The Journal of Rheumatology Suppl 2021 June;97:19–23
doi:10.3899/jrheum.201670
First Release April 1 2021

The Journal of Rheumatology

GRAPPA Trainee Symposium 2020: A Summary of Oral and Poster Presentations

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ABSTRACT. The Group for Research and Assessment of Psoriasis and Psoriatic Arthritis (GRAPPA) held a trainee symposium at its 2020 virtual meeting. Dermatology and rheumatology trainees presented their work on psoriasis and psoriatic arthritis. This report briefly reviews the 5 oral presentations and 25 posters presented at the event.

Key Indexing Terms: GRAPPA, psoriasis, psoriatic arthritis

Introduction

Dermatology and rheumatology trainees nominated by the Group for Research and Assessment of Psoriasis and Psoriatic Arthritis (GRAPPA) members were invited to submit abstracts to the GRAPPA Trainee Symposium held at its annual meeting. In 2020, 39 abstracts from 14 countries were submitted on recent research in psoriasis (PsO) or psoriatic arthritis (PsA). Thirty were accepted for presentation following review by senior GRAPPA members and the top 5 abstracts were selected for oral presentations. Dr. Christopher Ritchlin (Rochester, New York, USA) and Dr. April Armstrong (University of Southern California, Los Angeles, USA) moderated the engaging discussion that followed the presentations. The virtual posters were presented in 6 parallel poster tours.

As part of the supplement series GRAPPA 2020, this report was reviewed internally and approved by the Guest Editors for integrity, accuracy, and consistency with scientific and ethical standards.

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AA has received research funding from Boehringer Ingelheim/Parexel, Bristol Myers Squibb, Dermavant, Dermira, Eli Lilly and Company, Galderma, Janssen Ortho Inc., Kyowa Hakko Kirin, Leo Pharma, Pfizer Inc., Sanofi Genzyme, UCB Pharma; and honorariums from AbbVie, Bristol Myers Squibb, Dermavant, Eli Lilly and Company, Janssen Pharmaceuticals, Inc., Leo Pharma, Modernizing Medicine, Novartis Pharmaceuticals Corp., Ortho Dermatologics, Pfizer Inc., Regeneron Pharmaceuticals, Sanofi Genzyme, and Sun Pharma. CTR, HJ, and MLM declare no conflicts of interest.

This paper does not require institutional review board approval.

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Oral Presentations

1. *Dr. Hanna Johnsson (Glasgow, UK).* Dr. Johnsson identified transcriptomic differences between PsO and PsA skin and identified divergences in immunological and skin homeostatic pathways. RNA from 9 healthy controls' (HCs) skin biopsies and 9 paired lesion and uninvolved skin biopsies from patients with PsA were sequenced. Researchers compared significant differentially expressed genes (DEGs) and enriched pathways to publicly available sequencing data from the 16 lesion and uninvolved skin biopsies from patients with PsO without PsA, as well as biopsies from 16 HCs (Gene Expression Omnibus accession #GSE121212). There were 15 DEGs when PsA uninvolved skin was compared to HC skin. PsO uninvolved skin (PsOU) had 124 DEGs compared to HC skin. DEGs from PsOU overlapped with PsO skin lesions (PsOL) but these DEGs were not observed in HCs, and pathway analysis showed enrichment of PsOL pathways. Skin lesions from both conditions had > 6000 DEGs compared to HC skin, with overrepresentation of inflammatory processes, αβT cells, interleukin (IL)-17, and keratinization pathways. Mechanical stimulus pathways were overrepresented among up- and downregulated genes in PsA lesions (PsAL) but not PsOL. Among downregulated genes, water transport pathways were enriched in PsAL, and cell-adhesion pathways were enriched in PsOL.

