THU0301

OUTPATIENT REFERRAL WITH A POSITIVE ANCA? A SINGLE-CENTRE EVALUATION OF THE IMPACT OF IMPLEMENTING THE 2017 REVISED INTERNATIONAL CONSENSUS ON ANCA TESTING FROM 1547 NEW PATIENT REFERRALS

N. Cleaton¹, J. Bateman¹. ¹New Cross Hospital, Heath Town, United Kingdom

Background: Anti-neutrophil cytoplasmic antibodies (ANCA) are valuable laboratory markers used in the detection of medium and small-vessel vasculitis: granulomatosis with polyangiitis, eosinophilic granulomatosis with polyangiitis and microscopic polyangiitis. Historically, and in our own centre, ANCA are screened for using indirect immunofluorescence (IIF) with antigen-specific immunoassays being performed on IIF-ANCA positive results. While highly sensitive, IIF has a low specificity compared to antigen-specific immune-assay for MPO and PR3. Anecdotal, positive IIF ANCA results often trigger rheumatology referrals. A 2017 International consensus statement has recommended ten clinical indications for requesting ANCA, and suggested high quality immunoassays are the preferred screening method, without the categorical need for IIF.

Objectives: This service evaluation explores the local impact and implications of adopting the 2017 International Consensus on ANCA testing by evaluating new patient referrals to a single UK rheumatology centre.

Methods: New out-patient referrals to a single consultant rheumatologist at one UK centre were collected over 40-months (2016-19) and prospectively coded by referral indication from the clinical letter prior to clinical assessment. Data collected included: anonymised baseline demographics, referral source, key features for referral, and diagnosis following assessment. Referral text was coded using clinical reasoning theory, to identify up to four 'key-features' of the referral, typed by the clinician as free text. This included clinical findings, suspected diagnosis, ANCA testing (MPO/PR3 status), other autoantibodies, arthralgia, synovitis, or other important features (e.g. rash, Raynaud's phenomenon). Diagnosis at the visit was coded against established rheumatological diagnoses. We retrospectively identified any patient where ANCA/ MPO/PR3 formed a key part of the referral, using electronic text search tools.

Results: A total of 1748 referrals were seen, 177 (10.1%) were excluded due to incomplete data. This left 1547 for analysis, of these 18 (1.2%) had been referred with an ANCA IIF positive result as a key component for the referral. The 18 ANCA positive were predominantly female (16/18) and had a mean age of 49 (SD 16.6). The majority of referrals were initiated primary care (16/18); the remaining referrals were from haematology and ophthalmology. The majority (17/18, 94%) tested negative for MPO and PR3, 1/18 (6%) was PR3 antibody positive (known inflammatory bowel disease). Retrospectively, none of the ANCA requests would have met the 2017 gating criteria for testing. In total 13/18 patients were given an additional diagnosis: Fibromyalgia 6 (28%); Soft tissue rheumatism 4 (22%); undifferentiated inflammatory arthritis 1; reactive arthritis 1; biomechanical joint pain 1; probable connective tissue disease 1.

Conclusion: This service evaluation shows that routine outpatient referrals with positive IIF ANCA represent a small but significant proportion of referrals to our centre (1.2%). The vast majority of these would be filtered out with a gating strategy. This evaluation demonstrates the low specificity of IIF ANCA without any suggestive clinical symptoms. By adopting MPO/PR3 immune-assays as the primary screening method, the vast majority of these referrals (17/18, 94%) would have tested 'negative', reducing uncertainty for patients and primary care clinicians. None of these patients were diagnosed with vasculitis. These data support adoption of the 2017 Consensus Statement across our, and other units, to reduce unnecessary referrals, uncertainty, and cost. Our electronic requesting system allows for the introduction of an ANCA gating strategy. These data can be used to educate primary care teams regarding indications and interpretation of ANCA testing.

References:

- Broeders S, Goletti S, Tomasi J, et al Revised 2017 international consensus on ANCA testing in small vessel vasculitis. *Annals of the Rheumatic Diseases* 2019;78:e113.

