evaluated the measurement of abdominal circumference, blood pressure, body mass index (BMI) and presence of metabolic syndrome (SM). In addition, we evaluated cardiovascular risk with the Framingham score and IMT of the two common carotid arteries using automatic software (QIMT) and laboratory tests, including fasting glycemia and total cholesterol, fractions and triglycerides. Data were analyzed using the t-student, chi-square test and the Mann-Whitney test. For the evaluation of the CVR, univariate and multivariate logistic regression analyzes were performed. The level of significance (α) adopted was 5%, being considered statistically significant values of $p < 0.05$.

Results: Total of 50 patients in the study, 25 were on MTX (group 1) and 25 were on anti-TNF- α (group 2). Mean age was 54.8 ($\pm$ 12.5) with a slight male predominance (58%). Total cholesterol, HDL, LDL and triglycerides were altered in 50%, 76%, 30% and 42% of patients, respectively. Overall, 84% of the patients had high waist circumference and 82% had a BMI above the ideal. There was a statistically significant difference ($p < 0.05$) between the groups for metabolic syndrome results (68% vs. 32%); 44% of the patients in group 1 presented Framingham score intermediate to high and 28% of group 2, and in relation to the QIMT, 56% of group 1 and 72% of group 2 showed higher than expected ($p > 0.05$). For the correlation between QIMT and Framingham Score, the Pearson (r) linear correlation coefficient found was 0.617 ($p < 0.001$), indicating a moderate to strong positive association. The cross-sectional analysis does not provide information on causality and the protective or non-protective effect of the aforementioned therapies in relation to cardiovascular risk was not evaluated.

Conclusion: The results show that patients with Ps have high rates of metabolic syndrome and subclinical atherosclerosis. There was a positive association correlating the Framingham score values with the QIMT measurement, providing evidence for the use of ultrasound in clinical practice.

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FRI0645

EVALUATION OF MARKETED KITS FOR MEASUREMENT OF ABP 501, THE FIRST APPROVED ADALIMUMAB BIOSIMILAR, DRUG CONCENTRATION AND ANTI-DRUG ANTIBODY LEVELS IN PATIENT SERUM

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Background: Adalimumab and its biosimilars are anti-tumour necrosis factor (TNF)- monoclonal antibodies that are approved in Europe as treatment for various autoimmune-related indications, including Crohn's disease and ulcerative colitis. Despite the clinical success of adalimumab, some patients show a diminished response after prolonged treatment. It is known that serum adalimumab trough levels are correlated with clinical response and the development of anti-adalimumab antibodies (AAA) may negatively impact trough levels. Currently, therapeutic drug monitoring (TDM) is used to measure adalimumab concentration and/or AAA allowing individualized optimization of treatment regimens. This then facilitates better clinical outcomes by avoiding delay in treatment decisions. Therefore, having a single assay that provides reliable TDM for both adalimumab and adalimumab biosimilars is important for physicians and patients. ABP 501, the first adalimumab biosimilar, is approved for the same indications as adalimumab (except those protected by regulatory exclusivity).

Objectives: The aim of this study was to evaluate the Promonitor[®] TDM kits for measurement of drug levels and AAA in serum samples from a

selected representative subset of subjects, treated with ABP 501 or adalimumab reference product (RP) in the phase 3 study (NCT01970475).

Methods: A total of 30 subjects (15 ADA-positive; 15 ADA-negative) served as a representative subset in this evaluation. AAA positive control antibody and serum samples from subjects treated with either ABP 501 or adalimumab RP in the Phase 3 study were used to assess the suitability of the TDM (Promonitor[®]) kits for AAA (Promonitor[®] ANTI-ADL) and quantitative drug detection (Promonitor[®] ADL).

Results: The Promonitor[®]-ANTI-ADL TDM kit was able to detect a low level (10 ng/ml) of AAA positive control antibodies for ABP 501. In subjects whose serum was evaluated (18 treated with ABP 501 adalimumab biosimilar and 10 treated with adalimumab RP), the TDM kit produced 100% concordant positive or negative AAA results when compared to the assay that had been used in the phase 3 study. The quantitative drug assessment in subjects whose serum was evaluated (11 treated with ABP 501 and 9 treated with adalimumab RP) using the Promonitor[®] ADL TDM kit displayed a high degree of correlation (average Pearson's $r = 0.987$) compared with results obtained in the phase 3 study.

Conclusion: This evaluation indicates that the Promonitor[®] kits are suitable for use in routine detection of AAA and in quantitating serum levels of the ABP 501 adalimumab biosimilar in patients.