2. *Dr. Sayam Dubash (Leeds, UK).* Dactylitis is associated with radiographic damage in chronic PsA but its characterization and phenotypical relevance in early PsA has not been determined. To address this question, disease-modifying antirheumatic drug (DMARD)-naïve patients with PsA were assessed for dactylitis. Dactylitis was present in 81 of 177 participants. The median symptom duration was 12 (IQR 6.0–24.0) months in patients with dactylitis and 18 (IQR 10.5–36) months in patients without dactylitis. Patients with dactylitis had significantly higher median tender joint count (TJC), swollen joint count (SJC), and C-reactive protein compared to patients without dactylitis. In patients with dactylitis, the majority had multiple digits affected (63%) in an asymmetrical distribution (64%). A total of 214 dactylitic digits were assessed and 68.2% were toes. Ultrasonography (US) identified a significantly higher number

of joints with US synovitis (greyscale ≥ 2, power Doppler ≥ 1) and erosions in patients with dactylitis than in those without. The authors concluded that dactylitis is a clinical indicator for an aggressive PsA phenotype and that longitudinal follow-up will determine if dactylitis represents poor prognosis at the very early disease stage.

3. *Dr. Renée Fiechter (Amsterdam, the Netherlands)*. Targeting IL-12p40/IL-23p40 with ustekinumab (UST) effectively reduces clinical disease activity in PsA, and the authors investigated the cellular and molecular pathways underlying this. Eleven patients with PsA were treated with UST and 8 completed the 24-week clinical follow-up. The primary clinical endpoint of the American College of Rheumatology (ACR) 20 was achieved by 6 of 11 patients at Week 12, and by 3 of 8 patients at Week 24. Synovial biopsies were taken at baseline, Week 12, and Week 24. The number of CD68+ sublining macrophages reduced significantly at Week 12 compared to baseline. No other immune cells changed significantly. Matrix metalloproteinase-3 was significantly downregulated at week 12 by quantitative PCR analysis, but IL-17A, IL-17F, and tumor necrosis factor (TNF) were not.

RNA sequencing of 7 paired synovial samples identified 178 DEGs between baseline and Week 12. Pathway enrichment analysis showed overrepresentation of downregulated DEGs in chemotaxis, cell division, angiogenesis, and mitogen-activated protein kinase signaling. The wingless signaling pathway was overrepresented among upregulated genes. The gene expression profiles of ACR20 responders and nonresponders seemed different, with more DEGs in responders at Week 12.

4. *Dr. Sahil Koppikar (Toronto, Ontario, Canada*). The aims of this cohort study were to determine the incidence and risk factors for heart failure (HF) in patients with psoriatic disease (PsD), and to describe their electrocardiographic (ECG) and transthoracic echocardiographic (TTE) findings. The primary outcome was the first event of HF. A total of 1994 patients with PsD and 22,437 patient-years were analyzed. During follow-up, 64 new HF events occurred. Of the 41 cases with available medical records, there were 19 cases with ischemic HF and 22 cases of nonischemic HF. In all events, the most common ECG findings were atrial fibrillation (22%), bundle branch blocks (29%), and pathologic Q waves (33%). TTE revealed systolic dysfunction in one-third of patients and diastolic dysfunction or preserved ejection fraction in two-thirds of patients. In multivariate analysis, the following variables were independent predictors for all HF events: ischemic heart disease ($P < 0.001$), adjusted mean (AM)-TJC ($P < 0.05$), AM-SJC ($P < 0.05$), AM-erythrocyte sedimentation rate ($P < 0.05$), and Health Assessment Questionnaire (HAQ; $P < 0.05$). Minimal disease activity (MDA) state was protective for all HF and ischemic HF ($P < 0.05$). The authors concluded that increased risk of HF is associated with a combination of traditional cardiovascular risk factors and disease activity.

5. *Dr. Michelle L.M. Mulder (Nijmegen, the Netherlands)*. This study investigated whether implementation of the PsA Disease Activity Score (PASDAS) in routine practice is of added value in an already tightly monitored cohort. Data from the first visits of 855 patients with PsA, after implementation of the PASDAS in a tightly monitored cohort (i.e., Disease Activity Score in 28 joints [DAS28] was provided as an anchor), were evaluated. Differences in clinical outcomes between subgroups of patients, using established cutoffs for disease activity status (i.e., very low [VLDA], low [LDA], moderate [MDA], and high [HDA] disease activity) were examined. With the PASDAS, 53.1% of patients were in VLDA or LDA while 39.1% and 7.8% were in MDA and HDA, respectively. Using DAS28, 77.5% of patients were in VLDA/LDA. Patients who reached both DAS28 and PASDAS VLDA/LDA status (n = 445, 52.0%) were compared with those that reached only DAS28 VLDA/LDA status (n = 218, 25.5%). For patients only in DAS28 VLDA/LDA, significantly worse scores were found in several important outcomes, such as swollen joints, enthesitis, visual analog scale, patient and physician global assessment, and disability scores, all $P < 0.001$. PASDAS implementation uncovered relevant residual disease activity in one-quarter of patients, underscoring the potential value of PASDAS measurements in PsA clinical care.

