Disclosure of Interests: Paula Garcia: None declared, Boris Anthony Blanco Cáceres: None declared, Fernando Perez-Ruiz Grant/research support from: Asociación reumatólogos de Cruces, Consultant for: Grünenthal Horizon Menarini, Fundación Española Reumatología


**REFERENCES**


Disclosure of Interests: Bo Gong: None declared, Mark Warwas: None declared, Michael O’Keeffe: None declared, Nicole Tsao: None declared, Mary De Vera: None declared, Kamran Shojaian Shareholder of: Stock options in Augurex – biotech company, Grant/research support from: Doing a vasculitis study with BMS, Faisal Khosa: None declared, Savvas Nicolau Grant/research support from: The Department of Radiology, Vancouver General Hospital has a Master Research Agreement with Siemens Healthcare, Forcheim, Germany (non-pharmaceutical company).


**SAT0423 WHERE SHOULD WE EXAMINE FOR URIC ACID DEPOSITS? RESULTS FROM THE NOR-GOUT ULTRASOUND STUDY**

Hilde Reimer Hammer1,2, Lars Fridjof Karolusena,1 Lena Tenslev,1 Tore K. Kviien2, Till Uhlig1, Diakonhjemmet Hospital, Dept. of Rheumatology, Oslo, Norway

2Centre for Rheumatology and Spinal Diseases, Copenhagen University Hospital at Glostrup, Copenhagen, Denmark

Background: Ultrasound (US) has received an increasing attention in detecting uric monosodium urate (MSU) deposits, and US is included in the ACR/EULAR classification criteria for gout. OMERACT has developed definitions for US elementary lesions in gout including double contour (DC) sign (deposits of crystals on the surface of cartilage), tophus (larger hypo-echoic aggregation of crystals, usually well delineated) and aggregates (small hyper-echoic deposits).

Objectives: The present objective was to explore by US the most frequent locations of MSU deposits.

Methods: Baseline data from a prospective observational study were used where patients with crystal-proven gout who presented after a recent gout flare were included (202 patients (mean (SD) age 56.6 (14.2) years, disease duration 8.0 (7.7) years, 94.1% men), all with insufficiently treated serum uric acid level (>360 μmol/L/>6 mg/dl). We performed an extensive assessment with US (GE E9 machine, grey scale 15MHz) for semi-quantitative scoring of MSU deposits (0-none, 1-possible/small, 2-moderate, 3-major) using OMERACT definitions for DC, tophi and aggregates. The following locations were examined bilaterally: radiocarpal, MCP 2 and 3=major) using OMERACT definitions for DC, tophi and aggregates. The following locations were examined bilaterally: radiocarpal, MCP 2 and 3=major)

Results: The baseline mean (SD) serum uric acid level was 494 (87) μmol/L. Table 1 shows uric acid deposits to be correlated with kidney function and disease duration. Table 2 includes frequencies with at least moderate US scores (≥2) in the different joint and tendon localisations and shows DC primarily to be found in MTP1, followed by distal patellar and triceps tendons. There were no major differences between right and left side. In 25 patients (12.5%) DC was seen on femoral or talar cartilage but with no deposits in the MTP1 joint.

Conclusion: Uric acid deposits were associated with reduced kidney function as well as disease duration. When gout is suspected the present study suggests US examinations of MTP1, distal patellar and triceps tendons as well as talar and femoral cartilage to be the most important sites to examine for presence of MSU deposits.

**REFERENCES**


Disclosure of Interests: Bo Gong: None declared, Mark Warwas: None declared, Michael O’Keeffe: None declared, Nicole Tsao: None declared, Mary De Vera: None declared, Kamran Shojaian Shareholder of: Stock options in Augurex – biotech company, Grant/research support from: Doing a vasculitis study with BMS, Faisal Khosa: None declared, Savvas Nicolau Grant/research support from: The Department of Radiology, Vancouver General Hospital has a Master Research Agreement with Siemens Healthcare, Forcheim, Germany (non-pharmaceutical company).