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FRI0646

EFFECT OF LONG-TERM MEDIUM-DOSE STEROID TREATMENT ON 18F-FDG PET/CT FINDINGS TO ASSESS VASCULAR AND MUSCULOSKELETAL INVOLVEMENT IN PATIENTSWITH POLYMYALGIA REUMATICA

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Background: Fluorine-18-fluorodeoxyglucose (¹⁸F-FDG) PET/CT has been proposed as a promising tool for assessing both musculoskeletal and vascular involvement in patients with polymyalgia rheumatica (PMR). Glucocorticoids (GC) may decrease the intensity of ¹⁸F-FDG uptake. Therefore, performance of PET/CT before steroid therapy is recommended. However, in many patients with PMR, large vessel vasculitis (LVV) is precisely suspected because of steroid resistance after a long-term treatment with GC ¹.

Objectives: Our aim was to assess the influence of long-term medium-dose treatment on ¹⁸F-FDG uptake to discern if ¹⁸F FDG PET/CT could be useful to evaluate musculoskeletal and vascular involvement in patients under treatment with GC.

Methods: Single-center study of 75 patients with PMR diagnosis based on 2012 EULAR/ACR criteria. All patients underwent a PET/CT scan due to LVV suspicion based on the presence of atypical symptoms and/or persistent symptoms despite steroid therapy. We considered two groups: a) Steroid-naïve PMR patients. b) Steroid-resistant PMR patients. Both musculoskeletal and vascular ¹⁸F-FDG uptake was assessed. The statistical analysis was performed with SPSS. Student's t test or Mann-Whitney U test was used to compare continuous variables, and Chi-squared test or Fisher's exact test for categorical variables as appropriate.

Results: We evaluated 75 patients, 27 men and 48 women (mean age $\pm$ SD: 68.2 $\pm$ 10.7 years). PET/CT was performed in 14 steroid-naïve PMR patients (18.7%) and 61 steroid-resistant PMR patients (81.3%). Patients under steroid treatment had received a median dose of Prednisone of 10.0 [5.0-15.0] mg/day during 9.0 [2.0-22.0] months. Vascular ¹⁸F-FDG uptake was more frequently detected in steroid-naïve patients. In regard with musculoskeletal ¹⁸F-FDG uptake, no statistically significant differences were seen between both groups (TABLE).

TABLE

	PMR patients (n=75)	Steroid-naïve patients (n=14)	Steroid-resistant patients (n=61)	P#
Sex (women), n (%)	48 (64.0)	7 (50.0)	41 (67.2)	0.23
Age (years), mean $\pm$ SD	68.2 $\pm$ 10.7	65.5 $\pm$ 11.4	69.9 $\pm$ 10.5	0.29
ESR (mm/1 st h), median [IQR]	41.0 [24.0-68.0]	43.5 [23.3-68.5]	41.0 [24.0-66.5]	0.92
CRP (mg/dL), median [IQR]	1.3 [0.7-3.6]	1.6 [0.6-7.8]	1.3 [0.5-3.5]	0.77
F-FDG uptake				
Shoulders	45 (60.0)	9 (64.3)	36 (59.0)	0.72
Sternoclavicular joints	33 (44.0)	7 (50.0)	26 (42.6)	0.62
Hips	32 (42.7)	6 (57.1)	24 (39.3)	0.23
Cervical interspinous bursae	9 (12.0)	2 (14.3)	7 (11.5)	0.77
Lumbar interspinous bursae	29 (38.7)	4 (28.6)	25 (41.0)	0.40
Pubic symphysis	4 (5.3)	2 (14.3)	2 (3.3)	0.16
Subtrochanteric bursae	20 (26.7)	3 (21.4)	17 (27.9)	0.62
Iscial tuberosities	19 (25.3)	2 (14.3)	17 (27.9)	0.30
Knees	33 (44.0)	7 (50.0)	26 (42.6)	0.62
LTV	51 (68.0)	13 (92.9)	38 (62.3)	0.027

Comparisons between steroid-naïve patients and patients receiving corticosteroids

Conclusion: Vascular ¹⁸F-FDG uptake detection was higher in PMR patients with LTV suspicion who had never received GC. However, PET/CT was also useful to detect vascular involvement in most of the patients under a long-term medium-dose steroid treatment.

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FRI0647

COST-EFFECTIVENESS OF RHEUMATOLOGY ULTRASOUND: RETROSPECTIVE AUDIT OF THE AINTREE ULTRASOUND CLINIC

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Background: Ultrasound is useful to guide escalation of synthetic disease-modifying antirheumatic drugs (sDMARDs) and optimization of biologic DMARD therapy (bDMARDs) in inflammatory arthritis. However, there is limited published evidence of the cost effectiveness of the use of ultrasound in selecting patients for treatment tapering or escalation avoidance [1].