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2020-eular.1568

THU0302

HEAD-TO-HEAD COMPARISON OF 18F-FDG-PET/CT AND ULTRASOUND OF THE TEMPORAL ARTERY

C. Rottenburger¹, N. Mensch², S. Imfeld³, M. Aschwanden³, K. Glatz⁴, C. Berger⁵, E. Deman⁶, E. A. Zeiner⁶, T. Daikeler⁶. ¹University Basel Hospital, Department of Radiology and Nuclear Medicine, Basel, Switzerland; ²University Basel Hospital, Department of Rheumatology, Basel, Switzerland; ³University Basel Hospital, Department of Angiology, Basel, Switzerland; ⁴University Basel Hospital, Department of Pathology, Basel, Switzerland;

⁵University Basel Hospital, Department of Internal Medicine, Translational Immunology, Basel, Switzerland; ⁶University Basel Hospital, Department of Rheumatology, Basel, Switzerland

Background: For the diagnosis of giant cell arteritis (GCA) several diagnostic tools do exist such as ¹⁸F-FDG-PET/CT (PET) with excellent diagnostic accuracy for the larger vessels and ultrasound for the temporal arteries (TA). Recent data propose that PET is able to detect vasculitis in vessels as small as the TA (1). Comparison of PET, ultrasound (US) and histology of the TA on a segment level has not been done.

Objectives: To describe diagnostic accuracy of PET of the TA in a vasculitis university clinic and to analyse strength and limitations of PET by comparing ¹⁸F-FDG uptake to US and histology results on a segment level.

Methods: We analysed patients, included in our ethical board approved local prospective GCA cohort having received a PET in between 2015 and 2019 because of suspected GCA.

PET of the TA was performed using time-of flight technique and was scored 'vasculitis' if tracer uptake was higher than in the surrounding tissue. Standard uptake value (SUV) measurement in the trunk (T), parietal branch (PB) and frontal branch (FB) of the TA was recorded. US was performed for each branch.

Results: From 37 consecutively recruited patients, GCA was confirmed in 19 patients and excluded in 18 patients which served as controls (Table 1). PET of the TA showed vasculitis in 12/19 GCA patients and in 1/18 controls. Median SUV_{max} of all vasculitic FB (n=18) was 2.91, 2.20 for the T (n=14) and 2.34 for the PB (n=5).

Table 1. Patient characteristics. Data are expressed as number (%) or median (interquartile range)

	GCA (n=19) (51%)	Control (n=18) (49%)	P-value
Female	11 (57)	9 (50)	0.64
Median age (years) at PET	73 (64-78)	62.5 (57-71.75)	0.04
Amnesia fugax/Loss of vision	9 (47)	9 (50)	>0.99
New onset headache	13 (68)	11 (61)	0.74
Jaw claudication	7 (37)	3 (16)	0.38
Scalp tenderness/ pathological TA	7 (37)	6 (33)	0.54
Proximal muscle pain	11 (58)	8 (44)	0.29
Fever	1 (5)	5 (28)	0.06
Median Erythrocyte sedimentation rate (mm/h)	73 (48-90)	50 (28.5 - 68.5)	0.06
Median C-reactive protein (mg/L)	66 (29-105)	46 (13-133)	0.57

16 of the 19 GCA patients received US of the TA and 9 showed vasculitic findings. From the control group 2 patients showed vasculitic findings. Most often vasculitic findings were localized in the FB (n=16), followed by the T (n=13) and the PB (n=13).

In the 16 patients that received US, diagnostic sensitivity and specificity of temporal PET for GCA within the TA was 56% and 94% and of US 56% and 89%, respectively.

Whereas US detects vasculitis in comparable frequencies in all TA branches, PET recorded vasculitis less often in the PB (only 4 of the 13 in US vasculitic PB). Indeed, the median diameter of all PET positive TA branches, measured in the US, was higher (2.00mm) compared to PET negative branches (1.50mm). Vasculitis was confirmed histologically in 9 of the 13 biopsied patients. Only 2/9 patients showed vasculitis in the preceding PET in the biopsied branch.