Poster Presentations

1. *Dr. Yasser G. Abdelhafez (Sacramento, California, USA).* Dr. Abdelhafez hypothesized that total-body 18F-fluorodeoxyglucose positron emission tomography/computed tomography (FDG PET/CT) scanning, which has a higher sensitivity than standard PET/CT, could be utilized as a diagnostic test for PsA. The study identified enthesitis at multiple sites in 8 patients with PsA. Synovitis, nail matrix inflammation, dactylitis, and spondylitis were also detected. Patients were assessed clinically using the Disease Activity Index for PsA (DAPSA) score. There was 68% agreement between 544 joints assessed clinically and 18F-FDG PET/CT scan results. The authors concluded that pathological features of PsA were identified by 18F-FDG PET/CT and that there was a fair agreement with clinical measures.

2. *Dr. Francesco Bellinato (Verona, Italy).* Dr. Bellinato compared the effect of methotrexate (MTX) and secukinumab (SEC) treatment on metabolic variables in patients with PsO and concomitant metabolic syndrome. Sixty-five patients were recruited, treated 1:1 with MTX or SEC, and assessed at baseline, 6 months, and 12 months. Two participants discontinued MTX due to elevated liver enzymes. Triglyceride levels improved in 21 of 32 patients treated with MTX. There was no change in waist circumference, BMI, blood pressure, or fasting glucose in either group. The PsO area severity index (PASI)-75 and PASI90 response rates were significantly higher in the SEC group at 97% and 76% respectively, at 12 months, compared to 62.5% and 28% in the MTX group, respectively.

3. *Dr. Claudia Camargo (Rio de Janeiro, Brazil).* Dr. Camargo evaluated the sustained therapeutic response after biologic treatment interruption in patients with PsO. Forty patients treated with infliximab (IFX), adalimumab (ADA), etanercept (ETN), or UST discontinued treatment. The main reasons were patient abandonment (58%) and bureaucratic issues (40%). Patients

treated with UST (n = 8) had the longest drug-free remission with response sustained for 84 weeks. Patients with ≥ 3 comorbidities had shorter drug-free remission than patients with no or 1 comorbidity, and smoking was associated with a shorter time in remission in patients with PsA.

4. *Dr. Ming Li Chen (Taichung, Taiwan).* Dr. Chen presented epidemiological evidence of polycystic ovarian syndrome (PCOS) and PsO risk. Data on 4707 patients diagnosed with PCOS between 2000 and 2012 and on 18,828 matched controls were collected from the National Health Insurance Research Database in Taiwan. The incidence rate of PsO was 0.7 per 1000 person-years in the PCOS cohort and 0.34 per 1000 person-years in the control cohort. The adjusted HR of PsO in patients with PCOS was 2.07 (95% CI 1.25–3.43). There were higher rates of asthma, chronic obstructive pulmonary disease, chronic liver disease, diabetes mellitus, hypertension, hyperlipidemia, depression, and sleep apnea in the PCOS group, but comorbidities did not modify the HR of PsO in patients with PCOS.

5. *Dr. Erin Chew (Baltimore, Maryland, USA).* Dr. Chew found the Patient Reported Outcomes Measurement Information System—Physical Function profile (PROMIS-PF) to be interchangeable with the HAQ-Disability Index (HAQ-DI) in the calculation of MDA in PsA. PROMIS-PF assesses physical function on an extended spectrum of abilities compared to HAQ-DI. The shortened version, PROMIS-PF4a, and the computer-adaptive test, PROMIS-PF Bank, were compared to the HAQ-DI in 100 patients with PsA who were followed up longitudinally. MDA was defined as HAQ-DI ≤ 0.5 and PROMIS-PF ≥ 41.3. The Cohen κ statistics between the HAQ-DI–based MDA definition and the PROMIS-PF–based definition was > 0.8 over time.