**SAT0422 URATE VOLUME AND DISTRIBUTION BY DUAL ENERGY CT: CLINICAL AND RADIOLOGICAL CORRELATION IN GOUT PATIENTS**

Bo Gong1, Mark Warwas2, Michael O’Keeffe3, Nicole Tsao4,5, Mary De Vera4,5, Kamran Shojaian2, Faisal Khosa2, Savvas Nicolau1.1Department of Medicine, Division of Rheumatology, Vancouver, Canada; 2University of British Columbia, Department of Medicine, Vancouver, Canada; 3University of British Columbia, Faculty of Pharmaceutical Sciences, Vancouver, Canada; 4Arthritis Research Canada, Vancouver, Canada; 5University of British Columbia, Department of Medicine, Division of Rheumatology, Vancouver, Canada

Background: Dual-energy CT (DECT) has shown tremendous potential as a novel non-invasive method of urate detection in patients with gout.

Objectives: Our aim was to determine the concordance between urate volume and distribution measured on DECT with clinical presentation among patients with gout.

Methods: We conducted a retrospective descriptive study of patients with gout who were referred by a rheumatologist for gout DECT scans between January 2008 and February 2018. At our institution, routine DECT scans for gout consist of four sets of images with limbs scanned in pairs: the hands/wrists, elbows, knees and ankles/feet. We obtained volumetric measurements for all four anatomical regions, and assessed the concordance with clinical presentation as retrieved from patient electronic health record.

Results: A total of 182 patients were included in this study; 96 patients (80.2% male, age range: 27-90, mean age: 62) had urate deposits on DECT scans. Among urate-positive patients, the mean total volume of deposits was 2.45 cm3 (hands/wrists: 0.17 cm3, 7%; elbows: 0.62 cm3, 25%; knees: 0.70 cm3, 28%; ankles/feet: 0.96 cm3, 39%). The average number of urate-positive joints was 2.5, higher than that of clinically symptomatic joints (1.9). Discordance between DECT results and clinical symptoms were seen more often in elbows (46 urate-positive vs. 22 symptomatic) and knees (68 vs. 43), compared with hands/wrists (31 vs. 30) and ankles/feet (90 vs. 87). Only in 25 (26.0%) patients, the distribution of symptomatic joints fully matched the distribution of urate deposits. In 6 patients (6.3%), there was no overlap between these two distribution patterns.

Conclusion: On DECT scans, most urate deposits in gout patients occur in the ankles/feet, followed by knees, elbows, and hands/wrists. DECT scans can reveal urate deposit in asymptomatic joints, especially in elbows and knees. Assessing the concordance of urate distribution with clinical presentation in all limb joints in gout patients, our results can help understand the pathophysiology of urate deposition in gout, and guide the development of DECT protocols for the screening, assessment and follow-up management of gout patients.
PHENOTYPE OF PATIENTS WITH EARLY ONSET GOUT

Clinical characteristics and risk factors of early onset gout (EOG) vs common gout (CG) are presented in Table 1. EOG pts had more severe gout than CG pts: longer disease duration and more uric acid deposits (Table 2). At final visit, 62.8 and 67.9% of EOG and CG patients, respectively, achieved SUL target (p=0.56). Proportion of pts taken ULT was similar in both groups as well as proportion of pts treated with allopurinol or FBX.

Methods: We retrospectively included all gout patients (pts) with ineffective ULT who were referred to our department between 2014 and 2018, and who had at least one visit between 9 and 15 months after first visit. At baseline, ineffective ULT was defined by a serum urate level (SUL) above target (>360 µmol/L). Demographic characteristics, gout history and CMs, treatments were systematically recorded.

Results: Among 213 pts, 39 (18.3%) had experienced a first gout flare before 30 years old. Pts with CG had more CMs than EOG pts: CV diseases, hypertension, T2D, dyslipidemia and kidney transplantation. Non-alcoholic fatty liver disease was more frequent in EOG than CG (61.1 vs 24.1%). At final visit, 62.8 and 67.9% of EOG and CG patients, respectively, achieved SUL target (p=0.56). Proportion of pts taken ULT was similar in both groups as well as proportion of pts treated with allopurinol or FBX.

