patients without cataract ($p=0.034$). Analysis of GC treatment effect on co-morbidities revealed a significant increase in prevalence of diabetes (after 3 months) and cataract (after 5 years) compared to baseline. BMI was significantly higher after one year and five years of GC treatment. PMR patients with cataract at baseline required longer treatment with GCs ($p=0.023$). Presence of other metabolic features at the time of GCA or PMR diagnosis did not affect the treatment duration (Figure 1). **Conclusion:** Newly-diagnosed GCA and PMR patients did not appear to have a healthier metabolic profile than HCs. As expected, GC treatment resulted in the development of an unhealthier metabolic profile in GCA patients. In PMR patients, the presence of cataract at baseline was predictive for a prolonged treatment period which could be explained by higher ESR levels in PMR patients with cataract. Together, our findings emphasize the importance of novel GC sparing therapeutic agents and personalized medicine in GCA and PMR.

REFERENCES:

- [1] Buttgeit F, et al. Prevention of glucocorticoid morbidity in giant cell arteritis. *Rheumatol (United Kingdom)*. 2018.
- [2] Ungprasert P, et al. Lower body mass index is associated with a higher risk of giant cell arteritis: A systematic review and meta-analysis. *Ann Transl Med*. 2015.

Disclosure of Interests: Idil Esen: None declared, Philip Therkildsen: None declared, Berit Dalsgaard Nielsen: None declared, Anna van t Ende: None declared, Annemieke Boots Consultant of: Grunenthal, Peter Heeringa: None declared, Ellen-Margrethe Hauge: None declared, Elisabeth Brouwer Speakers bureau: Roche, fees paid to UMCG, Yannick van Sleen: None declared

DOI: 10.1136/annrheumdis-2021-eular.2425

OP0068

EFFICACY AND SAFETY OF TNF- α ANTAGONISTS AND TOCILIZUMAB IN TAKAYASU ARTERITIS: MULTICENTER WORLDWIDE RETROSPECTIVE STUDY OF 209 PATIENTS

A. Mekinian¹, L. Biard², L. Dagna³, P. Jégo⁴, C. Salvarani⁵, M. Sergey⁶, O. Espitia¹, S. Sciascia⁷, P. Hernan⁸, P. Cacoub¹, O. Fain¹, D. Saadoun⁹ on behalf of TAK FRENCH GROUP. ¹Saint Antoine, Internal Medicine, Paris, France; ²Saint Antoine, SDF, Paris, France; ³Saint Antoine, QF, Paris, Italy; ⁴Saint Antoine, SFD, Paris, France; ⁵Saint Antoine, Internal Medicine, Italy, Italy; ⁶Saint Antoine, Internal Medicine, Moscow, Russian Federation; ⁷Saint Antoine, Internal Medicine, Paris, Italy; ⁸Saint Antoine, Internal Medicine, Paris, Spain; ⁹Pitie, Internal Medicine, Paris, France

Background: In this large worldwide TAK registry, we report 209 patients treated with TNF- α antagonists and tocilizumab aiming to compare their safety and efficacy, and determine the predictive factors of treatment response and relapse.

Objectives: To assess safety and efficacy of TNF- α antagonists and tocilizumab in patients with Takayasu arteritis (TAK).

Methods: We conducted a retrospective multicenter study in referral centers from France, Italy, Spain, Israel, Japan, Tunisia and Russia about biological-targeted therapies in TAK during the period from January 2017 to September 2019 for the data collection.