6. *Dr. María Julia Cura (Buenos Aires, Argentina).* Dr. Cura evaluated teleclinics performed as part of Project ECHO Psoriasis Argentina. Sixty teleclinics were conducted in the study period (June 1, 2015–July 31, 2019), and 158 patients with PsO were discussed. The most common reasons for referral were changes in ongoing treatments (n = 63), to reassure the current treatment approach (n = 47), and to decide on *de novo* treatments (n = 46). A change in treatment approach was suggested in 70% of patients, and in 66% cases this was followed. The main barriers to following recommendations were adherence by the patient (63%) and health-service access issues (32%). The authors concluded that telementoring is a useful instrument in improving PsO care in underserved areas.

7. *Dr. Gabriele De Marco (Leeds, UK).* Dr. De Marco presented results from the multicenter Italian study, screening strategies for rHeumatological rEferral of psoRiatic subjects Aimed to disCLosE pSoriatic arthritis (HERACLES). The 8-question questionnaire was completed by dermatologists at 9 participating centers. All patients were referred for rheumatological assessment and invited to complete the following PsA screening questionnaires: Toronto Psoriatic Arthritis Screen, Physical Activity Scale for the Elderly, PsO Epidemiology Screening Tool, and Early Arthritis for Psoriatic Patients. In total, 759 patients were enrolled by their dermatologists and 524 attended for rheumatological assessment. PsA was diagnosed in 73 patients. The area under the receiver-operating characteristic curve of the HERACLES questionnaire was 0.775 and was not significantly different to the other 4 PsA screening questionnaires.

8. *Dr. Tali Eviatar (Tel Aviv, Israel).* Dr. Eviatar compared drug survival of SEC and TNF inhibitors (TNFi) in patients with PsA. There were 709 treatment episodes recorded for 404 patients with PsA in the Israeli registry of inflammatory diseases from January 2010 to November 2019. Of them, 90 (22%) patients were treated with SEC. Patients treated with SEC were older and had longer disease duration than TNFi-treated patients. They were less likely to be biologic-naïve. The drug survival of SEC was comparable to that of TNFi when used as the first biologic but had a longer drug survival when used as the second or third biologic. Neither combination treatment with MTX nor BMI affected SEC drug survival.

9. *Dr Júlia Boechat Farani (Rio Grande do Sul, Brazil).* Dr. Farani evaluated the effect of PsA disease activity on long-term HAQ-DI and identified predictors of achieving a minimum clinically important difference (MCID) in HAQ-DI, defined as an improvement of at least 0.35. This retrospective study included 73 patients with PsA followed up for at least 4 years. The change in DAPSA and change in HAQ-DI correlated over 3 years (r_s = 0.60, P < 0.001). The median DAPSA reduced significantly over time, but the median change in HAQ-DI was smaller than the MCID. A clinically significant improvement in HAQ-DI was achieved in 37% of patients. Younger age, non-White ethnicity, and a higher HAQ-DI score at baseline were predictors of achieving MCID.

10. *Dr. Fernanda de Araújo Ferreira (Rio de Janeiro, Brazil).* Dr. de Araújo Ferreira evaluated the allelic frequency of HLA genes and killer cell Ig-like receptor (KIR) haplotypes in patients with PsO and geographic tongue (GT), which is the oral lesion most strongly associated with PsO. The study included 30 patients with GT without PsO, 58 patients with PsO, and 86 HCs. The allele HLA-B*57 was significantly associated with PsO and HLA-B*58 with GT. HLA-B*57 and HLA-B*58 are split antigen serotypes recognized by the same B17 broad antigen. There was no difference in frequencies of the KIR genes *KIR2DS2* and *KIR3DS1* and their respective HLA ligands, *C1 and *Bw4, in PsO and GT.