Objectives: To evaluate the usefulness of a Rheumatology-led Ultrasound Clinic.

Methods: Retrospective descriptive analysis of patients evaluated in the Aintree Ultrasound Clinic between January and September 2018. Our Ultrasound Clinic runs once a week and the scans are performed by expert rheumatologists (2 EFSUMB level 3, 1 advance EULAR level). Patients can be referred by specialist nurses or by other rheumatologists. Synovitis is assessed following EULAR/OMERACT guidelines.

Results: 113 patients were analysed and 10 patients were excluded (7 did not attend and 3 excluded due to not enough information available). The mean time from referral to ultrasound was 48.17 days (SD 20.21). Forty seven patients (42%) were referred by a doctor and 65 patients (58%) by a specialist nurse. Rheumatoid arthritis was the most frequent diagnosis with 74 patients (66%), other inflammatory arthritis in 23 patients (23%) and other non inflammatory conditions in 16 patients (14%). The indication for scan was to exclude subclinical inflammation (n=91, 81%), to exclude inflammatory arthritis (n=15, 13%) with not clear referral question in 7 patients (6%). The ultrasound was positive for inflammation (defined as $\geq$ power doppler OMERACT grade 2 in at least 1 joint) in 37 patients (33%) all of whom had

their treatment changed: sDMARD escalation (n=10), initiation bDMARD (n= 4), change of bDMARD(n=2) and steroid therapy (intraarticular or intramuscular injection) the same day of the scan (n= 28). Fifty eight patients were on sDMARD treatment: 14 patients had a change in treatment based on the scan (4 patients started biologic drugs, 10 patients had sDMARD escalation). There was no change of treatment in 44 patients, 7 of whom were being considered for bDMARDs before scan. Three of the 29 patients on bDMARD had a change of treatment based on the scan (2 changed to other biologic, in 1 patient another sDMARD was added). Steroids were administered the same day of the scan to 28 patients (intraarticular injection 10; intramuscular injection 18).

Conclusion: Ultrasound altered our management in most patients (n=108, 96%). Avoiding escalation to biologics in 7 patients who met clinical criteria saved an estimate of £35,000. We conclude that point of care ultrasound in patients with inflammatory arthritis is cost effective, not only in saving unnecessary escalation to high cost drugs but by prompt treatment of those with active disease.

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FRI0648

USEFULNESS OF THE ULTRASOUND IN THE DECISION-MAKING PROCESS ABOUT THE USE OF BIOLOGICALS IN PATIENTS WITH RHEUMATOID ARTHRITIS – EXPERIENCE OF REAL LIFE IN A MIDDLE INCOME COUNTRY

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Background: Rheumatoid arthritis (RA) is an inflammatory autoimmune disease with a prevalence of 0.5 to 1% and the advances in pharmacological treatments offered to manage the disease have achieved many goals; however, the appearance of biologics has made the treatment of RA very costly, which has a great impact in the developing countries where accessibility to these therapies is lower. On the other hand, we now know that patients who are in clinical remission of disease activity by clinimetry in a significant percentage of cases may have the so-called subclinical activity that is found using ultrasound (US).

Objectives: To evaluate the usefulness of ultrasound within the component of evaluation of patients with moderate-severe activity of the disease before they are taken to a medical board making-decision process about the initiation or switching of biologics.

Methods: Once a rheumatologist has identified a patient RA with clinical indication for biological therapy, patient is sent, among other things, to a medical board to take a collegiate decision about beginning or switching of biologic therapy. Between 24 and 72 hours before the medical board decision, the patient undergoes an US (normally 12 joints are measured plus those clinically committed at that time), in order to determine if it presents disease activity by US which is considered negative for activity if the patient has synovitis $\leq$ 1 or has Power Doppler $\leq$ 1 in a single joint.

Results: During 12 months, 988 patients had clinical indication for using biologic based on moderate or high disease activity; they were evaluated by a multidisciplinary team to define the appropriateness of a therapy; mean DAS28 of patients was 4.81 ± 1.37 ; Once the patients were evaluated by US, the medical board of decisions did not in all cases decide to initiate or change a biological treatment; the choices made by the team were: 30% initiated or re-initiated biological therapy, in 29% of cases the team decided to wait and continuing observing the patient, 22% were switched to other biologic therapies, 12% did not have indication to start biological therapy because no activity by US and in 5% the medication dose was adjusted. Thus, in a total of 41% of the patients, biological therapy was not started or changed, which is important from the point of view not only clinical but also of the health payers.