline and treatment of patients in the top quartile of PASI, responders through 12 weeks of treatment with the bottom quartile of responders. Data from study offer a unique opportunity to examine the characteristics of patients, whith psoriasis who achieved a complete psoriasis clearance with a combination of etanercept BIW and NB-UVB therapy TIW.

P109

Secukinumab reduces spinal inflammation as early as week 6 in patients with ankylosing spondylitis, as detected by magnetic resonance imaging—results of a double-blind, placebo-controlled, multicenter phase II proof-of-concept study

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In this proof-of-concept study, secukinumab induced higher Assessment of SpondyloArthritis international Society (ASAS) 20 response rates than placebo (PL) at Week (wk) 61. Herein, we evaluated the effects of secukinumab on bone marrow edema as detected by magnetic resonance imaging (MRI) in Ankylosing Spondylitis (AS) patients.

30 patients with active AS (as per 1984 modified New York criteria) were randomized (4:1) to receive two i.v. infusions of secukinumab (10 mg/kg) or PL, given 3 wks apart. Primary endpoint was the proportion of patients achieving ASAS20 response at wk6. Sagittal MR images of the spine were performed including T1- and short tau inversion recovery sequences at baseline, wk6 and wk28. Images were analyzed by an independent reader, who was blinded to treatment allocation and chronology of images, using the Berlin modification of the AS spinal MRI (ASspiMRI-a2) scoring system. Changes in MRI scores between baseline and followup visits in each treatment arm were evaluated by Wilcoxon signed-rank test.

In total, MR images of 27 patients (22 secukinumab; 5 PL) were evaluable at baseline. Due to early discontinuation, few patients (wk6: 2 secukinumab, 3 PL; wk28: 6 secukinumab, 1 PL) were not analyzed for MRIs. Improvement in MRI scores from baseline with secukimunab was noticed as early as wk6 and sustained up to wk28 (Berlin MRI scores [mean $\pm$ SD]: Baseline: 9.2 ± 8.9; wk6: 6.7 ± 6.6; wk28: 5.7 ± 6.2). This improvement in MRI scores at wk6 was especially noted in patients with higher baseline scores. In contrast, changes in MRI scores were minimal in the placebo group.

This study suggests that treatment with only 2 infusions of secukinumab reduces spinal inflammation as detected by MRI in patients with active AS. Improvements in MRI scores were seen as early as 6 wks after start of secukinumab treatment and sustained up to wk28. Results are consonant with MRI findings obtained in previous AS trials with TNF blockers. These results further support the notion that secukinumab may be a potential treatment for patients with active AS.

References: 1. Baeten D et al., EULAR 2011, OP0174. 2. Rudwaleit M et al., [abstract] Arthritis Rheum 2005;50:S211.
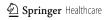
Biomarkers and imaging

P111

Wnt pathway inhibitors in patients with psoriatic and rheumatoid arthritis treated with anti-TNF therapy

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Background: Both rheumatoid and psoriatic arthritis (RA, PsA) are characterised by erosion but bone formation is also a feature in PsA. Wnt proteins are key promoters of osteoblastogenesis in inflammatory

arthritis. Dickkopf-1 (Dkk-1) and sclerostin are natural inhibitors of Wnt signaling. Dkk-1 induces sclerostin expression and promotes osteoclastogenesis by suppressing osteoprotegerin (OPG). TNFalpha inhibits bone formation by inducing Dkk-1 and sclerostin expression. The effect of anti-TNF on Wnt inhibitors in RA and PsA has not been studied previously.

Objectives: To study serum levels of Dkk-1 and sclerostin in RA and PsA; to compare the early and long-term effects of anti-TNF on Wnt inhibitors and to explore associations between serum levels of Dkk-1, sclerostin and acute phase responses.

Methods: RA and PsA patients were recruited prior to start anti-TNF. Serum levels of Dkk-1 and sclerostin were measured by ELISA at baseline, 1 and 12 months and were related to CRP. OPG/Dkk-1 and OPG/sclerostin ratios were calculated from previously measured OPG levels.

Results: We recruited 62 patients (35 RA, 27 PsA). Dkk-1 and sclerostin levels did not change significantly in either group. No significant difference was observed in Dkk-1 and sclerostin levels between RA and PsA, while Dkk-1 levels were lower in PsA at 12 months approaching significance ($p = 0.08$). There was no correlation between Dkk-1 or sclerostin and CRP. OPG/Dkk-1 ratio reflecting remodeling balance was similar and did not change in either group. OPG/sclerostin ratio was significantly higher at 12 months compared to baseline in both groups (RA $p = 0.002$, PsA $p < 0.0001$). OPG/sclerostin ratio was significantly higher in PsA than in RA at 12 months ($p = 0.038$).

Conclusion: This study provides data suggesting differences in the cross-talk between TNFalpha, Dkk-1 and sclerostin between RA and PsA. After 12 months of anti-TNF therapy Dkk-1 levels were lower, OPG/sclerostin ratio was higher in PsA compared to RA. This may contribute to the imbalance of bone remodeling in favour of bone formation in PsA. Neither Dkk-1 nor sclerostin correlated with CRP indicating that these Wnt inhibitors may not linked to inflammation.

P112

Serum IL-23 does not correlate with disease activity in psoriatic arthritis and SAPHO syndrome

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There are some data that IL-23 play an important role in pathogenesis of psoriatic arthritis.

Objectives: The aim of the study was to assess the association between serum concentrations of IL-23 and disease activity in psoriatic arthritis (PsA) and SAPHO syndrome.

Materials and methods: We studied 82 PsA patients, 22 SAPHO syndrome patients and 20 healthy persons. We

recorded: age, sex, disease duration. We assessed: BASFI, BASDAI, BASG, BASMI, VAS, SF-36, PASI scores. Blood was collected for analysis of serum IL-23, EGF, FGFb and FGFc by ELISA method. We assessed also CRP, ESR, WBC.

Results: Mean age of patients was: 52.8 years in PsA group and 54.8 years in SAPHO group. Mean disease duration was 8.6 years in PsA group and 6 years in SAPHO group. Mean serum IL-23 levels were: 4.1 pg/ml in PsA group and 3.5 pg/ml in SAPHO group. There was no correlation between IL-23 and disease activity assessed by CRP and ESR in PsA and SAPHO patients. There was also no correlation between serum IL-23 and disease activity assessed by BASMI, BASDAI, BASFI and BASG. There was no correlation between serum IL-23 and EGF and FGF. There was negative correlation between VAS score and serum IL-23 in SAPHO group ($R = -0.46$; $p = 0.04$). There was positive correlation between SF-36 and IL-23 in PsA group ($R = 0.42$; $p = 0.003$).

Conclusion: There is no association of serum concentrations of IL-23 with disease activity in psoriatic arthritis and SAPHO syndrome.

P113

Molecular signature and new perspective markers of psoriasis

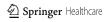Mezentsev, Alexandre[1]; Sobolev, Vladimir[2]; Soboleva, Anna[2]; Bruskin, Sergey[2]

[1]Institute of General Genetics, Functional Genomics, Moscow, Russian Federation; [2]Institute of General Genetics, Functional Genetics, Moscow, Russian Federation

Introduction: Identification of new biomarkers is beneficial for reliable diagnosis and monitoring of psoriasis. In this paper, we suggest two new groups of biomarkers and report of a groups of genes those expression is characteristic for the lesional skin.

Aim of this study was to propose a compact gene set that can be used as a molecular signature of psoriasis and suggest new biomarkers via comparative analysis of microarray and proteomic data.

Methods: Using a global approach we examined 84 individual arrays and proteomic data represented skin of healthy, uninvolved and lesional skin. The data were analyzed by qPCR, and mass spectrophotometry, gene ontology and networking tools.

Results: We discovered a set of 114 genes differentially and unidirectionally expressed under transition from normal to either uninvolved or lesional epidermis. The followed comparative study demonstrated that their expression was characteristic for psoriatic skin and could be used to distinguish psoriasis from atopic dermatitis, different forms of skin cancer and mycosis fungoides. Analyzing skin samples taken from patients treated with PUVA and interferential therapy we found that expression of some AP-1 contributors such

as FRA-1, JUND, JUNB, C-JUN, C-FOS and FRA-2 correlated with flow of the disease and suggested these genes as biomarkers for tracing psoriasis. Using proteomic analysis we also revealed ten differentially expressed proteins: KRT14, KRT16, KRT17, SERPINB3, SERPINB4, ENO1, SOD2, LGALS7, S100A7, S100A9 that distinguished uninvolved and lesional psoriatic skin. Moreover, we showed that differential expression of these proteins could be a part of a coordinated response orchestrated by receptor for advanced glycation end products, RAGE.

In conclusion: we report of two new groups of biomarkers and set of genes characteristic for the lesional skin. We propose a role of RAGE and transcription factor, AP-1, in eruption of the disease.

P114

Altered microRNA expression in peripheral blood mononuclear cells from patients with psoriasis

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MicroRNAs (miRNAs) are a class of small non-coding RNA molecules that modulate gene expression at the post-transcriptional level. MicroRNAs have been shown to be differentially expressed in psoriasis and other inflammatory skin diseases and may potentially play an important role in psoriasis by regulating inflammation and keratinocyte proliferation. Increasing evidence shows that miRNAs are not only present in tissues but also in human blood in a stable form. This makes miRNAs potentially useful as biomarkers for the diagnosis and monitoring of disease severity. Using miRNA qPCR panels we investigated the global miRNA expression in peripheral blood mononuclear cells (PBMCs) from patients with psoriasis (N = 6) and healthy controls (N = 6). The disease severity of patients with psoriasis was measured by PASI score (9.1–22.1). We identified a list of miRNAs which were significantly deregulated in the PBMCs of patients with psoriasis compared with healthy controls. Among those were miR-21, -125b and miR-107 which previously have been shown to be deregulated in psoriatic skin. Our results demonstrate that miRNA signatures derived from PBMCs, could be valuable novel biomarkers for psoriasis and likely represent a novel strategy to aid unravelling the disease mechanisms involved in psoriasis.