11. *Dr. Jacqueline Frost (New York, New York, USA).* Dr. Frost presented ongoing work that aims to identify and perform functional analyses of *de novo* mutations associated with PsO and PsA in children. It followed the identification of an activating mutation in *CARD14*, which functionally led to enhanced nuclear factor-κB signaling. The study recruited trios of children with moderate-to-severe PsO and their parents without PsO. Sanger sequencing was performed to identify *CARD14* mutations, and exome sequencing to identify *de novo* mutations in novel genes.

Analysis of 20 trios were presented, including 3 children with PsA. This identified 24 *de novo* mutations, 67% of which were nonsynonymous.

12. *Dr. Amir Haddad (Haifa, Israel).* Dr. Haddad estimated drug survival of biologics in patients with PsA. The authors identified 2301 patients with PsA with 2958 treatment episodes from the Clalit Health Services database between January 1, 2002, and December 31, 2018. Only 20% of patients remained on the same agent after 5 years. The TNFi ETN, ADA, IFX, and golimumab (GOL) were available as first-line biologics, and drug survival did not differ between them. As a second-line biologic, SEC had longer drug survival than all TNFi except GOL. Adjusted Cox proportional hazard model identified females and smokers as more likely to be nonpersistent, whereas concomitant use of MTX or steroids was associated with longer treatment survival.

13. *Dr. Paras Karmacharya (Rochester, Minnesota, USA).* Paras Karmacharya presented a study that assessed the trends in annual incidence of PsA in Olmsted County and compared the point prevalence of PsA (in 2000 and 2015). A total of 169 incident cases of PsA were found. Incidence rate was relatively stable from 2000–2017 compared to 1970–1999, when a rise in incidence was observed. In contrast to the increase in PsA incidence in both sexes (4.3% per yr) from 1970 to 1999, no significant increase in incidence was observed in men (risk ratio [RR] 0.98/yr) or women (RR 1.04/yr) from 2000 to 2017. There was a suggestion of sex differences in the incidence trends (interaction $P = 0.08$), indicating that the patient mix in PsA may be changing to female predominance.

14. *Dr. Fazira Kasiem (Rotterdam, the Netherlands).* Fazira Kasiem questioned whether PsO deserves more attention from rheumatologists and what the effect of PsO severity is on health-related quality of life (HRQOL). Two measures were used to assess HRQOL: a general measure (Medical Outcomes Study 36-item Short Form survey [SF-36]) and a skin-specific measure (Skindex-17). In total, 435 (newly diagnosed) patients with PsA were included in this study; most of them had mild PsO (PASI < 7) at baseline and maintained this throughout the year. The HRQOL measured with the Skindex-17 worsened when PsO severity increased. This worsening in HRQOL was not seen when the SF-36 was used. The authors concluded that these findings indicate that rheumatologists should ask their patients with PsA specifically about their skin complaints and that skin involvement in early PsA is mostly mild.

15. *Dr. Luciano Lo Giudice (Buenos Aires, Argentina).* Luciano Lo Giudice hypothesized that treatment with biologics might prevent PsA. He conducted a retrospective study that included patients with Pso without PsA (N = 1626). Patients were classified in 3 groups: topics, conventional DMARDs (cDMARDs), and biologic DMARDs (bDMARDs). Overall, 1293 (79.5%) patients were treated with topics/phototherapy, 229 (14%) with cDMARDs, and 104 (6.4%) with biologics. During follow-up, 148 patients developed PsA (138 under topics, 8 under cDMARDs, and 2 under bDMARDs). The incidence of PsA in patients with PsO in the biologics group was significantly lower than that of patients in the cDMARDs group ($P = 0.02$), but not in patients in the topical treatment group ($P = 0.06$). These results suggest that treatment with bDMARDs in patients with PsO may reduce the risk of developing PsA.

