SAT0610 TEMPORAL ARTERY ULTRASOUND IN THE DIAGNOSIS OF GIANT CELL ARTERITIS IN A COHORT WITH ELEVATED CLINICAL IMPRESSION

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Background: Giant cell arteritis (GCA) is the most frequent vasculitis in adulthood. The delay in diagnosis sets back treatment and can lead to serious consequences. Diagnosis is complex, and is followed by the classification criteria according to the American College of Rheumatology (ACR). There is an increasing interest on the utility of temporal artery ultrasound (TAUS) as a tool to evaluate inflammation on the vessel wall.

Objectives: to evaluate the utility of TAUS in GCA.

Methods: During 2016, 120 TAUS were carried out in 60 patients with clinical suspicion for GCA. The TAUS was carried to completion by rheumatologist with experience. The symptoms that lead to a TAUS was either one or more of these clinical scenarios: 1) cranial symptoms (recent onset headache, mandibular claudication, visual disturbances) 2) polymyalgic syndrome 3) toxic o febril unspecific syndrome 4) vertebrobasilar (VB) stroke. Demographic and laboratory data were collected, and a follow-up was done to learn the final diagnosis. As for TAUS, the "halo" sign was considered positive if an anechoic image surrounded the vessel was present, and measured >0.30 mm in both, longitudinal and transverse cuts. Other more unspecific signs as stenosis or occlusion were also registered. A temporal artery biopsy was performed whenever the physicians considered necessary, based on clinical criteria, every case in no more than 30 days.

Results: Fifty-two percent were women, mean age 76±7.8 years old. Mean laboratory parameters: erythrocyte sedimentation rate 85±41.9 mm/h, C-reactive protein 77±80 mg/L, Haemoglobin 11.4±2.2 g/L, white blood count 10,228±3,520, platelet count 310,603±123,918. The symptoms that motivated requesting the TAUS were: cranial symptoms (62.2%), toxic, unspecific, febrile syndrome (44%), polymyalgic syndrome (30%), VB stroke (5%). A temporal artery biopsy was carried out in 45% of patients (N=27); it was positive in 40.7%, negative in 40.7% and unspecific (given it reported an inflammatory histologic pattern, but without the characteristic giant cells) in 18.5%. From all 60 patients in whom a TAUS was performed, 36% were diagnosed with GCA, based on ACR criteria.

Patients with a final GCA diagnosis (n=22)

Ultrasound	Biopsy	%
Positive	Positive	40.7%
Positive	Unspecific	22.7%
Positive	Not done	9%
Negative	Not done	9%
Non-conclusive	Negative	9%
negative	Positive	9%

The sensibility and specificity for TAUS was 80% and 94% respectively, with a positive predictive value of 88.9% and a negative predictive value of 89.2%.

Conclusions: TAUS is a useful, non-invasive, fast, accessible tool for evaluating temporal arteries with a great diagnostic value

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.6810

SAT0611 INTIMA-MEDIA THICKNESS REFERENCE RANGES DEPICTING HALO SIGN FOR THE DIAGNOSING OF LARGE VESSEL GIANT CELL ARTERITIS BY ULTRASOUND

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Background: Color duplex ultrasonography (CDU) is most promising tool for the assessment of large vessel giant cell arteritis (LV-GCA). There is a need to define ultrasound findings consistent with the diagnosis of GCA.

Objectives: We aimed to score intima-media thickness (IMT) reference ranges for LV-GCA in Polish patients.

Methods: 214 patients suspected for GCA and evaluated with CDU were included in the study and followed up for min 9 months. Large vessel CDU, together with arteritis/non-arteritis categorization, were performed before or within 1 week after treatment initiation by a single physician. Vasculitis was defined as hypochoic, homogenous, increase of IMT with distorted wall structure resulting in no clear intima-media structure, over long distance (not limited only to the place of arterial bifurcations). ROC curves were calculated.

Results: GCA was diagnosed in 81 patients, polymyalgia rheumatica (PMR) in 131 (characteristics – Table 1). Extracranial LV-GCA was diagnosed in 43 patients: axillary vasculitis in 23 patients, common carotid artery (CCA) – 24, subclavian – 18, superficial femoral – 11, brachial (all spreading per continuum from axillary arteritis) – 8. In 83 remaining patients other diagnosis was confirmed, and they served as non-GCA/PMR controls. Mean IMT in LV-GCA was significantly higher versus controls and isolated PMR (Fig. 1). IMT in GCA was not significantly influenced by gender, hypertension and smoking in contrast with IMT in controls. Proposed cut off values for IMT depicting vasculitis in GCA patients are presented

in Table 2. 100% specificity for vasculitis (vs GCA without large vessel vasculitis) was reached with axillary IMT of 1.06 mm (62% sens.), subclavian – 1.35 mm (38% sens.), superficial femoral – 1.55 mm (60% sens.), CCA – 1.27 mm (22% sens.).