P115

Clinical examination versus magnetic resonance imaging of the hand and foot: its usefullness in early detection of psoriatic arthritis among patients with psoriasis

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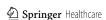
Background: At its earliest stages, clinical symptoms of psoriatic arthritis (PsA) may not be detectable.
Objectives: the aim of the study was to determine the agreement between clinical examination (CE) and magnetic resonance imaging (MRI) of the hand and foot in early peripheral PsA.
Methods: 60 pts (M/F—23/37) with new onset PsA, according to the CASPAR criteria, the mean age 41.25 ± 13.6 years, (from 18 to 72 years), the average duration of PsA being 0.87 year [0.5;1.5] (from 0.16 to 2 years), the average duration of psoriasis being 7.5 year [2;20] (from 0.3 to 47 years.), the mean DAS 3.69 ± 1.34, DMARD naïve were recruited. All pts underwent standard CE of the joints on 78/76-joint manikin including evaluation of the clinical signs (tender/swelling) of the flexor tenosynovitis of the fingers and toes and MRI of the same regions via "Artoscan C" (0.2 T) ("Esaote" Italy). Degree of agreement was tested by Cohen's kappa.
Results: According to CE and MRI arthritis of the hands/foot were found in 45 (75%)/43 (72%) pts and in 43 (72%)/42 (70%) pts accordingly. According to CE tenosynovitis of the flexor fingers were found in 9 pts (15%) and the flexor toes in 6 pts (10%). Via MRI tenosynovitis of flexor fingers and flexor toes were determinate more often—in 27 pts (45%) and in 31 pts (52%) accordingly. In the diagnosis of peripheral arthritis the results of the CE and MRI of the hands were in agreement in 46 pts (77% of cases) and of the foot in 49 pts (82%). For tenosynovitis of the flexor fingers and toes the results of the CE and MRI were in agreement in 38 pts (63% of cases) and in 31 pts (52%) accordingly. A moderate level of agreement was found in the diagnosis of arthritis of the hand and foot through CE and MRI (Cohen's kappa—0.41/0.56 accordingly). We detected slight level of agreement for the test results for tenosynovitis of the hand and especially of the foot by way of CE and MRI (Cohen's kappa—0.21/0.06 accordingly).
Conclusions: MRI is more accurate in diagnostics of tenosynovitis than CE. In order to completely

understand all early peripheral PsA symptoms among psoriasis pts both CE and MRI should be done.

P116

The relative activity of anti-TNF-$\sigma a\sigma$ agents, etanercept, infliximab, adalimumab and golimumab, evaluated by a stable IL-8 reporter cell line, THP-G8

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Now the biologics become an essential component of psoriasis therapy. In particular, anti-TNF-$\sigma a\sigma$ antibodies (Abs) are a mainstream among them. There are several anti-TNF-$\sigma a\sigma$ agents available in the clinics. However, we do not necessarily know the difference of them. Recently, we have established an IL-8 reporter cell line, THP-G8, which is derived from a human monocyte cell line and harbors SLO and SLR luciferase genes under the control of IL-8 and glyceraldehyde 3-phosphate dehydrogenase promoters, respectively (1). This stable cell line responds with TNF-$\sigma a\sigma$ in a dose-dependent manner in a wide range of the concentration. Therefore, we hypothesized that this cell line enables us to easily compare the relative activity among different anti-TNF-$\sigma a\sigma$ agents. So, we treated 10 ng/ml of human recombinant TNF-$\sigma a\sigma$ with increasing concentrations of anti-TNF-$\sigma a\sigma$ agents, Etanercept, Infliximab, Adalimumab, Golimumab, or control human IgG1 Ab for 30 min, and stimulated THP-G8 cells with them for 6 h. As expected, all anti-TNF-$\sigma a\sigma$ agents significantly and dose-dependently suppressed TNF-$\sigma a\sigma$-induced IL-8 reporter activity indicated as SLO-luciferase activity of THP-G8 cells, while control IgG1 Ab had no effects. Moreover, by serial titration of anti-TNF-$\sigma a\sigma$ agents, we could estimate the relative activity of anti-TNF-$\sigma a\sigma$ agents that was determined by calculating the concentration of each reagent required to neutralize 50% of soluble TNF-$\sigma a\sigma$ in the assay (IC50). The IC50 of Etanercept, Infliximab, Adalimumab and Golimumab, were 100, 81.3, 19.3 and 52.4 ng/ml, respectively. These data were confirmed by quantitative real-time PCR. Since anti-TNF-$\sigma a\sigma$ agents can react with soluble and membrane-bound TNF-$\sigma a\sigma$, it is not enough to examine their effects on soluble TNF-$\sigma a\sigma$. However, considering that serum IL-8 concentration is significantly elevated in psoriatic patients and decreased after effective treatment, it is important to know the inhibitory effects of each anti-TNF-$\sigma a\sigma$ agent on IL-8 expression by monocytes in selecting anti-TNF-$\sigma a\sigma$ agent for psoriatic patients.
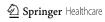Reference: (1) Takahashi T et al. Toxicol Sci. 124:359–369, 2011.

P117

Predictive biomarkers for high responsiveness to treatment, and biomarkers associated with clinical response to treatment, in psoriasis patients treated with the anti-IL-17A monoclonal antibody, ixekizumab

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The goal of the present study was to identify biomarkers that correlate with clinical response to therapy. We performed a comprehensive survey, using whole blood mRNA and serum from patients with moderate-to-severe plaque psoriasis treated with an anti-IL-17A monoclonal antibody, ixekizumab (previously, LY2439821). A total of 40 subjects were enrolled in a phase 1, randomized, double-blind trial of ixekizumab, receiving subcutaneous injections of 5 mg (n = 8), 15 mg (n = 8), 50 mg (n = 8), 150 mg (n = 8) ixekizumab or placebo (n = 8) at Weeks 0, 2 and 4. Lesional skin biopsies and blood samples were obtained at Weeks 0, 2 and 6. The psoriasis area and severity index (PASI) scores were also assessed at Weeks 0, 2, 6 and 12. By Week 2, there were significant dose-dependent reductions from baseline in histologic scoring, and in numbers of infiltrating T cells and dendritic cells present. Also, by Week 2, there was a significant reduction from baseline in IL-17 mRNA expression in lesional skin. By Week 6 in the 150 mg group, all subjects achieved a PASI 75, and skin appeared clinically normal. Analysis of whole blood mRNA expression of IL-17 pathway genes demonstrated significant correlations with PASI score, including N-GAL ($p < 0.01$). We found that there was also a significant correlation between PASI scores and serum N-GAL concentration ($p < 0.01$). In addition, a marker of inflammation, soluble E-selectin, was highly correlated with PASI scores ($p < 0.00001$). In the 3 highest dose groups patients achieving a PASI 90 at 12 weeks had lower baseline IL-17F and IL-17 receptor C subunit (IL-17RC) gene expression compared to other subjects ($p < 0.01$). These data support the hypotheses that there are biomarkers in peripheral blood which demonstrate statistically significant correlations with clinical response to therapy with ixekizumab and some may have utility in predicting response to therapy at baseline. The biomarkers reported here may assist in monitoring disease activity and in predicting response to therapy, and need to be validated in larger studies.

P118

The Swedish Early Psoriatic Arthritis (SwePsA) Registry 5-year follow-up: Slow radiographic progression of bone destruction in the hands without correlation to clinical disease activity

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Objective: To describe early X-ray findings in the hands and evaluate progression of destructions after 5 years, correlated to clinical parameters in early psoriatic arthritis (PsA).

Method: In 31 men and 46 women with PsA fulfilling the CASPAR criteria hand X-rays were available from the 5-year follow-up and either inclusion or the 2-year visit. Disease activity was measured by DAS-28 and DAPSA. X-rays were scored by the Wassenberg scoring system for PsA (Wassenberg, et al., 2001). In the hands, all DIP, PIP and MCP joints and the carpus (30 joints), in the feet, the IP joint I and MCP joints 2–5 are scored for destructive and proliferative changes typical for PsA (total score: 0–360).

Results: Median symptom duration at inclusion was 12 months. Median DAS-28, DAPSA, HAQ and PASI at baseline were 3.86, 20.25, 0.69 and 1.45 respectively, 58% had polyarticular and 38% mono/oligoarticular PsA.

At the first evaluation 60% had a zero score (mean 2.0, SD 4.07, range 0–22). At the 5-year visit median score was 2 (mean 3.99, SD 7.6, range 0–42). In 34 patients (44%) the score was still 0, in 28 between 1 and 5, in 5 between 6 and 10, in 6 between 11 and 15, and 1 patient each had a score of 19, 22, 39, and 42.

At baseline women had significantly higher disease activity and HAQ than men, but similar X-ray score. At 5 years men had improved considerably in function and DAS, but showed more often X-ray progression (58 vs. 28%, $p = 0.009$). Male gender was a significant predictor of X-ray progression (OR 3.52, 95% CI 1.35–9.18). Longer symptom duration at entry predicted X-ray progression ($p = 0.038$) and prevented minimal disease activity ($p < 0.001$). Lower baseline HAQ score predicted no X-ray progression ($p = 0.02$). Baseline DAS-28/DAPSA did not predict X-ray damage.