Conclusion: High diagnostic accuracy for temporal arteries supports PET as an 'all-in-one' exam for GCA. A limitation might be the vessel diameter, as sensitivity of PET for vasculitis of the small parietal branch is low. Thus, in cases with high suspicion of GCA despite a negative PET, US of the TA and/or biopsy might enhance diagnostic sensitivity.

References:

- Nielsen et al. Simple dichotomous assessment of cranial artery inflammation by conventional 18F-FDG PET/CT shows high accuracy for the diagnosis of giant cell arteritis: a case-control study. *Eur J Nucl Med Mol Imaging*. 2019;46(1):184-193. doi:10.1007/s00259-018-4106-0

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2020-eular.4092

THU0303

TREATMENT OF GIANT CELL ARTERITIS WITH TOCILIZUMAB IN CLINICAL PRACTICE IN SWEDEN

D. Di Giuseppe¹, A. Knight², A. J. Mohammad³, C. Turesson⁴, J. Askling¹. ¹Karolinska Institutet, Dept of Medicine Solna, Stockholm, Sweden; ²Uppsala

University, Dept of Medical Sciences, Rheumatology, Uppsala, Sweden;
³Lund University, Rheumatology, Department of Clinical Sciences, Lund, Lund, Sweden;
⁴Lund University, Rheumatology, Department of Clinical Sciences, Malmö, Malmö, Sweden

Background: Giant cell arteritis (GCA) is the most common form of systemic vasculitis in adults. GCA is often associated with comorbidities related to the disease itself or caused by its treatment, here: mainly glucocorticosteroids. Since 2017, tocilizumab (TCZ) is approved for the treatment of GCA, but its uptake and treatment outcomes in clinical practice remain to be characterized.

Objectives: To describe characteristics of GCA patients treated with tocilizumab (TCZ) in clinical practice, to evaluate the use of prednisolone up until and following TCZ treatment start, and to describe the TCZ treatment duration.

Methods: We linked together the Swedish Rheumatology Quality Register (SRQ), the national Prescribed Drug register, and national Patient register, covering data from July 2009 until July 2019. Through these linkages, we identified GCA patients treated with TCZ including start and discontinuation, their comorbidities and use of other medications. TCZ treatment durations were evaluated through survival probability curves.

Results: We identified 468 patients with GCA treated with TCZ, before and after its formal approval for GCA, Table 1. Over calendar time, the proportion who started TCZ as first ever bDMARD increased, as did the mean age at start of TCZ. The pattern of co-morbidities and health care utilisation demonstrated substantial burden from, e.g., diabetes and infections (Table). Patients starting treatment with TCZ were characterized by an increasing average dose of prednisolone during the last 1.5 years before TCZ start. Thereafter, prednisolone use declined substantially, from a mean of 15 mg/day in the six months before the start of TCZ to 6 mg/day 1 year after its start (Figure 1). Analysis of the duration of TCZ treatment (from start until discontinuation) suggested that at one year, two thirds of patients were still on treatment (Figure 2).

Table. Swedish GCA patients starting treatment with tocilizumab July 2009 - Nov 2019.

	July 2009 -July 2015	July 2016 - July 2017	July 2017 -July 2018	July 2018 - Nov 2019
Patients	89	140	140	99
Female	64%	77%	73%	71%
Age, mean (sd)	67 (7.9)	68 (8.8)	69 (8)	70 (7.8)
Previous use of bDMARDs	27%	21%	11%	11%
Hospitalisations most recent 5 years, mean (sd)	3.9 (4.2)	3.2 (2.6)	2.9 (2.5)	3.3 (3)
Co-morbidities, most recent 5 years:				
Chronic obstructive pulmonary disease	6%	2%	4%	3%
Ischemic heart disease	12%	7%	14%	11%
Diabetes mellitus, type 1&2	34%	26%	26%	26%
Fractures (any location)	15%	14%	11%	10%
Knee/hip replacement	7%	10%	7%	8%
Myocardial infarction	2%	1%	4%	3%
Stroke	2%	4%	2%	5%
Hospitalisation listing infection	39%	40%	39%	37%

Figure 1. Average daily dose of prednisolone before and after* start of tocilizumab, based on cumulative dose every 6 months.*The average daily dose of prednisolone after the start of TCZ is calculated only among patients who were still on treatment at the end of each period (351 patients in the first 6 months, 251 in 6m-1y, 161 in 1 – 1.5 y, 95 in 1.5 – 2y).