Table 1. Patient characteristics

	GCA (N=81)	Isolated PMR (N=50)	Non-GCA/PMR controls (N=83)	p
Female	53 (65%)	37 (74%)	54 (65%)	0.512
Age (mean ± SD; min-max)	73 ± 9; 55–95	69 ± 9; 52–87	65 ± 10; 44–89	0.001
Hypertension	53 (65%)	31 (62%)	44 (53%)	0.251
Smoking	36 (44%)	14 (28%)	29 (35%)	0.148
Diabetes	13 (16%)	6 (12%)	15 (18%)	0.649
Hypercholesterolemia**	25/66 (38%)	12/33 (36%)	19/38 (50%)	0.400
Arterial calcifications***	34 (42%)	11 (22%)*	33 (40%)	0.058
Upper limbs claudication	4 (4.9%)	0 (0.0%)	1 (1.2%)	0.131

*Significant findings (p<0.05); **Assessed in 137 patients; ***Of medium to high grade.

Table 2. Cut off values for IMT depicting vasculitis in GCA patients

Artery	IMT (mm)	AUC	Sens. (%)	Spec. (%)
Arteries classified as vasculitis vs GCA without large vessel vasculitis				
Axillary	0.82	0.959	85.7	92.7
Subclavian	0.84	0.954	87.5	96.8
Superficial femoral	0.97	0.945	90.0	96.3
Common carotid	0.96	0.877	72.2	93.7
Arteries classified as vasculitis vs controls				
Axillary	0.81	0.969	87.0	93.7
Subclavian	0.66	0.974	100	83.7
Superficial femoral	0.92	0.958	90.9	96.6
Common carotid	0.73	0.910	91.7	79.0

Maximal IMT value from bilateral CDU measurements was chosen. AUC = area under the curve.

Figure 1. Mean IMT in different arteries in GCA, isolated PMR and controls.

Conclusions: We demonstrated that cut off values may discriminate between GCA and its mimics as well as between presence and lack of vasculitis in different arteries in GCA.

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Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.4139

SAT0612 THE USE OF 18F-FDG-PET IN THE DIAGNOSIS OF POLYMYALGIA RHEUMATICA (PMR) – A PROSPECTIVE STUDY OF 99 PATIENTS SUSPECTED OF PMR

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Background: Previous studies have shown that the majority of patients with polymyalgia rheumatica (PMR) have increased fluorodeoxyglucose (FDG)-uptake around the shoulders, hips and processes of the cervical and lumbar spine on positron emission tomography (PET) (1). The specificity of these findings for PMR is not known.

Objectives: To determine the specificity and sensitivity of FDG-PET findings for the diagnosis of PMR.

Methods: A prospective monocentric study in a tertiary care centre. All patients underwent FDG-PET scanning before treatment with glucocorticoids was started. The clinical suspicion of PMR was quantified by the treating physician on a scale from 1 to 5. FDG-uptake was scored visually in 12 articular regions (cervical spinous processes, lumbar spinous processes, left and right sternoclavicular joint, left and right ischial tuberosity, left and right greater trochanter, left and right hip and left and right shoulder) (score 0–2) and a total skeletal score was calculated reflecting the FDG-uptake in these 12 articular regions. ROC analysis was performed to determine the optimal clinical and total skeletal score for diagnosing PMR. The golden standard for a diagnosis of PMR was the judgment of an experienced clinician after at least six months of follow-up.

Results: 99 consecutive patients with a possible clinical diagnosis of PMR were included in this study. Sixty-seven patients were finally diagnosed with PMR while 32 patients got another diagnosis. A clinical score of 4 or more had a sensitivity

of 67.2%, specificity of 87.5%, positive predictive value (PPV) of 91.8% and a negative predictive value (NPV) of 56.0% for the diagnosis of PMR. A total skeletal score of 16 or more had a sensitivity, specificity, PPV, NPV of respectively 85.1%, 87.5%, 93.4% and 73.7%.

Conclusions: FDG-PET before starting glucocorticoid therapy improves the diagnostic accuracy compared to a clinical scoring system in patients with clinical suspicion of PMR.

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Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.3628

SAT0613 HIGH PREVALENCE OF SUBCLINICAL ATHEROSCLEROSIS IN GOUT AND ASYMPTOMATIC HYPERURICEMIA: A STUDY BASED ON CAROTID ULTRASOUND

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Background: Accelerated atherosclerosis is known in gout. Hyperuricemia is considered an independent risk factor for cardiovascular (CV) disease. Evidence supporting both proatherogenic and prothrombotic states in HU is also published. Ultrasound (US) measurement of the carotid intima-media thickness (cIMT) is a recognized measure of premature subclinical atherosclerosis with a predictive value respect to vascular events.

Objectives: To determine the prevalence of increased cIMT, as sign of subclinical atherosclerosis, by an automated US method, and the associated risk factors in patients with gout and asymptomatic hyperuricemia (aHU).