Conclusion: After 5 years of PsA, most patients still have no or very little hand joint destruction. Symptom duration at inclusion and male gender were the main predictors of X-ray progression, preserved function at baseline was protective. Despite worse clinical outcome with higher HAQ and DAS/DAPSA, women had less X-ray progression than men.

P119

A screening tool that includes key clinical features and biomarkers discriminates patients with psoriatic arthritis (PsA) from those with psoriasis without PsA

Chandran, Vinod[1]; Cook, Richard[2]; Lee, Ker-Ai[2]; Pellett, Fawnda[3]; Gladman, Dafna[3]
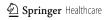
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Purpose: There is high prevalence of PsA among patients with psoriasis. We have shown that hsCRP, OPG, MMP-3 and CPII: C2C are biomarkers for PsA. Our purpose was to determine whether a screening tool that includes key clinical features and these biomarkers distinguishes PsA from psoriasis without PsA (PsC).

Methods: 26 patients with PsA and 26 PsC patients were recruited. Subjects were group matched for age, sex and psoriasis duration. Serum drawn at the time of assessments was analyzed for: MMP-3, OPG, CPII, C2C and hsCRP. Cut off values for biomarker levels that best distinguished PsA from PsC was determined by Classification and Regression Tree (CART) analysis. Data were analyzed using logistic regression with disease status as the outcome (PsA versus PsC) to develop a risk score. Predictive accuracy was assessed using Receiver Operating Characteristic curves.

Results: PsA patients (mean age 47 years, psoriasis duration 17 years, PsA duration 13 years) had an average 16 tender and 5 swollen joints and mean PASI score of 4, whereas PsC patients (mean age 45 years, psoriasis duration 17 years) had mean PASI score of 5. Among the PsA patients, 25/26 had nail psoriasis whereas only 14/26 PsC patients had nail psoriasis. 20/26 patients in both groups had scalp psoriasis. CART analysis identified that the following cut-offs best distinguished PsA from PsC: MMP-3- 20 ng/mL, OPG- 760 pg/mL, hsCRP- 1,750 mg/L, CPII/C2C ratio- 4. Logistic regression analysis using dichotomized biomarker levels and clinical features showed that MMP-3 (OR 13.5, $p = 0.09$), OPG (OR 26.1, $p = 0.02$), hsCRP (OR 3.2, $p = 0.27$), CPII/C2C (OR 10.5, $p = 0.07$), scalp psoriasis (OR 3.8, $p = 0.34$) and nail psoriasis (OR 31.9, $p = 0.13$) were associated with PsA. ROC curve based on this logistic regression model had an area under the curve of 0.95 demonstrating that a tool incorporating these variables is likely to be clinically useful for screening for.

Conclusion: This pilot study indicates that a tool that includes hsCRP, OPG, MMP-3 and the ratio CPII/C2C

along with nail and scalp psoriasis distinguishes patients with PsA from PsC.

P120

Treg profile of psoriasis patients: preliminary data

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Psoriasis, a chronic inflammatory skin disorder, has plurifactorial determinism including autoimmune, genetic and environmental factors. A key position in its pathogenesis is held by T lymphocytes. A subset of T lymphocytes, T regulatory (Treg) cells are responsible for suppressing and terminating the immune response, and therefore could be deficient in psoriasis patients. A Treg cell normally expresses all CD25, GITR and FoxP3, but other combinations of these molecules can also code for it.

The aim of the present study was to determine if psoriasis patients show any differences in circulating Treg cells, compared to apparently healthy people.

For the assessment of CD4+ and CD8+ T lymphocytes isolated from peripheral blood mononuclear cells (PBMCs) we used flow cytometry. We analyzed the expression of the imunomodulatory molecules CD25+, FoxP3 and GITR in eleven psoriasis patients and compared it to six apparently healthy volunteers (no self or family history of psoriasis-control group). The psoriasis group included only patients with PASI score >12. We assessed the frequency of CD4+CD25+, CD4+FoxP3+, CD4+GITR+, CD8+CD25+, CD8+FoxP3+, CD8+GITR+ and by triple staining Treg cells CD4+CD25+FoxP3+GITR+ and CD8+CD25+FoxP3+GITR+. The frequencies in the psoriasis group were compared to the control group.

Flow cytometry assessment showed an increased frequency of CD4+CD25+ and CD4+FoxP3+ in the psoriasis group, compared to the controls. Psoriasis patients had also a higher percentage of CD8+CD25+ and CD8+GITR+. The opposite was noticed for CD8+FoxP3+, which were less frequent in psoriasis patients compared to the healthy volunteers. The Treg cells in the psoriasis group vere increased both for CD4+ and CD8+, compared to the control group.

Psoriasis patients showed differences in circulating T cells, according to the surface molecules which they expressed (possibly Treg cells). These preliminary results will be followed by a larger study, aiming to assess both frequency and function of CD4+ and CD8+ Treg cells, which appear to be involved in the pathogenesis of psoriasis. These cells represent a potential therapeutic target, and therefore deserve consideration.
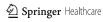
Quality of life

P121

Health-related quality of life (HRQOL) improvement with secukinumab in patients with rheumatoid arthritis: results from a dose-finding study

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Interleukin (IL)-17A is a key inflammatory mediator in pathogenesis of rheumatoid arthritis (RA). Secukinumab is a fully human monoclonal antibody selectively targets IL-17A. This phase 2 randomized controlled trial (RCT) evaluated the effect of secukinumab on patient reported HRQoL by SF-36v2. Adult RA patients (n = 237) failing methotrexate were randomized equally to receive monthly s.c. injections of secukinumab 25, 75, 150, 300 mg or placebo. ACR 20 and HRQoL responses were assessed at wks 0, 2, 4, 8, 12 and 16 and SF-6D scores were derived based on mean changes across all 8 domains of SF-36v2. Data was analyzed using descriptive statistics and mean changes $\geq$ minimum clinically important differences (MCID). Baseline physical component scores (PCS) and physical domain scores were low across all treatment groups: $\geq$1.5 SD and 26–40 points less than age/gender matched norms; mental component scores (MCS) approximately 1 SD < norms, reflecting large impact of active RA on HRQoL. ACR 20 responders at wk 16 in secukinumab 75, 150 and 300 mg treatment groups (46.9, 46.5 and 53.7%) was higher than 25 mg (34%) and placebo (36%) groups. Median PCS scores increased from baseline in all secukinumab groups (change from baseline in 25, 75, 150 and 300 mg groups at wk 16: 1.44, 2.40, 3.62, 3.73) and placebo group (1.85). Similar increase in median MCS scores was reported for all secukinumab groups 25, 75, 150 mg groups (1.17, 0.59, 1.64) except 300 mg group (−1.68) and placebo group (0.44). Improvements in PCS and MCS scores and 7 of 8 domains in 75 mg and all 8 domains in 150 mg treatment groups met or exceeded MCID and SF-6D well exceeded MID = 0.041. Mean changes in 300 mg were of less magnitude than 75 or 150 mg but $\geq$MCID in PCS and 3 of 8 domain scores. Improvements with 25 mg were not different from placebo, consistent with earlier findings of a "no effect" dose. Secukinumab showed dose dependent improvement in HRQoL in all dose groups (25, 75, 150, 300 mg). Greater improvement in HRQoL was observed with 75 and 150 mg dose groups than 25 mg and placebo groups. These findings support the selection of secukinumab 75 mg and 150 mg doses for future phase 3 RCTs in RA.

P122

Use of clinical trial data to compare psoriasis area and severity index, static physician's global assessment, and lattice system-physician's global assessment in assessing severity of psoriasis

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Reduction of 75 or 90% in the Psoriasis Area and Severity Index (PASI-75, PASI-90, respectively) historically has been a measure of treatment success in psoriasis trials. However, European and US regulatory agencies do not use PASI in Phase III trials. Therefore, we investigated the changes over the course of treatment in PASI, along with other measures, namely Static Physician's Global Assessment (sPGA) and the Lattice System-Physician's Global Assessment (LS-PGA), in a randomized, multicenter, 24-week study of chronic plaque psoriasis. Of 652 enrolled patients, 455 completed the study and were included in our analyses. The treatment group had 366 patients who received oral calcineurin inhibitors, either cyclosporine or voclosporin. In this group at trial entry, the Spearman correlation coefficients showed poorer correlation of sPGA with PASI (r = 0.45) or LS-PGA (0.39) than between PASI and LS-PGA (0.68). After therapy, all correlations were stronger; however, sPGA continued to be less well correlated (with PASI, 0.85, with LS-PGA, 0.79) compared to PASI with LS-PGA (0.90). Mean scores at pretherapy and after 12 and 24 weeks of active therapy were 18.5, 6.3, and 5.4 for PASI (maximum possible score 72), 3.5, 1.8, 1.7 for sPGA (max 5), and 5.9, 3.2, 2.8 for LS-PGA (max 7). When placebo patients crossed over to active therapy, the scores showed the same pattern.

In this first comparison of PASI, sPGA, and LS-PGA in an actual clinical trial, all 3 measurement methods demonstrated efficacy of treatment compared to placebo and for change from before to end of active treatment (all $P < 0.05$). With treatment, PASI, sPGA and LS-PGA reflected changes in the Dermatology Life Quality Index (DLQI), further indicating validity of these measures in clinical trials. At all time points, LS-PGA has stronger correlations with PASI than does sPGA. PASI and LS-PGA are highly correlated measures of change in psoriasis severity. After effective therapy, sPGA does not detect the difference between PASI-75 and PASI-90. The LS-PGA more readily detects such changes in psoriasis severity during treatment.

