SAT0362

PERFORMANCE OF THE 2015 ACR/EULAR CLASSIFICATION CRITERIA FOR GOUT IN KOREAN PATIENTS PRESENTING WITH ACUTE ARTHRITIS

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Background: A definite diagnosis of gout requires the detection of monosodium urate (MSU) crystals in synovial fluid or tissue. However, the procedure involved is invasive and often not available in acute or primary care settings. Therefore, several alternate sets of classification criteria for gout have been developed.

Objectives: This study was undertaken to assess the performance of the 2015 American College of rheumatology (ACR)/European League Against Rheumatism (EULAR) classification criteria for gout and to compare its performance to previous sets of criteria including the New York, American Rheumatism Association (ARA) 1977 and Mexico criteria, in Korean patients presenting with acute arthritis.

Methods: Patients with acute arthritis who attended rheumatology clinics and underwent arthrocentesis were enrolled in the study, during February 2017 and December 2017. The gout group included patients with MSU crystals in synovial fluid or tissue, as assessed by an experienced rheumatologist or pathologist. Since the presence of MSU crystals alone is sufficient to fulfil the criterion for gout according to the 2015 ACR/EULAR classification, New York, ARA 1977 and Mexico criteria, this criterion is considered to have a 100% sensitivity in the gout group by our definition. Therefore, we excluded positive MSU crystal results in these four criteria sets to avoid a case of circular reasoning.

Results: A total of 116 gout patients (as determined by the presence of MSU crystals) and 71 non-gout patients participated in the study. The number of male patients in the gout group (94.8%) was higher than that in non-gout group (15.1%). The mean ($\pm$ SD) age of the patients was 58.4 ($\pm$ 15.0) and 64.5 ($\pm$ 13.3) years in the gout and non-gout group, respectively.

The sensitivity, specificity, positive predictive value and negative predictive value of the criteria sets were 87.1%, 100%, 100% and 73.2% respectively (area under the curve, AUC 0.975) for the 2015 ACR/EULAR classification criteria, 71.5%, 97.2%, 97.6% and 67.6% (AUC 0.960) for the clinical-parameters-only version of the 2015 ACR/EULAR classification criteria, 68.1%, 81.7%, 85.9% and 61.0% (AUC 0.784) for the New York criteria, 77.6%, 81.7%, 87.4% and 69.0% (AUC 0.878) for the ARA 1977 criteria, and 87.9%, 63.4%, 79.7% and 76.3% (AUC 0.878) for the Mexico criteria.

To determine the performance of the existing criteria sets for gout without relying on the detection of MSU crystals, we also calculated the performance of the criteria assuming an absence of both positive and negative crystal test results. By this parameter, the sensitivity of the 2015 ACR/EULAR classification criteria was 77.6%, specificity was 84.8%, positive predictive value was 89.1%, and negative predictive value was 69.8% (AUC 0.918). The performance of the New York, ARA 1977 and Mexico criteria did not change.

Conclusions: The performance of the 2015 ACR/EULAR classification criteria for gout was better than that for the New York, ARA 1977 and Mexico criteria in Korean patients presenting with acute arthritis. When an MSU crystal identification test is not available, 2015 ACR/EULAR classification criteria for gout could be a useful option in the diagnosis of gout in Korean patients presenting with acute arthritis.

Disclosure of Interest: None declared

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SAT0363

ARE "TARGET-URATE" AND REMISSION CRITERIA POSSIBLE IN SEVERE GOUT? A REAL LIFE EXPERIENCE IN A COHORT

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Background: Gout remission, quality of life and disability improvement are the main objectives of chronic treatment. Gout T2T goal is to achieve and maintain target urate <6 mg/dL and <5 mg/dL (TU) in severe gout (SG).

Objectives: To determine in a cohort of gout patients, SG frequency, associated factors, percentage of patients achieving TU and remission criteria.