Results: Two-hundred nine patients with TAK [median age of 29 years [7-62], and 186 (89%) females] were included. They received either TNF- α antagonists [$n=132$ (63%) with 172 lines; infliximab ($n=109$), adalimumab ($n=45$), golimumab ($n=8$), certolizumab ($n=6$) and etanercept ($n=5$)], or tocilizumab [$n=77$ (37%) with 121 lines; intravenous and subcutaneous in 95 and 26 cases, respectively]. A complete response at 6 months was evidenced in 101/152 (66%) on TNF- α antagonists and 75/107 (70%) on tocilizumab, respectively. Age ≥ 30 years [OR= 2.09 [1.09; 3.99]] was associated with complete response, whereas vascular signs [0.26 [0.1; 0.65]], baseline prednisone ≥ 20 mg/day [0.51 [0.28; 0.93]] were negatively associated with the complete response to TNF- α antagonists or tocilizumab. During a median follow-up of 36 months, 103 relapses were noted. Supra-aortic branches and thoracic aorta involvements [HR 2.44 (1.06; 5.65) and 3.66 (1.18; 11.4), respectively], and systemic signs at baseline [HR 2.01 (1.30; 3.11)] were significantly associated with relapse. The cumulative incidence of treatment discontinuation and relapse were similar in TNF- α antagonists and tocilizumab. Fifty-eight (20%) adverse effects occurred on biological-targeted therapies of whom 37 (21%) and 21 (17%), ($p=0.4$) on TNF- α antagonists and tocilizumab, respectively.

Conclusion: This large multicenter study shows high efficacy of biological-targeted treatments in refractory TAK. Efficacy, relapse and drug retention rate were equivalent with TNF- α antagonists and tocilizumab.

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2021-eular.2843

OP0069

THE ROLE OF POSITRON EMISSION TOMOGRAPHY/COMPUTED TOMOGRAPHY (PET/CT) IN DISEASE ACTIVITY ASSESSMENT IN PATIENTS WITH LARGE VESSEL VASCULITIS

E. Galli¹, F. Muratore², L. Boiardi², M. I. Casali³, A. Versari³, G. Besutti⁴, L. Spaggiari⁴, P. Mancuso⁵, P. Giorgi Rossi⁵, C. Salvarani^{1,2}. ¹University of

Modena and Reggio Emilia, Department of Rheumatology, Modena, Italy; ²Rheumatology Unit, Azienda USL-IRCCS di Reggio Emilia, Department of Specialistic Medicine, Reggio Emilia, Italy; ³Nuclear Medicine Unit, Azienda USL-IRCCS di Reggio Emilia, Department of Oncology and Advanced Technology, Reggio Emilia, Italy; ⁴Radiology Unit, Azienda USL-IRCCS di Reggio Emilia, Department of Imaging and Laboratory Medicine, Reggio Emilia, Italy; ⁵Epidemiology Unit, Azienda Unità Sanitaria Locale-IRCCS di Reggio Emilia, Department of Epidemiology Service, Reggio Emilia, Italy

Background: Assessment of disease activity in large vessel vasculitis (LVV) is still an unmet need. PET Vascular Activity Score (PETVAS) is a new composite score aimed at quantifying the overall inflammatory burden by adding together PET qualitative visual scores (0-3, according to Meller) in nine selected arterial regions (1). In two independent cohorts, PETVAS showed to be effective in discriminating between patients with clinically active and inactive vasculitis.

Objectives: To assess the role of PET/CT and the performance of PETVAS in differentiating between clinically active and inactive vasculitis in a single center cohort of patients with LVV.

Methods: One-hundred patients with radiographic evidence of LVV were enrolled by the Rheumatology Unit of Reggio Emilia Hospital (Italy) between June 2007 and September 2020. All subjects underwent full clinical, laboratory and imaging evaluation (including PET/CT) at baseline, annually and when a relapse was suspected. Medical records of recruited patients were retrospectively reviewed from baseline visit until 30 September 2020, last follow-up or death.

For each PET/CT test, the nuclear medicine physician's interpretation of scans (active/inactive vasculitis) was compared with disease activity clinical judgement (active disease/remission). The latter was based on comprehensive signs/symptoms assessment, laboratory and imaging (excluding PET/CT) data and was considered the reference standard.

For each PET/CT scan, PETVAS score was calculated and its performance in discriminating between patients with active and inactive disease was compared to clinical judgement.