P123

Psychiatric disorders in psoriatic patients in Semnan city during the first 6 months of 2006: a survey

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Introduction: Psoriasis is a common, genetically determined, inflammatory and proliferative disease of the skin In this research, we tried to investigate the prevalence of psychiatric disorders in psoriatic patients.
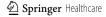
Methods: During the first half of the year 2006, the psoriatic patients who were referred to the skin clinics in Semnan city have been investigated. The researcher used two questionnaires: S.C.L. 90 for the survey of psychosis, paranoia, phobia, aggression, anxiety, depression, obsessive compulsive disorder (O.C.D), interpersonal sensitivity, hypochondriasis. The other questionnaire consisted of age, sex, severity and duration of psoriasis and the lack of history of psychiatric disorders in family.

Findings: In this study, 57.1% of the samples were female and 42.9% were male. The most common finding (31.4%) was depression. With increasing the duration of the psoriasis, the prevalence of depression and its treatment increased; also this increase was noted in paranoia and phobia. With increasing of the severity of the psoriasis, the prevalence of the patients who suffered from depression requiring treatment and consultation also increased. The prevalence of O.C.D, anxiety, interpersonal sensitivity, hypochondriasis, and psychosis also increased with increasing the severity of psoriasis but this increase was not observed in paranoia, phobia and aggression.

Discussion and conclusion: The most common disorder was depression which was in accordance with the other studies. The prevalence of psychiatric disorders increased with growing the severity of the psoriasis which was compatible with other studies. In the depressed patient who suffered from severe psoriasis, it was very important to be cured and consulted. As depression has a negative effect on the compliance of the patients for the treatment of the skin disease, it is necessary for these sufferers being referred to the psychiatric clinics for assessment treatment and probable consultation.

P125

Significant effects of patient educative training on psoriasis disease

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The impact of chronic skin diseases on patients is generally appreciated. Apart from sufficient drug treatment with regard to efficiency and tolerability, coping of patients is a major concern and needs educational support. Appropriate training will help patients to learn about their disease, its pathogenic and clinical background as well as treatment and will improve the cooperation of patients and their doctors as well as patients' well-being. Standardized training formats for psoriasis have neither been established nor evaluated yet. Therefore, in this study a 5 week 2 h per week modular training covering medical, psychological, dietary and topic treatment issues has been followed up in 100 patients. Patients were dermatologically (PASI, DLQI) and psychologically (knowledge of their disease, behavior, self expectations, resilience) monitored before and immediately as well as 12 months after the training. Results were compared to patients without training. Whereas the PASI was grossly unchanged before and after training, DLQI improved significantly from eight to four points. This study demonstrates significant effects of a standardized and comprehensive training of patients and will definitely support and improve somatic drug treatment of psoriatic patients.

P126

Percentage of suicidal ideation and suicidal attempts in adult patients diagnosed with psoriasis

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Background: Psoriasis is a chronic inflammatory whose natural history of flares and remissions may impact negatively on the patients' psychological, social, and occupational well being. Several studies have shown that patients with psoriasis have suicidal ideation whose percentage range between 3.2 and 8.6%.
Objective: To describe the percentage of patients diagnosed with psoriasis who report to have suicidal ideation and suicide attempt.
Methods: The mailing list of Psorphil, an organization of patients with psoriasis, was sent invitations to answer an on-line survey.
Results: A total of 699 members were emailed invitations for the on-line survey. One hundred twenty-seven responses were received; however duplicate or incomplete entries were excluded making a total of 120 entries included in the study.
Sociodemographic profile of 120 patients are as follows: average age is 29 years old (range: 18–59 years old), majority are female (60%) and Roman Catholic (72%), less than half are single (42%), majority are college

graduate and/or postgraduate (62%). Almost half were employed fulltime (48%) Seventeen patients (14%) of patients reported suicidal ideation and 9 (7%) of patient reported suicidal attempt, and one patient (0.8%) was referred to a psychiatrist.
Majority of patients who had suicidal ideation and attempts self reported to have moderate to severe psoriasis. All patients reported to be depressed due to psoriasis. One-third of patients did not talk to anyone regarding suicide. One patient disclosed to suicide to a doctor and was referred to a psychiatrist. One patient disclosed to a dermatologist but was not referred to a psychiatrist.
Conclusion: The suicide ideation percentage (14%) was highest compared to other international studies (3.2–8.6%). However the referral to a psychiatrist was low at 0.8%.
Recommendations: It is recommended that dermatologists regularly elicit depressive and suicidal symptoms among patients; to evaluate psychological difficulty and suicidal risk and to refer to a psychiatrist or mental health professional.

P127

A descriptive study on the knowledge and beliefs of adult patients diagnosed with psoriasis

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Introduction: Psoriasis is a chronic inflammatory dermatological condition whose natural history of flares and remissions may adversely impact on the patients' psychological, social, and occupational well being. Objective: To describe the knowledge, beliefs and treatment practices of adult patients diagnosed with psoriasis Method: An invitation to answer an on-line survey Questionnaire was sent to the patient list of Psorphil, (an organization of patients with psoriasis in the Philippines).
Results: A total of 699 members were emailed invitations for the on-line survey. One hundred twenty-seven responses were received, of which duplicate or incomplete entries were excluded to make a total of 120 included entries. Average age is 29 years old (range: 18–59 years old), majority are female (60%) and Roman Catholic (72%), less than half are single (42%), majority are college graduate and/or postgraduate (62%). Almost half were employed fulltime (48%) A total of 81 respondents answered the psoriasis knowledge questionnaire. Mean score of knowledge is 69.73 which indicate good knowledge of psoriasis. A total of 81 respondents answered the psoriasis belief questionnaire. The mean score of belief is 2.82 which show that the patients have neutral or neither favourable nor

unfavourable attitude towards psoriasis. A total of 81 respondents answered the psoriasis treatment practices. Majority were compliant with medications (64% responded to be always or are often compliant with medications). Majority were not compliant with regular follow-ups (65% responded to sometimes, occasionally or never go to scheduled follow-ups).

Conclusion: Adult patients diagnosed with psoriasis had good knowledge of psoriasis and neutral beliefs on psoriasis which may be a contributing factor on good compliance with medications and poor compliance with follow-up.

P128

Quality of life and health-state utilities in psoriasis patients

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Psoriasis is a chronic skin disease affecting a significant proportion of our Singaporean population. We measured the quality of life of psoriasis patients using a general scale (SF-36), a disease-specific scale (Psoriasis Disability Index—PDI) and a visual analogue scale. Two health-state utilities, namely the time trade-off and willingness to pay indices, were assessed. Health-state utilities are important and sensitive indicators of QOL in patients with acute and chronic diseases, and are important to health economists for cost-utility analysis. The PASI score was also obtained during clinical examination.

We recruited 254 patients—70.6% patients were male and 29.4% were female, comprising 71.6% Chinese, 14.4% Malays, 12.6% Indians and 1.4% Eurasians. The average age was 49.4 years. 72.1% of patients had monthly income of less than $2,000. The mean duration of disease was 13.6 years, with chronic plaque psoriasis (91.6%) being the most common clinical subtype.

Hypertension, hyperlipidaemia and diabetes mellitus were the most commonly found co-morbidities, occurring in 31.6, 20.9 and 19.1% of patients respectively. Psoriatic skin lesions were present in areas unable to be concealed by clothing in almost all patients (98.1%), and arthropathy was present in almost a quarter (27.4%). Almost all the patients were on topical steroids, topical coal tar preparations and moisturizers. Other treatments received are as follows: methotrexate in 40.4% of patients, phototherapy 23.3%, acitretin 16.2%, cyclosporine 7.0 and 5.1% biologic agents.

The mean PASI score was 14.79 and the mean PDI 9.35. The SF-36 assessment showed the lowest scores for the energy/fatigue levels and the general health category in our group of psoriasis patients. The average time-trade off was 3.74 years of life, with 6 patients willing to give up their entire lifespan for an immediate cure. The patients were willing to give up 34% of their income/savings, on average, for an immediate cure for their condition. This study illustrates that psoriasis can significantly affect patients to the extent that they are willing to trade their years of life or income in search of a cure.

P129

The psoriatic school, education for patients with psoriasis, psoriatic arthrithis and pustulosis palmoplantaris

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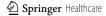
[1]The Swedish Psoriasis Association, Stockholm, Sweden; [2]University Hospital Linkoping, Dermatology department, Linkoping, Sweden

Background The Psoriasis School (PS) is a model for patient education for patients with psoriasis, psoriatic arthritis and PPP. It includes 40 h of education, split into three areas: knowledge of disease and treatments, lifestyle and health, and "living and coping with the disease". Different types of training adjusted for people with joint disease are also included. All the lectures are given by health care professionals such as dermatologists, rheumatologists and health educationists.

Aim The aim was to give evidence for this kind of patient education, to investigate if knowledge of the disease and the quality of life increases after the classes.

Method We used the following validated questionnaires: DLQI, SF-36, EQ-5D, HAQ and AHI. In addition we included questions about the disease, treatments and effects on life, questions about the self-estimated knowledge and questions about lifestyle in separate questionnaires. All participants in the PS filled in the questionnaires before the PS started and after four, eight and 12 months after taking part in the class. For evaluation purposes there was also a controlgroup, people with psoriasis that did not participate in the classes but voluntary filled out the forms.