Methods: Patients with gout (ACR-EULAR) from GRESGO cohort were included and evaluated at baseline and bi-annually. At baseline visit, information about gout, life style changes and treatment were discussed with the patients and relatives. Prescription for gout and associated diseases was according to published guides and available drugs. Measures: demographic, clinical and biochemical. HAQ, EUROQoL, VAS-pain and global health. SG: $\geq$ 5 tophi and/or intradermal

tophi. TU:sUA <6 mg/dL and <5 mg/dL; remission according to published proposal (de Loutour H/2016). This protocol was approved by the local IRB, all patients signed informed consent. Statistical analysis: t test, X2, Friedman, multi-pole-correlation and multivariable analysis.

Results: At baseline visit 500 gout patients were included, (221/44% with SG and 279/56% non-SG). Males 97%, all received individualised ULT treatment (allopurinol and/or probenecid). The whole group, improved significantly during follow-up in urate, flares, tophus burden, HAQ, pain, EUROQoL and renal function. SG patients were significantly: younger at onset, with lower educational level, socioeconomic status, more laboral absenteeism. Also, had longer disease duration and significant differences in all clinical variables related to severity:>joint count, >index tophi size, >% lithiasis,>HAQ score,>EUROQoL and<MDRD, all these outcomes improved significantly during follow-up. In multivariate analysis, disease duration (p0.008) and flares/years (p0.055) persist significantly associated to SG at baseline. SG patients received significantly higher allopurinol doses (>600 mg/day) and required more frequently glucocorticoids. Eleven patients died, 1 year after baseline ~50% patients were lost. Among those that continued, target urate <6 mg/dL was possible in only 50%–70% of the patients followed for 3–5 years. Less than 50% of patients achieved TU<5 mg/dL during long follow-up. There were no significant differences in most percentages of TU 6 or 5 mg/dL between SG VS non-SG patients (see table 1). Although, both groups improved significantly in all clinical outcomes. Remission definition require none tophi and at least 12 months follow-up, it was observed in 9.4% of non-SG patients.

Percentage of patients achieved TU: (*significant differences)

	SG %	Non-SG %	SG %	Non-SG %	N
Baseline	12	16	1	8	500
6	21	24	11	15	329
12	35	44	16	22	254
18	53	55	28	26	208
24	58	52	37*	24	189
30	56	51	32	28	152
36	58	59	38	34	131
42	70	58	38	30	94
48	73*	50	35	27	81
54	63	54	0	0	53
60	53	43	42	19	40

Conclusions: In our population, SG is very frequent and associated with younger age at onset, low socioeconomic and educational level, longer duration and severe disease. Although they receive more intense treatment according to availability, TU and remission criteria are seldom observed and very difficult to achieve. Earlier diagnosis, intensive and adequate treatment should change these results.

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SAT0364

HIGH PREVALENCE OF ENTHEOPATHIES IN PATIENTS WITH X-LINKED HYPOPHOSPHATEMIA

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Background: X-linked hypophosphatemia (XLH) is a rare genetic disease (incidence 1/20 000) due to mutations in the *PHEX* gene. The genetic defects is associated with high level of FGF23 leading to impaired renal phosphate reabsorption and 1,25(OH)vitaminD synthesis. Most patients are diagnosed at walking age because of lower limb deformities and rickets. In adulthood, patients complain of musculoskeletal pain in relation to bone lesions (pseudofractures, osteomalacia) and joint involvement but also ossification of entheses. The latter is a strong determinant of the altered quality of life in this population.

Objectives: The aim of this work was to describe the structural bone and joint involvement of the entire skeleton in a large cohort of adult patients with XLH.

Methods: The study was prospectively conducted in symptomatic adult XLH patients in the context of the systematic evaluation at the French reference centre for rare diseases of calcium and phosphate metabolism. 81 of the 136 patients included between June 2011 and December 2017 had full body x-rays performed with the EOS low-radiation system. Two trained readers performed a standardised analysis of radiographs with a reading grid including the collection of ossifications of the anterior and lateral vertebral ligament, iliac crests, ischial sites, cotyles and achilles tendons; osteophytes on the spine and hip osteoarthritis; and sacroiliac joint aspect.