Results: In the study period 100 LVV patients [51 giant cell arteritis (GCA), 49 Takayasu arteritis (TAK)] underwent a total of 474 PET scans. Nuclear medicine physician's interpretation of PET/CT was able to discriminate between patients in clinically active LVV ($n=167$) and those in clinical remission ($n=307$) with a sensitivity of 60% (95% CI, 51 to 69%) and a specificity of 80% (95% CI, 75 to 84%). The following sensitivity and specificity values were found in LVV subgroups: 73% (95% CI, 59 to 84%) and 77% (95% CI, 70 to 83%) for TAK, and 51% (95% CI, 38 to 63%) and 82% (95% CI, 76 to 88%) for GCA, respectively.

LVV patients with higher PETVAS scores were more frequently classified as having active disease: age and sex adjusted OR 1.15 (95% CI, 1.11 to 1.19), $p<0.0001$. Similar results were found in LVV subgroups, [age and sex adjusted OR 1.12 (95% CI, 1.08 to 1.17) for GCA and 1.22 (95% CI, 1.14 to 1.31) for TAK, all $p<0.0001$].

The area under receiver operating characteristics (ROC) curve (AUC) of PETVAS in differentiating between clinically active and inactive LVV was 0.73 (95% CI, 0.68 to 0.79). Similar results were found in LVV subgroups, [0.70 (95% CI, 0.62 to 0.78) for GCA, and 0.79 (95% CI, 0.71 to 0.87) for TAK]. A PETVAS ≥ 10 provided 61% sensitivity and 80% specificity in differentiating between clinically active and inactive LVV (52% sensitivity and 82% specificity in GCA subgroup and 73% sensitivity and 78% specificity in TAK subgroup).

Conclusion: In our cohort PET/CT has shown to be useful in monitoring LVV disease activity.

PETVAS seems to be a reliable tool in helping clinicians to discriminate between LVV patients with active disease and those in remission.

REFERENCES:

- [1] Grayson PC, Alehashemi S, Bagheri AA, Civelek AC, Cupps TR, Kaplan MJ, Malayeri AA, Merkel PA, Novakovich E, Bluemke DA, Ahlman MA. 18 F-Fluorodeoxyglucose-Positron Emission Tomography as an Imaging Biomarker in a Prospective, Longitudinal Cohort of Patients with Large Vessel Vasculitis. *Arthritis Rheumatol*. 2018 Mar;70(3):439-449. doi: 10.1002/art.40379. Epub 2018 Feb 6. PMID: 29145713; PMCID: PMC5882488.

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2021-eular.3713

OP0070

ONSET TO DIAGNOSIS TIME PREDICTS SURVIVAL RATE IN TAKAYASU ARTERITIS

A. Popov¹, I. Borodina², L. Shardina³. ¹Ural State Medical University, Hospital Therapy and Urgent Medical Care Service, Ekaterinburg, Russian Federation; ²Sverdlovsk Regional Clinical Hospital 1, Therapy, Yekaterinburg, Russian Federation; ³Ural State Medical University, Higher Medical Nurse and Social Education, Yekaterinburg, Russian Federation

Background: Takayasu arteritis (TA) is large vessel vasculitis. In spite of relatively high 5 to 15 years survival rate, TA affects young persons and causes major cardiovascular events, disability and preterm deaths [1]. Nowadays, though new

high-resolution visualization and effective treatment options are available, quite a large number of TA patients remain undiagnosed and untreated for years [2].

Objectives: To assess the influence of timely TA diagnosis and treatment initiation on the survival rate and cardiovascular events risk.

Methods: A retrospective cohort study included 183 patients (139 females, 44 males), enrolled during the period from 1979 to 2018 after TA diagnosis verification according to ACR1990 criteria [3]. All subjects have been followed up at the Sverdlovsk Regional Clinical Hospital 1. Cox regression model was used to compare survival rate.