Results In DLQI (0 = best result) the participants (N = 22) went from 4.8 to 3.2 and the controls (N = 34) from 4.1 to 4.8. The SF-36 (high result the best) shows the highest changes in mental health, where the participants (N = 21) went from 44.0 to 50.4 whereas the controls (N = 34) went from 49.4 to 47.0. Initially the participants (N = 22) estimated their average knowledge to 4.9 in 10-grade scale. Four month later the average was 8.0. The controls (N = 33) went from 6.6 to 6.8. In coping skills the participants (N = 21) went from 6.0 to 7.8 and the controls (N = 33) from 7.2 to 7.0. At the start the participants had less knowledge about the disease than the controls. The conclusion of this study is that the PS increases both perceived knowledge of the disease and quality of life, as well as mental health.

P130

Perceived disadvantages in leisure time activities among patients with psoriasis

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Objectives: The aim of the study was to estimate the experienced disadvantage in leisure-time activities due to psoriasis.

Materials and methods: A questionnaire was mailed to 489 patients with moderate or severe psoriasis who visited the dermatology outpatient clinic in Turku University Hospital during the period 1.10.2009–30.9.2010. Using one reminder, the final sample size was 262 patients (52.6%). The patients were asked to list their hobbies and leisure-time activities, the time spent on these activities, how well they perform in leisure-time activities and any activities they had reduced or given up completely because of psoriasis. Using a visual analogue scale (VAS) of 0–100, the patients assessed how well they could perform in their leisure time activities with psoriasis and in a hypothetical situation without it. The difference between the VAS scores depicted the level of disadvantage caused by psoriasis.

Results: The average VAS score for the disadvantage in leisure time activities caused by psoriasis was 16.9, with minor differences between sexes. Because of psoriasis, 32.0% of the subjects had reduced some of their leisure-time activities, and 34.7% had completely given up at least one leisure-time activity. On average, women had reduced leisure time activities by 129 min per week and men by 64 min (NS). Many patients had completely given up (30.2%) or reduced (23.7%) sports activities; psoriasis had slightly more influence on sports activities among men than women (NS). Social activities and other activities where psoriasis could be considered to cause cosmetic disadvantage were given up by 29.0% and reduced by 21.4% of the patients.

Conclusion: A significant proportion of patients with psoriasis had reduced leisure time activities, or given up completely, because of their disease. When estimating the overall burden of psoriasis, the influence on leisure time activities should be taken into account.

P131

Quality-of-life effects of psoriasis skin symptoms affecting different body regions

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Aims: Component scores for head (H), trunk (T), and upper (U) and lower (L) extremities contribute to total Psoriasis Area and Severity Index (PASI) scores proportionately to each region's body surface area (BSA). We assessed whether region-specific symptom effects on Dermatology Life Quality Index (DLQI) scores were disproportionate to respective BSAs.

Methods: All assessments of PASI and DLQI scores were included from trials of adalimumab (REVEAL, BELIEVE, CHAMPION, and PROGRESS) and ABT-874 (all 4 Phase III trials). The effects of region-specific PASI component scores on total DLQI scores were assessed in regression analyses stratified by median age of 45 years and sex. Region-specific effects were expressed as percentages of the overall effect of total PASI on total DLQI and were assessed for proportionality to their respective BSAs.

Results: Analyses included 15,280 assessments of 4,988 patients. The effects of region-specific PASI component scores on total DLQI scores were significantly disproportionate to respective BSAs and varied significantly by age and sex (all $P < 0.05$). Among younger women, H and U had disproportionately large effects on DLQI (H: 22.8%, U: 32.6%) versus their respective BSAs (H: 10%, U: 20%), driven primarily by DLQI items for embarrassment, clothing, social activities, partner relations, and sexual difficulty. The relative impact of H and U PASI component scores on total DLQI scores in older women was lesser, similar to that in men.

Conclusions: Along with severity and area, skin symptom location can significantly impact health-related quality of life for patients with psoriasis. Relative to their respective BSAs, psoriasis skin symptoms affecting the head and upper extremities had disproportionately large effects on dermatology-specific health-related quality of life in younger women.

P132

The use of an Apple iPad-based© health assessment questionnaire (HAQ) application in psoriatic and rheumatoid arthritis

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Objectives: 1. To compare the validity, accuracy and reproducibility of an iPad-based© version of the HAQ to the paper version in patients with psoriatic and rheumatoid arthritis.

2. To assess patients' acceptability, convenience, preference and ease of administration of the electronic version.

Methods: Patients with PsA and RA were randomly selected from a rheumatology clinic. The subjects completed both electronic touch screen and paper versions of the HAQ. The order of completing the

tools (electronic vs. paper) was reversed for every second patient. All patients have been asked to complete a questionnaire documenting their demographics, time to complete the tool, preferences and computer expertise. The scores of the electronic and the paper versions were evaluated by comparing differences in the HAQ scores, the time taken to complete the tools using t test.

Result(s): Thirty-two patients were included. Twenty (62.5%) were females. Eleven aged 30–49 years; 19 (59.4%) 50–69 years.There was not a significant difference in the Reported HAQ Scores between the tools (95%CI −0.159–0.345; $p = 0.459$). There was not a significant difference in the time taken for patients to complete either version (95%CI −0.397–1.882; $p = 0.193$). 75% (24) found that the electronic version of HAQ was easier to perform and 72% (23) found that the electronic questionnaire took less time to perform as compared to the paper version. 63% (20) preferred iPad to the paper. 91% (29) concluded that the electronic version was more beneficial than the paper version. The evaluation of the acceptability, convenience and preference of both tools was not statistically significant between genders.

Conclusion: The iPad© version of the HAQ is valid as a measure of health assessment for psoriatic arthritis patients as scores are near identical to the paper version. Patients of all ages and computer literacy levels preferred the electronic version of the test and found it more beneficial.

P133

Psoriasis: a model for chronic diseases in dermatology

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Psoriasis is the best studied chronic disease in dermatology and can serve as a model for study of other similar diseases in dermatology.

Chronic diseases are characteristically defined by prolonged course, frequent relapse/recurrence, severe psychological impact etc. Acne vulgaris, eczema and vitiligo are other conditions which share these characteristics. Other dermatoses like connective tissue diseases, immune—bullous disorders, hidradenitis suppurativa, chronic urticaria can also be included under the umbrella term.

We need to recognise the hidden burden of chronic diseases to patients and the health service. There are economic, psychological, occupational, social and health implications from chronic diseases. The Health Care Professionals need to be sensitised to these issues by 'treating the person' rather than 'treating the disease'.

There is a need for a Special Interest Group within dermatology to clearly set definitions for 'chronic diseases in dermatology', devise common tools to evaluate the impact across all the diseases and finally devise measures to alleviate these. Psoriasis has clearly set the trend for recognising the systemic impact of inflammatory diseases.

We now also recognise that tools for assessing severity of the disease e.g. PASI fail to assess the impact of the disease on the individual e.g. patients with a PASI score <5 can still demonstrate a high DLQI and vice versa. Unmet patient expectations remain a persistent problem with chronic diseases.

We have come a long way from when 'no treatment' was a reasonable option for management of early Psoriasis, guttate psoriasis was always allowed to self resolve (although up to one-third are now known to progress to Chronic Plaque Psoriasis).

Chronic diseases persist, changing in distribution and severity. Our role as Health Care Providers has to be of support and hope. A review of Quality of Life measures in Psoriasis, Acne, Eczema and Vitiligo is an attempt at initiating the process.

P134

Association between ACR improvement and health-related quality of life (HRQoL) among rheumatoid arthritis (RA) patients treated with secukinumab

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Background: Secukinumab demonstrated improvement of signs and symptoms in RA patients in a phase 2 RCT. In this analysis of the same study, we assessed the association between signs and symptoms of RA and HRQoL.

Objective: To evaluate the HRQoL benefits associated with American College of Rheumatology (ACR) improvement among RA patients treated with secukinumab.

Method: RA patients (n = 237) on methotrexate were randomized equally to receive monthly s.c. injections of secukinumab 25, 75, 150, 300 mg or placebo. Primary efficacy endpoint consisted of the proportion of patients achieving the ACR 20 response at week (wk) 16. HRQoL was measured at baseline, 2, 4, 8, 12 and 16 wks using SF-36v2 and FACIT-Fatigue. At wk 16, all patients treated with secukinumab combined were categorized into 4 groups based on their ACR-N scores (<20, 20–49, 50–69, and ≥70). Analysis of variance methods were used to evaluate differences in mean changes in HRQoL scores from baseline to wk 16 across the 4 groups of patients.

Results: Nearly one-half (45%) of all patients treated with secukinumab achieved ACR 20 response, while 18 and 5% of patients reached ACR 50 and ACR 70, respectively. Statistically significant and clinically meaningful

improvement in HRQoL scores were observed across all SF-36v2 and FACIT-Fatigue scales among patients who achieved ACR 20. Mean SF-36v2 and FACIT-Fatigue scores improved incrementally across the ACR-N categories. Among patients who were assigned to ACR-N category 20–49, mean score improvement ranged from 2.2 to 7.5 points across SF-36v2 and FACIT-Fatigue scales. Mean score improvement ranged from 3.4 to 10.0 points across SF-36v2 and FACIT-Fatigue scales among patients assigned to the ACR-N 50–69 category. Lastly, mean score improvement ranged from 8.8 to 16.3 points across SF-36v2 and FACIT-Fatigue scales among patients assigned to the ACR-N $\geq$70 category. Patients in the ACR-N category of <20 showed no significant improvement in HRQoL scores.

Conclusion: In patients on secukinumab with greater ACR responses there were associated relevant benefits in patients' overall physical, social, role functioning and psychological well-being.

P136

Sex differences in health-related quality of life in patients with moderate to severe psoriasis

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Aims: To evaluate sex differences in health-related quality of life (HRQOL) in patients with moderate to severe psoriasis.