16. *Dr. Ana Elísabet López-Sundh (Santander, Spain).* Ana Elísabet López-Sundh determined the frequency of anti-TNF–induced antinuclear antibodies (ANAs) in PsA (n = 87) and PsO (n = 112). The authors demonstrated that the incidence of anti-TNF–induced ANAs was slightly higher in the PsO group (19.6%) compared to the PsA group (17.2%). In addition, in the PsA group, 11 of 15 (73%) of the patients with positive ANAs developed systemic lupus erythematosus (SLE). None of the patients in the PsO group developed SLE. The authors concluded that anti-TNF treatment may induce ANAs during their use in a similar way in both PsA and PsO but that patients with PsA are at a higher risk of secondarily developing SLE.

17. *Dr. Beverly Ng (Westmead, New South Wales, Australia).* Beverly Ng explored which factors predict exercise participation. Patients with a diagnosis of PsA (n = 62), rheumatoid arthritis (RA; n = 83), or osteoarthritis (OA; n = 60) were recruited. Self-reported physical activity was measured by the International Physical Activity Questionnaire-Short Form and the Self-Efficacy for Exercise (SEE). No significant difference in self-reported physical activity was found between the groups. A multivariate regression model showed that self-efficacy for exercise, level of education, and patient-reported global, pain and function were significantly associated with levels of self-reported exercise. In patients with PsA, univariate analysis showed that coexistent fibromyalgia (FM), age, and self-efficacy for exercise were predictors of physical activity levels, with multivariate analysis showing age as the only significant predictor.

18. *Dr. Eliran Pasand (Afula, Israel).* Eliran Pasand evaluated the serum concentrations of the proangiogenic factor extracellular matrix metalloproteinase inducer (EMMPRIN) and the anti-angiogenic factors endostatin and thrombospondin-1 (TSP-1) in patients with PsA vs RA or HCs. Patients with active PsA (N = 62), patients with PsA in remission (N = 39), patients with active RA (N = 33), and HCs (N = 33) were included. Levels of EMMPRIN and endostatin were significantly elevated in active PsA compared to RA and HCs. TSP-1 levels were reduced in all experimental groups relative to the control group ($P < 0.001$), whereas the EMMPRIN/TSP-1 ratio was significantly higher in patients with active PsA or RA relative to the control group ($P < 0.0001$ and $P < 0.001$, respectively). Moreover, this ratio was also significantly elevated in patients with active PsA vs patients with PsA in remission ($P < 0.05$).

19. *Dr. Ari Polacheck (Tel Aviv, Israel).* Ari Polacheck investigated whether US can be used as an objective tool to evaluate disease activity in patients with PsA with concomitant FM syndrome (FMS). US evaluation was performed in 145 patients

with PsA (37 with FMS, 108 without FMS). Patients with FMS had increased scores for almost all the clinical measures. On the other hand, the US scores showed no significant difference between the 2 groups. The US score significantly correlated with each of the clinical composite measures ($P < 0.05$) in the PsA without FMS group, but not in the PsA with FMS group. Multivariable regression analysis showed that FMS was significantly associated with higher clinical scores ($P < 0.001$), but not with the US score. The authors suggested that US has a significant additional value over composites scores in the assessment of disease activity in patients with PsA with FMS.

20. *Dr. Thamiles Batista Ronconi (Rio de Janeiro, Brazil).* Thamiles Batista Ronconi hypothesized that GT may represent an oral manifestation of PsO. The aim of this study was to assess the association between GT and PsO through evaluation of the pattern of cytokeratin-6, cytokeratin-16, and cytokeratin-17, as well as vascular factors. Patients with PsO with GT (n = 15) and patients with PsO without GT (n = 20) were evaluated. Oral and cutaneous tissue sections were prepared for immunohistochemical and vascular analysis. Immunohistochemical analysis revealed a similar distribution of the cytokeratin and vascular changes in the skin and oral lesions, with quantitatively higher correlation of histologic findings between GT in patients with PsO and skin lesions. These observations reinforce the association between GT and PsO.