Results: By enrollment, females median age was 35 [25%-75%: 24 - 44] and in males median age was 34 [26 - 42]. Median time duration from the first symptoms onset to the diagnosis verification was 3 [1-7] years in females and [1.5 - 8] years in males. The most common affected arteries were subclavian (55%), carotid (53%), and renal (42%). 5-year survival rate was 92%; 10-year survival rate was 90%; 15-year survival rate was 80%. The median term of survival was 34 [20 - 41] years. 31 deaths (18 males and 13 females) occurred during the follow-up period. Median age of death was 36 [32-44] in females, and 50 [40-57] in males. The average disease course duration at the time of death was 9.25 years, median term being 6.5 [3-16] in females and 5 [3-10] in males. Also a total of 72 cardiovascular events were recorded during the follow-up period: 27 in men and 45 in women. The median duration of AT course by the development of the first ever event was 10 (5 - 20). There were 24 cases of ischemic stroke, 3 transient ischemic attacks, 4 cases of hemorrhagic stroke. Median age of the first ever event was 38 (30 - 49.5). Time duration 4 years or more from AT symptoms onset to diagnosis was associated with significantly more frequent cardiovascular events (OR 1.8; 95% CI 1.07 - 3.34); and premature deaths (see table) by the 5th year of follow up (OR 2.9; 1.27- 6.55).

Conclusion: In a retrospective cohort, time duration 4 years or more from TA symptoms onset to diagnosis verification was associated with higher risk of cardiovascular events and lower survival rate.

REFERENCES:

- [1] Mirouse C. et al. Ann. Rheum. Dis. 2018; 77(2): 10-48
- [2] DeJaco C. et al. Ann. Rheum. Dis. 2018;77: 636-643
- [3] Arend W.P. et al. Arthritis Rheum. 1990; 3(8): 1129-1134.

Disclosure of Interests: Artem Popov Speakers bureau: Novartis, Menarini, AstraZeneca, Pfizer, Severnaya Zvezda, Romepharm, Irina Borodina: None declared, Lubov Shardina: None declared

DOI: 10.1136/annrheumdis-2021-eular.3964

Like a gearwheel: HPR's research, education, and practice

OP0071-HPR

PILOT IMPLEMENTATION OF ENHANCEMENTS IN SUPERVISED GROUP EXERCISE FOR PEOPLE WITH AXIAL SPONDYLOARTHRITIS (AXSPA) IN THE NETHERLANDS

B. Hilberdink¹, F. Van der Giesen², T. P. M. Vliet Vlieland¹, L. Van Bodegom-Vos³, S. Van Weely¹. ¹Leiden University Medical Center, Department of Orthopaedics, Rehabilitation and Physical Therapy, Leiden, Netherlands; ²Leiden University Medical Center, Department of Rheumatology, Leiden, Netherlands; ³Leiden University Medical Center, Department of Biomedical Data Sciences, section Medical Decision Making, Leiden, Netherlands

Background: Supervised group exercise (SGE) for people with axSpA is widely available in the Netherlands [1]. Its contents have barely changed over the past 30 years, despite new evidence-based insights to improve the quality of SGE [1,2].

Objectives: To evaluate the process and effect of the implementation of enhancements in SGE for people with axSpA in the Netherlands.

Methods: This implementation study was executed in four regions, organising nine axSpA-specific SGE classes. The implemented enhancements included: 1. Exercise personalisation based on periodic assessments, including the 6-Minute Walk Test (6MWT) and the Ankylosing Spondylitis Performance Index (ASPI; improved/not improved); 2. High intensity aerobic exercise including intensity monitoring (e.g. by heartrate or BORG-scale); 3. Group education on home exercise and physical activity (e.g. promotion of an app). The implementation strategy was executed over a period of one year and consisted of a one-day training for the supervisors and bimonthly telephone support.

To evaluate the implementation effect, a survey was sent to 95 SGE participants, including two questions evaluating changes in the programme and in own functioning, as well as the 'ASAS Health Index' (ASAS HI) and the 'Short Questionnaire to Assess Health-enhancing physical activity' (SQUASH), which were also administered at baseline. In addition, the data from the periodic assessments (6MWT and ASPI) were used. Changes were analysed with the Wilcoxon Signed-Rank Test.

To evaluate the implementation process, apart from specific questions in the patient survey, semi-structured interviews with supervisors from each region were conducted.

Results: The survey was returned by 60/95 (63%) SGE participants (72% male, median age 60 years).