Methods: Baseline assessments of the Dermatology Life Quality Index (DLQI), the Short Form 36 Health Survey Mental and Physical Component Summary scores (MCS and PCS), and the Work Productivity and Activity Impairment Questionnaire were assessed using data from REVEAL (Randomized Controlled EValuation of Adalimumab Every Other Week Dosing in Moderate to Severe Psoriasis TriAL) regarding adalimumab use by patients with moderate to severe psoriasis. Scores were compared for men versus women overall and for women by age quartiles ($\leq$32, 32–44, 45–54, and >54 years).

Results: Female patients (n = 408) had significantly ($P < 0.05$) worse mean ($\pm$SD) scores than male patients (n = 802) for DLQI (12.9 $\pm$ 6.9 vs. 10.6 $\pm$ 6.5), MCS (45.7 $\pm$ 11.9 vs. 48.4 $\pm$ 10.9), PCS (48.1 $\pm$ 10.5 vs. 48.4 $\pm$ 10.9), presenteeism (20.5 $\pm$ 24.2% vs. 16.6 $\pm$ 22.5%), total work productivity impairment (21.8 $\pm$ 25.5% vs. 17.0 $\pm$ 23.3%), and total activity impairment (32.3 $\pm$ 30.4% vs. 24.0 $\pm$ 26.0%). Women in the youngest versus oldest age quartiles had significantly ($P < 0.05$) worse DLQI (14.0 vs. 11.3) and

MCS (42.9 vs. 48.0) but significantly better PCS (50.7 vs. 43.6).

Conclusions: Female patients with moderate to severe psoriasis had significantly greater HRQOL and work productivity impairment compared with male patients. Whereas dermatologic and mental HRQOL were significantly more impaired among younger versus older female patients, physical HRQOL was significantly less impaired among younger versus older female patients.

P137

Colors of psoriasis: the lived experiences of middle aged adults with moderate to severe psoriasis

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This study aims to explore and expound the understanding about the lived experiences of middle aged adults with psoriasis. Specifically, this study seeks to discover the individual perception of the illness, the hindrances and limitations imposed by the illness and the variety of coping mechanisms employed by the afflicted population. Exploring these areas will eventually lead to a more extensive understanding of their meaning of quality of life and thriving with psoriasis. With this understanding, an improved approach of holistic care may be given to these middle aged adults with moderate to severe psoriasis whilst considering the various aspects of health and not just limited to the physical facet.

Purposeful or judgmental sampling and the convenience sampling methods were employed in selecting the participants. The gathered data were recorded, transcribed and presented to the interviewed respondents for validation. The written transcription was then analyzed and examined to formulate codes to describe the verbal statements of the participants. These level I codes were examined and analyzed by the researchers. Subsequently, these initial codes with similar implications were put into same groups, thus, formulating clusters of codes called level II codes. Then finally, these clusters were then examined and analyzed to formulate the emerging themes or the level III codes. The themes derived were: Suffering, Seeking and Accepting. There are different adversities arising from having psoriasis as experienced by the respondents. These

have great impact on them physically, emotionally, psychologically, socially, and financially. Nevertheless, the respondents exhibit the will to be accepted by the public and their families and to rise beyond the limitations imposed by psoriasis. With all the learning they have acquired in encountering this disease, they continue to struggle for freedom and acceptance and overcome all the challenges stringed with this illness in order to attain a meaningful life with psoriasis.

P138

The global challenge of stigmatization and discrimination for people with psoriasis: Preliminary results of a survey carried out by the International Federation of Psoriasis Associations and 15 national member associations

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Background: Psoriasis is a chronic, inflammatory disease, affecting approximately three per cent of the world's population. Due to its highly visual and, in severe cases, even disfiguring nature, psoriasis can place a large psychosocial burden on its sufferers.
Aim: This survey was carried out by IFPA and 15 of its member associations to investigate and map how stigma and discrimination affect people with psoriasis in different parts of the world, and also in which areas of society these problems most frequently occur.
Method: The questionnaire was supplied by IFPA in 2011 to its member associations. The questionnaire contained questions on whether or not the respondent had ever experienced stigmatization and/or discrimination and, if so, in what areas of society. Areas given were school, work, family and social relations, and amenities. Multiple choices were possible.
Results: The total number of respondents to the survey was 5,176. The preliminary results show that of the respondents to the question on stigmatization (N = 5,167) 77% answered that they have experienced stigmatization. For the respondents to the question on discrimination (N = 5,137), the share is at 65%. The areas where the respondents reported experiencing stigmatization were primarily at work (36.5% of total), followed by amenities (21%) and school (20.5%); for discrimination: at work (45%), followed by school and amenities (19% respectively). These results confirm that a majority of people with psoriasis at some time suffer from the difficult social problems of stigmatization and discrimination, and also indicate within which areas of society the need for preventive measures is the greatest.
*Participating IFPA members: Argentina, Belgium, Canada, China, Czech Republic, Denmark, Finland, Israel, Mexico, Norway, Slovakia, South Africa, Spain, Sweden, Singapore.

P139

Psoriasis uncovered: the results of two quantitative surveys of psoriasis patients in Australia

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Background: Psoriasis is a multifaceted, systemic chronic inflammatory skin disease that affects 1–3% of the world's population and a similar prevalence in Australia. However, data measuring the impact of psoriasis on Australians is lacking.
Method: Two national quantitative surveys were conducted during 2010 and 2011 among adult Australian psoriasis patients. The 2010 survey assessed medical and physical symptoms; life consequences; and psychosocial impact, while 2011 survey evaluated comorbidities; satisfaction with treatment; cost of treatment; health care resource utilisation; and impact on domains of Health Related Quality of Life (HRQoL).
Results: Thirty-seven percent of patients described their psoriasis as severe, unstable, deteriorating or rapidly deteriorating, with 43% experiencing flare-ups daily. The majority (73%) reported hiding their disease due to feelings of embarrassment and stigmatisation. Psoriasis affected perceptions of sexual attractiveness and resulted in reduced desire for sexual intimacy. Patients' mood changes during flare-ups adversely affected their general health, well-being and personal relationships. Treatment with phototherapy and injectable medications provided highest patient satisfaction. Commonly reported concomitant medical conditions—including joint pain (46%) weight problems (46%) stress (44%) fatigue (37%) depression (32%) and anxiety (31%)—were not treated in most cases. Approximately one-third (34%) of patients with psoriatic arthritis (prevalence: 28%) reported they were not being not treated for their condition.
Conclusions: Survey results confirm that psoriasis greatly affects personal relationships and general well-being, with concomitant conditions often left untreated. This suggests that management strategies must account for the disease's emotional and social impact as well as its physical manifestations. Non-pharmacological therapies such as education, cognitive intervention and psychological support may be worthwhile adjunctive therapies.

Interesting clinical cases

P140

Erectile dysfunction: a rare side effect of methotrexate

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Methotrexate (MTX) is widely used for severe chronic plaque psoriasis. The most common side-effects of MTX are hair loss, nausea, fatigue, vomiting, and transaminase increase. We report a psoriasis patient with recent onset erectile dysfunction while he was on MTX therapy.

Patient: A 39-year-old man with 10-years history of chronic plaque psoriasis was examined for regular follow-up. He was on weekly oral MTX therapy for 4 months. The current dose was 15 mg/week. On examination, he had no psoriatic lesions. His actual complaint was a 2-week history of impotence without any loss of libido. He had no similar problems before, and no other relevant systemic diseases such as diabetes or medications. All blood parameters were normal for regular control of MTX.

We discontinued MTX, and started low-dose cyclosporine therapy. Within 3 weeks, there was no sign of erectile dysfunction.

Discussion: Reduced libido and erectile dysfunction due directly to MTX was reported in very few numbers of case reports. However, reduced libido, defective spermatogenesis, and infertility, with the onset of within days to months are among the side-effects of MTX which manufacturers list.

Although the exact mechanism is not known, it has been shown that MTX blocks the activity of interleukin-1 and interleukin-2 which influence pituitary hormone secretion including prolactin. MTX may also show an inhibitory effect on the production of nitric oxide with reduced activity against vascular smooth muscle. The side effects on sexual functions may be easily forgotten due to many common adverse effects of the drug at the management of the patients on MTX therapy. Clinicians should keep in mind this rare side effect of the drug for their patients currently on that therapy.

P141

Anti-TNF-alpha treatment in a psoriatic patient with concurrent HCV infection

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Background: Treatment of psoriasis with concurrent hepatitis C is a major challenge, since most of systemic treatments are potentially hepatotoxic/immunosuppressants and the treatment for HCV tends to worse psoriasis. We report a case of a patient with hepatitis C, psoriasis and psoriatic arthritis (PsA) successfully treated with anti-TNF-alpha agents.

Case Report: A 72-years-old man with psoriasis since 1983, PsA since 2002 and hepatitis C since 2004 was referred to our outpatient service. Liver biopsy revealed moderate chronic hepatitis with moderate fibrosis, mild activity, without cirrhosis (Metavir A1F3). AST and ALT was respectively 318 and 335 IU/mL. Viral load was 199,277 IU/mL. His PASI was 16.5 and it had already been tried all the topical treatments available, so we started nbUVB. His hepatologist started antiviral treatment (pegylated IFN/ribavirin) which was not successful (viral load of 2,343,289 IU/mL after 6 months), and he had worsening of arthritis and skin lesions. We decided to start treatment with infliximab. He experienced a complete improvement of psoriasis/PsA. After 2 years, due to recurrence of the lesions, we opted to switch infliximab for etanercept. Currently, the patient is in his 3rd year of treatment with etanercept, and in the 5th year with anti-TNF-alpha therapy, without skin lesions and joint pain. Complementary examination showed no significant changes (AST = 42 IU/mL, ALT = 53 IU/mL and viral load of 3,215,440 IU/mL) and it was not reported any side effects.