21. *Dr. Silvia Scriffignano (Campobasso, Italy).* Silvia Scriffignano performed a study with the aim of assessing whether the Patient Acceptable Symptom State (PASS) can be used as an instrument to capture the overall disease status in patients with PsA. Patients in PASS state showed significantly lower overall mean DAPSA scores than those not in PASS state. Further, patients in PASS state showed a significantly lower level of systemic inflammation, lower Leeds Enthesitis Index, a significant lower impact of disease, lower pain, and better function than patients who were not in PASS. A moderate-to-good agreement was found between PASS and MDA, DAPSA LDA, and PsA Impact of Disease score ≤ 4. The authors concluded that the PASS is able to distinguish disease activity/functional status in patients with PsA.

22. *Dr. Zhenrui Shi (Sacramento, California, USA).* Zhenrui Shi used an IL-23 minicircle (IL-23 MC) DNA–based murine model with features of PsD and PsA and determined that Western diet (WD) exacerbated not only IL-23–mediated skin inflammation, but joint inflammation as well. WD-fed C57BL/6 mice exhibited markedly enhanced skin inflammation vs control diet (CD)–fed mice. Strikingly, joint inflammation was also exacerbated in WD-fed mice (e.g., higher incidence of dactylitis, increased mRNA levels of cytokines in foot tissue). Similar results were found using autoimmune-prone B10.RIII mice with the same experimental strategy. C57BL/6 mice switching from WD to CD showed remarkable improvement in skin and joint inflammation when compared to those maintained on WD diets. These results support the critical role of a dietary component in the pathogenesis of PsD and PsA.

23. *Dr. David Simon (Erlangen, Germany).* David Simon performed a study to investigate whether the presence of structural entheseal lesions (SEL) in patients with PsO increases the risk for progression to PsA. Of the 114 patients with PsO (without evidence of PsA at baseline), 24 developed PsA during follow-up. Patients with SEL (N = 41) were at higher risk of developing PsA compared to patients without SEL (HR 5.10, $P = 0.008$). Further, while patients without arthralgia and without SEL had a very low progression rate to PsA (1/29), patients with arthralgia but no SEL showed higher progression (5/33). Presence of SEL further enhanced the risk for progression to PsA both in the absence (6/16) and presence (6/14) of arthralgia, with the highest progression rate in those subjects with both arthralgia and SEL ($P < 0.001$). The authors conclude that the presence of SEL is associated with an increased risk of developing PsA in patients with PsO.

24. *Dr. Marina Slobodkin (Tel Aviv, Israel).* Marina Slobodkin explored the level of native and citrullinated PsOP27 antibodies in serum and synovial fluid (SF) of patients with PsA compared to RA and OA. PsOP27 levels in SF were found to be significantly higher in patients with PsA and RA compared to patients with OA. In patients with PsA, a significant correlation was observed between the SF levels of PsOP27 and measures of disease activity. Because the levels of PsOP27 in patients with OA were low compared to those with RA and PsA, this may suggest that PsOP27 may be a potential biomarker for inflammatory arthritis. Further, the authors suggest that antibodies to PsOP27 in SF may be a potential biomarker in PsA, both for diagnosis and disease assessment.

25. *Dr. Juliette Yedimenko (Cleveland, Ohio, USA).* Juliette Yedimenko examined the relationship between LDA and remission (REM) in patients with PsA (n = 227) using disease activity measures (i.e., MDA/VLDA, Clinical Disease Activity Index [CDAI], DAPSA) and their relationship to Patient Reported Outcomes (PROs; e.g., PROMIS Global Health [GH] questionnaire, Routine Assessment of Patient Index Data 3 [RAPID-3]). Patients meeting VLDA, CDAI REM, and DAPSA REM had significantly higher PROMIS-GH physical and mental T scores (reflecting better outcomes) and better fatigue T scores compared to those meeting MDA, CDAI, and DAPSA LDA. The majority of the patients achieving VLDA, CDAI REM, or DAPSA REM had RAPID-3 scores indicating low severity or remission, while > 50% of patients in MDA/LDA reported moderate-to-severe impairment ($P < 0.001$). In conclusion, PROMIS and RAPID-3 measures differentiated LDA from REM as measured by MDA/VLDA, CDAI, and DAPSA.

Conclusion

The GRAPPA members really appreciated the scientific work of the trainees and the interesting discussions that followed. The next GRAPPA trainee symposium will be held in July 2021 in Dublin, Ireland.