Effects: As shown in Table 1, 33% experienced improved functioning, 37% improved performance on ASPI and the improvements on 6MWT were statistically significant, $p < .05$, whereas there were no significant changes in ASAS HI and SQUASH.

Table 1.

SGE Participants (n=60)	
Effect evaluation	
Self-reported improvements in functioning, n (%)	20/60 (33)
Change in 6MWT score, median (IQR)	10 (-20;62)*
Improved on ASPI, n (%)	20/54 (37)
Change in ASAS HI score, median (IQR)	0 (-1;1.9)
Change in number of days with exercise (SQUASH), median (IQR)	0 (-1;2)
Evaluation of enhancements	
Satisfied with overall programme changes, n (%)	35/60 (58)
Satisfied with amount of exercise personalisation, n (%)	51/58 (88)
Assessment is applied, n (%)	50/58 (86)
Assessment is favourable, n (%)	47/50 (94)
Satisfied with amount of aerobic exercise, n (%)	39/56 (70)
Satisfied with exercise intensity, n (%)	44/57 (77)
Heartrate monitoring is applied, n (%)	29/59 (49)
Heartrate monitoring is favourable, n (%)	27/29 (93)
Familiar with axSpA-specific home exercise app, n (%)	12/56 (21)
Exercises at home using the app, n (%)	1/56 (2)

* $p < .05$

Process: The semi-structured interviews with the SGE supervisors (n=4, 25% male, aged 28-56 years, SGE experience 8-30 years) showed that: 1. exercise personalisation was difficult and periodic assessments were only maintained in two regions; 2. all regions increased focus on high intensity aerobic exercise and three monitored intensity; 3. none provided structural group education on home exercise. Table 1 shows that the majority of participants was satisfied with the overall programme changes, the personalisation, the assessments and the high intensity aerobic exercise and that heartrate monitoring and education on a home exercise app were applied in less than half of the participants.

Conclusion: After a training for SGE supervisors and telephone support, a set of enhancements was only partially implemented. However, the majority of participants was satisfied with applied changes and about a third improved functioning. For a nationwide implementation, a more extensive strategy addressing specific barriers is warranted.

REFERENCES:

- [1] Hilberdink B, et al. Rheumatol Int. 2021;41(2):391-401.
- [2] Millner JR, et al. Semin Arthritis Rheum. 2016;45(4):411-427.

Acknowledgements: The authors thank The Dutch Arthritis Society and all participants, coordinators, boards, and guiding therapists from the four included SGE regions.

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2021-eular.739

New toys in rheumatology: single cell RNA and epigenetic sequencing, the holy grail?

OP0072

SINGLE CELL SEQUENCING REVEALS CLONALLY EXPANDED CYTOTOXIC CD4+ T CELLS IN THE JOINTS OF ACPA+ RA PATIENTS

A. Argyriou¹, M. H. Wadsworth II², A. Lendvai¹, S. Christensen², A. Hensvold^{1,3}, C. Gerstner¹, K. Kravarik², A. Winkler², V. Malmström¹, K. Chemin¹. ¹Division of Rheumatology, Center for Molecular Medicine (CMM), Department of Medicine, Karolinska Institutet, Karolinska University Hospital, Stockholm, Sweden; ²Inflammation & Immunology Research Unit, Pfizer Inc., Cambridge, MA, United States of America; ³Center for Rheumatology, Academic Specialist Center, Stockholm Health Region, Stockholm, Sweden

Background: CD4+ T cells with cytotoxic functions (CD4+ CTL) have gained attention in recent years. Accumulating evidence supports their importance in defense against human viral infections such as CMV¹, EBV², dengue³, HIV^{4,5} and SARS-CoV-2⁶. Moreover, expansion of so called CD28null cytotoxic CD4+ T cells have been reported in the blood of patients with rheumatic diseases such as rheumatoid arthritis (RA)⁷, myositis⁸ and vasculitis⁹ as well as in cardiovascular diseases¹⁰.

Objectives: Here, we aimed to investigate the presence and clonal expansion of CD4+ CTL in the peripheral blood (PB) and synovial fluid (SF) of RA patients using single cell technologies.