Results: Of the 81 patients, 55 are women (68%), mean age 42.4 $\pm$ 13.6 years, diagnosed on average at the age of 11 years. 63 (78%) patients were treated during childhood with phosphate and/or vitamin D supplementation. At the time of study, 41 (50.6%) were still upon phosphate supplements and/or vitamin D

analogues, 32 (40%) were taking analgesics, although 65 (80%) suffered from pain (71% articular pain, 22% bone pain and 20% enthesitic pain). Of the 81 patients, 71 (88%) presented with structural damage including 44 (63%) with syndesmophytes or ossifications. The average number of syndesmophytes/ossifications was 4.1±2.6 per patient in this subgroup. Most of them were localised at the cervical spine (82%) and the lumbar spine (62%). In addition, these ossifications were fine in 59% (syndesmophytes-like) and coarse in 41%. The other localizations were the ischial region (40%), iliac crests (37%) and the cotyles (90%). Calcanei were visible on 52 radiographs and showed coarse ossifications for 22 of them (42%). 46 patients (65%) had already hip osteoarthritis and 26 (37%) had at least one osteophyte on the spine mainly on the thoracic spine (58%). We found complete ankylosis of sacro-iliac joints in 12 patients (17%).

Conclusions: This observational study shows that 88% of adult XLH patients have structural damages and at least one ossification on the spine and/or on peri-articular joint (specially on the cotyles). Of importance, these ossifications were as frequent and as severe in patients not treated with phosphate and vitamin D analogues than in untreated patients. Knowing that this disease can be misdiagnosed and eventually diagnosed only at the adult age, attention must be paid to ossification of the entheses, in particular of the common anterior vertebral ligament and Achilles tendons. The mechanisms of formation of these enthesopathies remain to be determined.

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SAT0366

SECULAR TRENDS IN THE INCIDENCE AND PREVALENCE OF GOUT IN DENMARK FROM 1995–2015: A NATIONWIDE REGISTER-BASED STUDY

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Background: Gout is perceived as the most prevalent inflammatory arthritis in the western world – but with great regional and ethnical variation. The incidence and prevalence is thought to be increasing but it's based on few population studies with limited calendar time periods.^[1] We took advantage of the unique Danish health registries to examine the incidence and prevalence of gout in a nationwide cohort covering the last two decades.

Objectives: To examine temporal trends in the incidence and prevalence of gout in the adult Danish population.

Methods: Using the nationwide Danish National Patient Registry (DNPR), we calculated the incident rate of hospitalised gout patients (per 1 000 000 person-years) within each 1 year period from 1995 to 2015, and prevalence of gout requiring hospitalisation in 2000 and 2015. Additionally, the age- and gender-specific incidence rates of gout from 1995 to 2015 were calculated. Incidence rates were standardised according to the NORDCAN standard population. Confidence intervals (CI) were calculated according to a Poisson distribution. Both incidence rates based on diagnosis from all specialties and rheumatologists, respectively, were calculated.

Results: In the 20 year study period we identified 45 685 newly diagnosed cases of gout. We found an increase in overall incidence, from 32.26/100,000 [95%CI 30.7 to 33.1] in 1995 to 57.5/100,000 [95%CI 55.6 to 59.5] in 2015 (p<0.001). The age and sex specific incidence rates increased progressively with increasing age among both sexes, most markedly in patients aged >60 years. Similar trends were observed for cases diagnosed at rheumatology departments. We likewise observed an increase in the prevalence of gout from 0.29% [95%CI 0.29 to 0.30] in 2000 to 0.68% [95%CI 0.68 to 0.69] in 2015.