Discussion: Immunobiologicals agents have been referred as a safe option for treating psoriatic patients infected by HCV. A recent trial conducted by Zein et al. demonstrated that etanercept is effective, safe and well tolerated in those ones. There are also many case reports suggesting that both etanercept and infliximab are effective/safe in these patients, at the recommended doses for healthy ones. The refractory to other treatments and these data encouraged us to try anti-TNF-alpha therapy in our patient. However, one should be aware that current evidence does not allow us to affirm the long-term safety profile of these drugs in patients with chronic HCV infection.

P142

Tinea capitis in two sisters of a "wooly hair" family

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Wooly hair is a hereditary condition, usually presented at birth or infancy. This condition occurs with a genetic linkage of autosomal dominant or recessive, in which there are curly, thick, often heavily pigmented hairs. Microscopically, the hairs are tightly coiled. The condition have been reported with eye, teeth, cardiac anomalies, keratosis pilaris atrophicans, ihtiyosis and deafness, palmoplantar keratoderma and Noonan syndrome.

We report two sisters with wooly hair. They preferred to our clinic at the same time with the same complaints. Engrossingly, both patients simultaneously developed an inflammatory tinea capitis. Our patients have neither a systemic disease nor eye, dental and other skin disorders. In their family, their mother and two sisters and one brother have also wooly hair without any other clinical associations.

To our knowledge, this is the second, describes the association of wooly hair with Tinea capitis. However, in the first report, patients also had other clinical disorders. As a result, we think, presence of tinea capitis in both patients may be explained by the enhanced susceptibility to fungal infection in keratinizing disorders.

P143

Concurrent of progressive macular hypomelanosis and port-wine stain nevus in the same patient

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Progressive macular hypomelanosis is an under-recognized disorder characterized by the presence of numerous ill-defined hypopigmented macules and patches on the trunk of young adults. Although being a common condition, particularly in Fitzpatrick skin types IV-VI, frequently misdiagnosed and treated inadequately with antifungals or topical steroids without any benefit. Port-wine stains result from a progressive ectasia of the cutaneous superficial vascular plexus. This type of birthmark is commonly seen on the face, arms or legs but can also affect other parts of the body. Although not fatal, the psychological impact of having a port wine stain can leave a person shying away from the crowd because of their unique appearance. No case report has been published, simultaneously of both disease in the same person. We report a 25-year-old healthy male, who presented with slowly progressive asymptomatic multiple hypopigmente macules and red lesions on different upper limb. Examination showed erythematous indurated macules and nodules on his left upper limb and several hypopigmente macules on his right upper limb. Histopathological examination of hypopigmented tissue biopsy showed progeressive macular hypomelanosis. This case was presented because of he was first in literature.

P145

A case of multiple cutaneous leismaniasis cured with intramuscular sodium stiogluconate

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Leishmaniasis is a clinically heterogeneous group of diseases, caused by infection with protozoa of the genus Leishmania. Usually lesions are solitary, rarely may be multiple. We report a 44-year-old healty male, resident of Eastern Mediterranean Region of Turkey, who presented with slowly progressive asymptomatic multiple red lesions on different parts of body. Examination showed 15 crusted erythematous indurated plaques and nodules over forearms, left leg, right index finger, left wrist and dorsum of both feet. Histopathological examination of tissue biopsy showed multiple intracellular as well as extracellular leishmania donovan bodies. We treated this patient with intramuscular Sodium Stibogluconate 750 mg per day for a period of 15 days and the lesions showed complete resolution over 2 months of therapy.

P146

Successful treatment of a paradoxical palmoplantar pustulosis with ustekinumab in a patient with psoriatic arthritis

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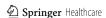
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The anti-TNFs are monoclonal antibodies that are used in the treatment of moderate and severe psoriasis. Paradoxically, there have been reported hundreds of dermatological side effects such as eczema, lymphomatoid papulosis, erythema multiforme, lichenoid reactions and onset of psoriasis or worsening of a previous psoriasis.

We report the case of a 47-year-old woman with a 5 years history of psoriatic arthritis that had been treated with NSAID, methotrexate and prednisone. One year later, cutaneous psoriasis was diagnosed and treated with topical calcipotriol-bethametasone.

Because of worsening of rheumatologic symptoms her rheumatologist decided to start adalimumab 40 mg each 2 weeks. One year later, the patient was sent to our dermatology clinics because of the recent onset of pustules and vesicles in palms and soles, which spread to the trunk and the legs two weeks later. The decision to stop adalimumab was made due to the possibility of a paradoxical pustular psoriasis and we started Ustekinumab 45 mg each 12 weeks. Three months later cutaneous and rheumatologic symptoms were clearly reduced and 1 year later the patient continues with a good response.

Palmoplantar pustulosis (PPP) is a challenging disease for dermatologists for which no therapeutic standard has been defined yet, either when this is associated to an anti-TNF treatment. Until now, several paradoxical reactions to anti-TNF treatment have been reported, and there is not an standarized treatment to follow. In our case, we decided to stop adalimumab to begun ustekinumab. There was good response since week 10 and complete clearence of the

patient at week 16. Nowadays, ustekinumab is not autorized to be used in psoriatic arthritis but several successful cases have been described. In a phase II trial, the use of ustekinumab versus placebo has been compared. The primary endpoint was ACR20 at week 12, achieved by 42% of patients treated with ustekinumab and 14% of patients with placebo. These data opens to the clinics the oportunity to use ustekinumab in psoriatic arthritis, but phase III trial are needed to confirm the phase II trials results.

P147

Annular pustular psoriasis in a patient with pemphigus foliaceus

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Annular pustular psoriasis (APP) is a rare form of psoriasis, characterized by gyrate, annular, or polycyclic lesions with an erythematous, scaly, pustular margin. Many cases of APP have followed benign, low graded, subacute or chronic course. Herein, we report a severe case of APP in a patient with pemphigus foliates. A 56-year-old woman with a history of psoriasis vulgaris and pemphigus foliaceus was admitted to our hospital because of erythema on her trunk, fever, and nausea. The fever was 40 °C, systolic blood pressure was 70 mmHg and she couldn't eat and drink. Some anuular and linear erythemas were localized on her trunk. Histological examination revealed the typical features of pustular psoriasis, consisting of the large spongiform pustules with the migration of neutrophils, parakeratosis and elongation of the rete ridge. She was diagnosed with APP from the characteristic eruptions, the result of biopsy and the other examinations. The annular erythema locally spread outerward and gradually spread to extremities, neck and face with a normal appearance in their centers, and macular scales developed on their margins. The skin lesions were much improved by systemic etretinate (40 mg/day), cyclosporine (200 mg/day) and topical steroid ointment within 2 weeks. Whereas there are many case reports of psoriasis vulgaris with pemphigoid, but to our knowledge, no previous reports of APP with pemphigus foliaceus. This is the first report of APP in a patient with pemphigus foliaceus.

P148

Psoriatic arthritis and Degos diseases: a clinical case

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We report the clinical and histopathologic features of Degos' disease in a patient also affected by psoriatic arthritis and hepatitis B. The patient was admitted to the Hospital for the occurrence of erythematous papules evolving in central necrosis, followed by scleroatrophic lesions with depressed and porcellaneous aspect. The result of hystological studies were in agreement with the suspected Degos disease (DD). This disease is also known as malignant atrophic papulosis or Kohlmeier-Degos-Delort-Tricort syndrome. It was described by Kohlmeier and Degos in 1941 and afterward recognized as a distinct entity (1). The disease has genetic etiology with autosomal dominant inheritance and is characterized by multiple porcelain white atrophic papules, infarctive lesions surrounded by telangiectatic borders, intestinal haemorrhage, pleural effusion. May also be involved the CNS and occasionally other structures. Variants of DD with only cutaneous involvement and associated with collagen vascular disease have been reported. Degos disease has young/adult onset and male prevalence. The gene mutation is unknown (2).
References: 1) Black MM. Malignant atrophic papulosis (Degos disease). Int J Dermatol 1976;5:405–411. 2) Mendelian Inheritance in Man (OMIM 602248).

P149

Coexisting of psoriasis and lupus erythematosus: a diagnostic and therapeutic challenges

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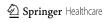
A large number of auto-immune diseases associated with either lupus erythematosus (LE) or psoriasis have been reported, and LE patient may develop skin lesions of subacute lupus erythematosus which are clinically similar to psoriasis. However, the coexistence of these two diseases is uncommon and may be explained by immunological factors or trauma. Here, we report five patients suffering from both lupus erythematosus and psoriasis. The coexistence of these two diseases causes difficulty in choosing the right treatment as phototherapy, which is a prime therapeutic option in psoriasis, may exacerbate lupus erythematosus. On the other hand, antimalarial drugs used in the treatment of LE are responsible for psoriatic flares. Dermatologist and rheumatologist should be aware of such association with regard of the diagnosis and choosing the appropriated treatment.

P150

Successful treatment of a patient with undifferentiated connective tissue disease and psoriasis with ustekinumab

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There are few reports of patients having both psoriasis and CTD (connective tissue disease). Lupus is most frequently described. Treating both may present a challenge, as some treatments for psoriasis may flare CTD (i.e. phototherapy), and some treatments for psoriasis may associate with an onset or flare of CTD (TNF-alpha antagonists). Recently the IL17/23 axis has been reported to play a role in the pathogenesis of lupus. It is postulated that IL-23 and IL-23R are necessary for expansion of pathogenic IL-17-producing T lymphocytes. Increased levels of IL-23 and IL-17 have been noted in patients with SLE, and IL-17 is increased in patients with DLE, SCLE, and SLE.