Figure 2. Kaplan-Meier curve for tocilizumab in GCA by time since treatment start.

Conclusion: Patients treated with TCZ for GCA in clinical practice are characterized by a significant burden of co-morbidities, many of which may be related to prolonged use of glucocorticosteroids. This study confirms a marked reduction in the use of oral prednisolone following treatment with TCZ, and demonstrates that in a majority of patients in clinical practice, treatment with TCZ for GCA is extended beyond one year. Future analyses will evaluate the association of these observed treatment patterns with the level of GCA disease control, co-morbidities and quality of life, over time.

Acknowledgments: These analyses were partly funded through an agreement between Roche and Karolinska Institutet.

Disclosure of Interests: Daniela Di Giuseppe: None declared, Ann Knight: None declared, Aladdin J Mohammad Speakers bureau: lecture fees from Roche and Eli Lilly Sweden, PI (GiACTA study), Carl Turesson Grant/research support from: Unrestricted grant from Bristol-Myers Squibb, Consultant of: Roche, Speakers bureau: Abbvie, Bristol Myers-Squibb, Pfizer, Roche, Johan Askling Grant/research support from: JA acts or has acted as PI for agreements between Karolinska Institutet and the following entities, mainly in the context of the ARTIS national safety monitoring programme of immunomodulators in rheumatology: Abbvie, BMS, Eli Lilly, Merck, MSD, Pfizer, Roche, Samsung Bioepis, Sanofi, and UCB Pharma

DOI: 10.1136/annrheumdis-2020-eular.3329

THU0304 CLINICAL PRACTICE VARIATION BETWEEN ACADEMIC AND NON-ACADEMIC CENTERS IN THE MANAGEMENT OF ANCA ASSOCIATED VASCULITIS IN THE NETHERLANDS

E. Dirikil¹, A. Rutgers², S. Tas³, C. A. Verburgh⁴, D. Soonawala⁵, A. E. Hak⁶, H. H. F. Remmelts⁷, D. Ijpelaar⁸, G. D. Laverman⁹, J. M. Van Laar¹⁰, H. J. Bernelot Moens¹¹, P. Verhoeven¹², W. J. W. Bos¹, Y. K. O. Teng¹. ¹Leiden University Medical Center (LUMC), Leiden, Netherlands; ²University Medical Center Groningen, Groningen, Netherlands; ³Amsterdam UMC, locatie AMC, Amsterdam, Netherlands; ⁴Spaarne Gasthuis Haarlem Zuid, Haarlem, Netherlands; ⁵Haga Hospital (Leyweg), Den Haag, Netherlands; ⁶Amsterdam UMC, Locatie AMC, Amsterdam, Netherlands; ⁷Meander Medical Center, Amersfoort, Netherlands; ⁸Groene Hart Hospital, Gouda, Netherlands; ⁹ZGT Almelo, Almelo, Netherlands; ¹⁰UMC Utrecht, Utrecht, Netherlands; ¹¹ZGT Hengelo, Hengelo, Netherlands; ¹²Vasculitis Stichting, Silvolde, Netherlands

Background: ANCA associated vasculitis (AAV) is a complex, rare systemic autoimmune disease with an estimated prevalence of 5-18 patients per 100.000 individuals worldwide. Managing a low prevalent disease can be challenging which is reflected in clinical practice variation.

Objectives: This study investigated clinical practice variation of the care for AAV patients in the Netherlands.

Methods: In a nationwide online survey, AAV patients were selected from academic and non-academic centers. Within centers, patients were eligible when they had a confirmed diagnosis of microscopic polyangiitis (MPA), granulomatosis with polyangiitis (GPA) or eosinophilic granulomatosis with polyangiitis (eGPA) according to the treating physician. There were no exclusion criteria. In each center a comparable number of patients was included. Data capture encompassed a wide set of variables on diagnosis, management and outcomes.