Conclusions: We found a 1.8-fold increase in the incident rate of hospitalised gout patients in the period 1995–2015 in Denmark among both men and women. Similarly we found a 2.2-fold increase in the prevalence from 2000 to 2015. Further research is needed to elucidate the causes underlying the observed increase in the burden of gout in Denmark

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SAT0366

SERUM URIC ACID INCREASES AFTER ABROGATION OF SYSTEMIC INFLAMMATION BY TNF INHIBITION

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Background: In patients with gout, the serum uric acid (SUA) is usually lower during acute gouty attacks than during intercritical periods. It has been suggested that systemic inflammatory response can cause this phenomenon.

Objectives: We aimed to investigate whether SUA levels are associated with levels of pro-inflammatory cytokines in patients with systemic autoimmune rheumatic diseases: rheumatoid arthritis (RA), ankylosing spondylitis (AS), psoriatic arthritis (PsA) and juvenile idiopathic arthritis (JIA) and whether the initiation of a therapy with TNF inhibitors (TNFi) would change levels of SUA.

Methods: A cohort of 128 patients with clinically active chronic inflammatory rheumatic disease (44 with RA, 45 with AS, 23 with PsA, 16 with JIA) and CRP ≥ 10 mg/L was recruited in the Institute of Rheumatology, Prague. SUA, CRP, creatinine, MCP-1, IFN-α2, IFN-γ, IL-1β, IL-6, IL-8, IL-10, IL-12, IL-17a, IL-18, IL-23, IL-33 and TNF-α were measured in serum before and after 3 months of treatment with TNFi. We employed bead-based immunoassays to quantify the cytokines and retrieved demographic data, BMI and co-medications. We present the data as mean ± standard deviation or mean and 95% CI.

Results: SUA was significantly lower before initiation of TNFi (288.5 ± 78.7 μmol/l) than after 3 months of treatment (307.7 ± 81.7 μmol/l, p=0.0002). The level of CRP (38.9 ± 30.3 vs 5.0 ± 7.6 mg/L, p<0.0001), IL-6 (172.8 ± 339.0 vs 24.2 ± 32.5 pg/ml, p<0.0001) and MCP-1 (1062 ± 554.7 vs 959.2 ± 508.9 pg/ml, p=0.015) significantly decreased during treatment. When we grouped our patients according to sex and diagnosis, the SUA levels significantly increased in the male patients (311.4 ± 79.5 vs 343.9 ± 74.3 μmol/l, p<0.0001), patients with AS (298.4 ± 70.0 vs 326.4 ± 73.1 μmol/l, p=0.0009) and with PsA (302.6 ± 75.3 vs 334.6 ± 74.3 μmol/l, p=0.033), but not in patients with RA or JIA. There was no correlation between the magnitude of the change of SUA, CRP and pro-inflammatory cytokines or the reported use of NSAIDs. However, when we classified our cohort according to increase or decrease of SUA after initiation of TNFi, we observed statistically significant differences in the changes of IL-1β (1.5, –10.8 to 13.9, vs 29.4, 5.4 to 53.1 pg/ml, p=0.023), IL-23 (0.7, –40.0 to 41.3 vs 102.0, 5.5 to 198.6 pg/ml, p=0.023), IL-33 (–1.2, –26.7 to 24.3 vs 48.8, 3.8 to 93.9 pg/ml, p=0.039) and TNF-α (–0.8, –6.1 to 4.5 vs 10.5, –0.4 to 21.32 pg/ml, p=0.037) between these two groups.

Conclusions: We have shown that abrogation of systemic inflammation by TNFis results in an increase in the levels of SUA within 3 months, especially in male patients with AS or PsA. Our results support the hypothesis that systemic inflammation is associated with a decrease in SUA concentrations. The mechanism remains elusive. However, IL-1β, IL-23, IL-33 and TNF-α are candidate players. The difference between the male and female patients argue for a role of the sex hormones. We cannot exclude the possibility that an underreported differential in the use of NSAIDs, known for their uricosuric effect, may have partly biased our observations.

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