Ustekinumab is a monoclonal antibody that targets Il-12/IL-23 and has been shown to reduce inflammatory activity and signs and symptoms of psoriasis. It has been approved to treat psoriasis in Canada since 2008. There has been one recent case report of ustekinumab being used to treat subacute cutaneous lupus. We present an additional case of a 20 year-old female with refractory undifferentiated connective tissue disease and psoriasis that has responded to ustekinumab in combination with hydroxychloroquine, mycophenolate mofetil, and prednisone. She had failed methotrexate in the past and developed cyclosporine toxicity requiring hospitalization just prior to the addition of ustekinumab. Ustekinumab has allowed tapering of prednisone and mycophenolate mofetil. It has improved not only her cutaneous and systemic signs of SCLE (subacute cutaneous lupus) including arthritis, headaches, fatigue, and mood. Also significant improvement in many aspects of her psoriasis has been approved with a decrease in DLQI from 15 to 0, %BSA from 10 to 0 and PASI from 5.4 to 0. Prednisone dose has been tapered from 40 mg to 5 mg and mycophenolate mofetil dose decreased to 1,500 mg from 1,750 mg.

Ustekinumab should be considered as a viable alternative treatment for connective tissue disease that is refractory to conventional management, especially in the setting of co-existent psoriasis.

Health economics and health policies

P151

Cost of psoriasis and psoriatic arthritis in Denmark

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Introduction: Few studies have analysed the costs of psoriasis and psoriatic arthritis to society. The purpose of this study is to estimate the societal costs of psoriasis and psoriatic arthritis in Denmark.

Methods: The study was set up as a register-based study applying data from Danish registers which hold exhaustive and detailed registrations on citizens' use of healthcare, medicine, socio-demographics etc. Patients with psoriasis and/or psoriatic arthritis were identified both in the National Patient register using ICD10-codes and in the Register of Medicinal Product Statistics (>1 purchase of calcipotriol or betamethason/calcipotriol). The difference in healthcare costs (i.e. costs in the primary and secondary health care sector and use of prescribed medicine) and loss of productivity between the cohort of patients with psoriasis/psoriatic arthritis and a matched cohort free of psoriasis/psoriatic arthritis was regarded as attributable to the disease. Costs to non-prescribed medicine are not included.

Results: Given the applied approach a total of 66,564 patients were identified. Overall, the total average healthcare costs per patient was estimated to EUR 214 (mild), EUR 1,014 (moderate) and EUR 1,873 (severe) per year corresponding to EUR 32.6 mill. per year in Denmark. Prescribed medicine constitute approximately 26% of these costs.

We found no loss of productivity attributable to psoriasis/psoriatic arthritis for mild disease. However, we found a significant loss of productivity attributable to psoriasis/psoriatic arthritis of EUR 440 per year for moderate and EUR 1,097 per year for severe disease corresponding to EUR 9.3 mill. per year. Adjusting for confounders, the yearly increase in individual gross income did not differ significantly for patients with psoriasis compared to matched controls in the labour market.

Conclusion: The total costs per psoriasis/psoriatic arthritis patient per year are moderate. However, given the relative large number of patients the total costs to society amount to a notable cost level.

P152

One-year cost-efectiveness analysis of etanercept versus adalimumab for moderate-to-severe plaque psoriasis

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Purpose: Biologic therapy has become established as an expensive treatment option in patients with moderate to severe psoriasis. Relatively little is known about the total healthcare cost of treating severe psoriasis with these drugs in daily clinical practice. The aim of this analysis

was to compare the incremental cost effectiveness, from a societal perspective, of etanercept versus adalimumab in patients with moderate to severe psoriasis without associated arthritis attending a reference hospital in Spain.

Methods: Cost-effectiveness analysis was performed on a sequential historical cohort of psoriasic patients attending a tertiary referral severe psoriasis service from 2005 to 2010. Data on hospital resource use (doses, intervals, concomitant treatments, inpatient/outpatient unitary costs, emergency visits, diagnosis hospital resources), drug usage (systemic nonbiologic and biologic psoriasis therapies and supportive drugs), and patient's travel expenses and costs of lost productive work time were extracted from patients' digital histories. Hospital resource use and drug usage (systemic nonbiologic and biologic psoriasis therapies and supportive drugs) were collected for a variable patient-centered period of time from initiation of biologic therapy till the date of drug discontinuation. Effectiveness was measured using the Psoriasis Area and Severity Index (PASI) achieved after 52th-weeks of treatment. Direct and indirect cost analysis, from a societal perspective, were performed. Differences in resource use and associated costs and outcomes were tested using Kruskall–Wallis test for quantitative variables and the X2 with Yates correction for categorical variables.

Results: The primary analysis population comprised 138 patients for etanercept group and 28 patients for adalimumab group. No statistical differences were observed for efficacy nor drug-associated and total healthcare costs between both drugs.

Conclusion: Under the conditions of daily clinical practice in our hospital, treatment of moderate-severe psoriasis with etanercept appear to be as cost-effective as with adalimumab in the first year of treatment.

P153

Impact of psoriasis on work performance

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Objectives: The aim of the study was to evaluate the disadvantages in work caused by psoriasis.

Materials and methods: The sample was based on patients visiting the dermatology outpatient clinic in Turku University Hospital. Out of 498 patients with moderate or severe psoriasis who attended the clinic during the period 1.10.2009–30.9.2010, 262 (52.6%) returned a mailed questionnaire. The subjects were asked how many hours they were on a sick leave (absenteeism) and working while sick (presenteeism) due to (a) psoriasis and (b) other health reasons during the last 4 weeks. They were also asked to list all work tasks negatively affected and job modifications due to psoriasis. The patients assessed their ability to perform

in their daily work using visual analogue scale of 0–100. They were asked to assess their ability to perform at work with psoriasis at the time of the questionnaire and estimate their expected performance in a hypothetical situation if they did not have psoriasis. The differences between the scores with and without psoriasis depicted the level of disadvantage at work caused by psoriasis.

Results: Of the retired (48.9% of the sample), 17.0% felt they were retired due to psoriasis. Those in active work force (51.1% of the sample) reported on average 4.5 h absenteeism and 8.3 h of presenteeism because of psoriasis during the last 4 weeks. Psoriasis caused 27.0% of the total absenteeism and 39.0% of presenteeism. The most frequently mentioned work tasks negatively affected by psoriasis were connected to cosmetic or mental aspect of work, e.g. face-to-face customer contacts. More than a quarter (28.9%) had been forced to modify their work due to psoriasis, most frequently to make the work less irritating for the skin. The average disadvantage score was 15. There was a significant ($p < 0.05$) correlation ($r = 0.253$) between sick leave days and presenteeism and also ($p < 0.01$) with perceived disadvantage and presenteeism ($r = 0.345$). Almost half (48.2%) of workers reported that psoriasis did not affect their performance in work at all.

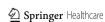*Conclusion:* Psoriasis has a significant, though moderate, adverse effect on the working life of patients.

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Important of psoriasis severity index in social-medical expertise

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Clinical severity of psoriasis and patient's disability status isn't evaluated with international criteria for assessment of this disorder in Georgia. The aim of our study was to conduct the repeated social-medical expertise for objective assessment of psoriasis clinical severity among patients with this dermatosis in Western Georgia. There were recalled 37 patients with diagnosis of "generalized psoriasis" who had given status of important disability before. Commission assessed patients with PASI, BSA, DLQI, there was taken into consideration severe forms of psoriasis, location of eruption, psoriatic arthritis, comorbidity, psychosocial condition, effectiveness of conducted therapy. On based of the received data 24 (65%) patients were kept the status of disability (I group), 13 (35%), were withdrawn this one (II group).

In first group PASI was ranged from 17 to 72 and BSA from 10 to 100%. Erythrodermy was revealed in 3 (12%) patients, eruption on face −12 (50%), on genital organs

7 (29%), psoriatic arthritis −9 (37%), nail injury −17 (71%). DLQI was ranged from 19 to 30.

In second group PASI was ranged from 0.9 to 3.9. BSA wasn't more than 10%, erythrodermy—0, arthralgia—8 (61.5%), psoriatic arthritis—0, nail injury—8 (61, 5%). DLQI was ranged from 13 to 23. Unfortunately 50% from both groups were treated with steroids, 40%—with alternative medicine. Only 8% was treated adequately (PUVA, retinoids, cytostatics).

The social-medical expertise revealed the necessity of international criteria for assessment of clinical severity of psoriasis not only for monitoring of effectiveness of conducted therapy but also for identify of degree of patient's disability status.

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Studying the calcium serum level in patients suffering from psoriasis

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Objective: The recent success of vitamin D and its analogues in the treatment of psoriasis has generated extensive research into the role of vitamin D and calcium in this hyperproliferative skin disease. This study aimed at studying the calcium serum level in patients suffering from psoriasis.

Methods: In this case control study, 98 hospitalized cases with psoriasis were compared with 100 patients who were hospitalized due to other diseases. Two groups were matched for age and gender. The type of psoriasis, age and sex of patients and serum calcium and albumin levels in two groups were documented in a especial questionnaire.

Results: Of all 98 patients with psoriasis, 37.2% were hypocalcemic and 63.7% had normal serum calcium. There was no hypercalcemia. In other group 9% were hypocalcemic, 89 and 2% were normocalcemic and hypercalcemic respectively. In 64.9% of hypocalcemic psoriatic patients, low serum albumin was noted. But all of control group had normal levels.

Conclusion: Hypocalcemia is a risk factor of psoriasis. It is better to include dairy as calcium resource in daily diet of patients suffering from psoriasis.