Disclosures of Interests: Hilde Berner; Grant/research support: Grunenthal, Novartis, Pfizer. Omar Al Tabaa; Grant/research support: Orion Pharma, Pfizer, Roche, Sandoz, Sanofi, Mylan and UCB., Consultant for: AbbVie, Biogen, BMS, Horizon, Speakers fee from: AstraZeneca, Celgene, Celltrion, Eli Lilly, Hospira, Merck-Serono, MSD, Novartis, Oktal, Orion Pharma, Pfizer, Roche, Sandoz, Sanofi, Mylan and UCB, Till Uhlig; Consultant for: Grünenthal, Novartis, Speakers bureau: Grünenthal, Novartis


SAT0424

PHENOTYPE OF PATIENTS WITH EARLY ONSET GOUT

Julia Herrou, Omar Al Tabaa, Etienne Gaix-Fontaine, Pascal Richette, Thomas Bardin, Frederic Liote, Aline Frazier, Hang Kong Ee. Hôpital Lariboisière, Paris, France

Background: Gout is a frequent inflammatory arthritis in men after 45 years old. In this common (CG) form, gout is associated with comorbidities (CMs) including metabolic syndrome, hypertension, type 2 diabetes (T2D), obesity, chronic kidney disease and cardiovascular (CV) diseases. In contrast, very few data are available for early onset gout (EOG), defined as first flare before 30 years old.

Objectives: The aim of this study was to compare gout characteristics and CMs between EOG and CG. Methods: We retrospectively included all gout patients (pts) with ineffective ULT who were referred to our department between 2014 and 2018, and who had at least one visit between 9 and 15 months after first visit. At baseline, ineffective ULT was defined by a serum urate level (SUL) above target (>360 µmol/L). Demographic characteristics, gout history and CMs, treatments were systematically recorded.

Results: Among 213 pts, 39 (18.3%) had experienced a first gout flare before 30 years old. Pts with CG had more CMs than EOG pts: CV diseases, hypertension, T2D, dyslipidemia and kidney transplantation. Non-alcoholic fatty liver disease was more frequent in EOG than CG (61.1 vs 24.1%). At final visit, 62.8 and 67.9% of EOG and CG patients, respectively, achieved SUL target (p=0.56). Proportion of pts taken ULT was similar in both groups as well as proportion of pts treated with allopurinol or FBX.

Disclosures of Interests: Hilde Berner; Grant/research support: Grunenthal, Novartis, Pfizer. Omar Al Tabaa; Grant/research support: Orion Pharma, Pfizer, Roche, Sandoz, Sanofi, Mylan and UCB., Consultant for: AbbVie, Biogen, BMS, Horizon, Speakers fee from: AstraZeneca, Celgene, Celltrion, Eli Lilly, Hospira, Merck-Serono, MSD, Novartis, Oktal, Orion Pharma, Pfizer, Roche, Sandoz, Sanofi, Mylan and UCB, Till Uhlig; Consultant for: Grünenthal, Novartis, Speakers bureau: Grünenthal, Novartis


SAT0425

CLINICAL CHARACTERISTICS AND RISK FACTORS OF ULCERATION OVER TOPHI IN PATIENTS WITH GOUT

Zhengping Huang, Xiaqi Liu, Yuqi Liu, Li Tianwang, Guangdong Second Provincial General Hospital, Guangzhou, China

Background: With increasing prevalence of gout world-wide, ulceration associated with tophaceous gout is becoming increasingly common in recent years. Investigation of the clinical characteristics and risk factors will allow us to better understand the fact of ulceration over tophi and improve the management for such challenge problem.

Objectives: To describe clinical characteristics of ulceration over tophi in patients with gout and determine risk factors associated with ulceration.

Methods: Patients presenting with tophi or ulceration(s) over tophi were prospectively recruited and their clinical characteristics were recorded.

Conclusion: In conclusion, EOG is more severe and EOG pts have less CMs. Moreover, EOG has a higher inheritability trait than CG patients suggesting different pathological mechanisms.