Methods: 138 patients with gout, 105 with aHU and 99 age and sex matched healthy controls were enrolled. For all patients were recorded: clinical history, disease duration, smoking, ischemic heart disease, comorbidities (diabetes mellitus, high blood pressure, dyslipidemia, renal insufficiency, obesity), and current therapy. ESR and serum CRP, total and HDL cholesterol, triglycerides, glucose, creatinine and uric acid were recorded. Patients with history of CV and cerebrovascular events or autoimmune diseases were excluded. US examinations of both common carotids were performed by an experienced sonographer trained in cIMT examination, with a Esaote My Lab 70XVG, equipped with a linear probe (4–13 MHz) and an automatic IMT measure software. The definitions of Mannheim cIMT Consensus were adopted.

Results: A total of 684 common carotids were assessed. The prevalence of increased cIMT was 47.1%, 47.6% and 1% in patients with gout, aHU, and control group, respectively. The final adjusted logistic regression for patients with gout showed that time of disease progression (OR =0.79, 95% CI 0.66–0.95) and previous smoking (OR =0.32, 95% CI, 0.10–0.97) were associated with cIMT increase ($p < 0.05$) whereas the uric acid levels (OR =1.66, 95% CI 1.07–2.56) was associated with an increased cIMT in aHU. No significant correlation was found with the other variables. No differences in US findings were found between gout and aHU ($p = 0.936$). There was a significant difference in cIMT in gout versus control ($p = 0.0001$) and aHU versus control ($p = 0.0001$).

Conclusions: Our results demonstrate that patients with gout and aHU without clinically evident cardiovascular disease have a high prevalence of subclinical atherosclerosis. Disease duration and levels of uric acid are independent factors related with increased cIMT in gout and aHU respectively. These results support the importance of screening for CV risk and to include carotid ultrasound in CV prevention strategies in these patients.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.6363

SAT0614 ULTRASOUND AND URATE CRYSTAL DEPOSITION: HOW MANY JOINTS TO SCREEN?

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Background: Gout is one of the most common inflammatory joint disease in males. The new ACR/EULAR 2015 gout classification criteria has included imaging as a scoring item [1]. Naredo et al [2], found that in intercritical gout, assessment of one joint (ie, radiocarpal) and two tendons (ie, patellar and triceps) for HAGs, and three articular cartilages (ie, first metatarsal, talar and second metacarpal/femoral) for double contour sign (DCS) showed the best balance between sensitivity and specificity (84.6% and 83.3%, respectively). Ultrasound screening at these 6 sites is time consuming and not feasible in a busy outpatient service. So we aimed to compare the two sites (knee and 1st MTP joints) with these 6 sites for the ultrasound detected abnormalities namely DCS and HAGs in patients of gout particularly with the idea to find the best possible minimum joint combination without compromising the sensitivity and specificity.

Objectives: To compare the ultrasound-detected abnormalities namely double contour sign (DCS) and hyperechoic aggregates (HAGs) at knee and first metatarsophalangeal (1st MTP) joint (two sites) versus six sites (knee joint, 1st MTP joint, radiocarpal joint, patellar tendon and triceps tendon) in patients of gout.

Methods: Forty seven gout and fifty controls (serum uric acid $< 7\text{mg/dl}$) with age more than 18 years were included in this study. DCS was looked for at three articular cartilage sites (first metatarsal, tibiotalar and femoral condyle) whereas HAGs were looked for at one joint site (radiocarpal joint) and two tendon sites (patellar tendon and triceps tendon). Ultrasound findings of all three groups were compared.

Results: We found sensitivity, specificity, positive predictive value, negative predictive value and positive likelihood ratio of two joint areas (knee and 1st MTP) ultrasound findings for gout were 87.2%, 84%, 83.7%, 85.6% and 5.5 respectively. Similar sensitivity, specificity, positive predictive value, negative predictive value and positive likelihood ratio were observed with 6 sites ultrasound findings. Amongst controls 17.5% were found to have these abnormal ultrasound findings by both two joint area and 6 sites exams.

Applied Diagnostics	Sensitivity	Specificity	PPV	NPV	LR+	LR–
Knee joint DCS	53.2	94.0	89.3	68.1	8.9	0.49
1st MTP Joint DCS	51.1	84.0	75.0	64.6	3.2	0.58
1st MTP joint HAGs	44.7	100.0	100.0	65.8	–	0.55
1st MTP Joint DCS+HAGs	72.3	84.0	81.0	76.4	4.5	0.32
Talar joint DCS	40.5	100.0	100.0	69.4	–	0.59
Patellar tendon HAGs	23.4	100.0	100.0	58.1	–	0.76
Triceps tendon HAGs	14.9	100.0	100.0	55.6	–	0.85
Radiocarpal joint HAGs	4.3	100.0	100.0	52.6	–	0.95
Knee and MTP joint abnormalities	87.2	84.0	83.7	85.6	5.5	0.15
Ultrasound abnormalities at Six examined site	87.2	84.0	83.7	85.6	5.5	0.15

Conclusions: Screening of two joint areas (knee and 1st MTP) has similar sensitivity, specificity and positive likelihood ratio as compared to six sites in diagnosing gout. While utilizing lesser time in examination.

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Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2017-eular.1680