Disclosure of Interests: Julia Herrou: None declared, Omar Al Tabaa: None declared, Etienne Gaix-Fontaine: None declared, Pascal Richette Consultant for: Grunenthal, Horizon, Speakers bureau: AstaZeneca, Grunenthal, Horizon, Novartis, Speakers bureau: Astella, AstraZeneca, Grunenthal, Frederic Liote Grant/research support from: institutional grants from Grunenthal, Ipsen Pharma/Menarini, Novartis, SOBI for the European Crystal Network Workshops, Consultant for: Grunenthal, Novartis, Aline Frazier: None declared, Hang Kong Ee: None declared

Results: A total of 105 patients were enrolled. 33 patients with ulcerations were older, with prolonged duration with gout and tophi, a higher rate of obesity, greater number of tophi, lower level of GFR, and higher level of serum creatinine, ESR and CRP. The mean duration of ulceration was 1.63 ± 2.32 months. The ulcerations mainly located in ankle (34.21%) and MTP (39.47%), with a mean size of 32.37 × 22.76 mm. The majority of ulcerations were categorized as stage I (42.4%) and stage II (51.5%). In univariate regression analysis, age, glucocorticoid abuse, gout duration, tophi duration, tophi number and GFR were associated with ulceration. In the multivariable model, significant differences were demonstrated in glucocorticoid abuse, tophi duration, tophi number.

Conclusion: Gout patients with ulceration(s) over tophi present several different aspects of clinical characteristics compared with those without ulceration. Glucocorticoid abuse, prolonged duration with tophi and greater number of tophi are risk factors for ulceration over tophi. Avoiding indiscriminate use of glucocorticoid needs to be emphasized, and prevention of tophi formation via initiate effective urate-lowering therapy is highly recommended in patients with gout.

REFERENCES

Disclosure of Interests: None declared

SAT0426

TOPHI, THE PREDICTIVE FACTOR OF ARTERIAL STIFFNESS IN PATIENTS WITH GOUT AND HYPERURICEMIA

WonSeong Jeong1, Jinseok Kim2, Joonhyouk Choi2. 1Jeju National University Hospital, Jeju, Korea, Rep. of (South Korea); 2Jeju National University School of Medicine, Jeju, Korea, Rep. of (South Korea).

Background: Gout is the most common form of inflammatory arthritis and its prevalence is increasing in recent decades. Many studies have reported that gout and hyperuricemia are associated with an increase in all-cause mortality and cardiovascular mortality. Increased arterial stiffness is an independent marker of cardiovascular diseases and risk predictors. Many studies have shown a significant correlation between uric acid levels and arterial stiffness. Augmentation Index (AI) is an indirect measure of arterial stiffness. Tophi is formed when gout is left untreated for a long time.

Objectives: The aim of this study is to determine whether the presence of tophi could predict an increase in arterial stiffness.

Methods: Between June 2017 and June 2018, augmentation index was measured using SphygmoCor for patients who visited Jeju National University Hospital in South Korea with gout or hyperuricemia. Medical records, laboratory and AI data were retrospectively analyzed.

Results: One hundred twenty two patients participated in the study and AI was measured. Most (96.7%) of the patients were male. At the time of the examination, 99 patients (81.1%) were treated with uric acid lowering agent and the mean duration of the disease was 6.9 years. When the patients were divided into two groups according to the presence or absence of Tophi, the average age (60.2±11.6 vs 53.4±13.2, p=0.023) of the patients with Tophi was significantly higher, duration of disease (13.0±5.8 vs 5.4±5.4, p=0.000) was longer and the AI (28.7±7.8 vs 20.7±10.4, p=0.001) was higher. When multiple linear regression analysis was performed to exclude the effects of other variables (DM, HTN, hyperlipidemia, age, BMI, total cholesterol, creatinine), tophi was a predictor of high AI (β = 5.478; 95% CI, 0.343-10.613; p=0.037). Multiple logistic regression analysis was performed to determine the predictors of tophi. The cut-off points of disease and AI @ 75 values were significantly predictive of the presence of tophi (Odds ratio 1.113; 95% CI, 1.024-1.208; p=0.012)

Conclusion: This study suggests that the presence of tophi is an independent predictor of increased arterial stiffness in patients with gout and hyperuricemia.

REFERENCES