Abstract FRI0228 – Table 2. Quartiles of sUA and age as predictors for presence of CAC (>0 CACs score) in male and female in multivariate logistic regression analyses adjusted for age, smoking, BMI, DM, DL, HT, hsCRP, EDU and PA.

	Male			Female	
	Odds ratio, multivariate*, (CI)	p-value		Odds ratio, multivariate*, (CI)	p-value
sUA, $\mu\text{mol/L}$			sUA, $\mu\text{mol/L}$		
31-305, Ref			143-229, Ref		
306-350	2.1 (1.2-3.7)	0.01	230-262	0.9 (0.5-1.7)	0.7
351-404	1.8 (1-3.3)	0.04	263-305	1 (0.5-2)	0.9
405-665	2 (1-3.8)	0.04	306-702	1.2 (0.6-2.3)	0.6

Conclusions: Higher levels of SU is associated with presence of CACs in men but not with CIMT. This could suggest that SU is an innocent bystander that covariates with many, but not all, CVRFs. However, it could also imply biological differences in the effect of SU on calcification of coronary arteries compared to carotid intima thickening. Furthermore, SU may exert different effects depending upon biological age and degree of CVD development.

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FRI0229 THE VALIDITY OF THE OMERACT ULTRASOUND DEFINITIONS OF GOUT ELEMENTARY LESIONS IN THE DIAGNOSIS OF GOUT

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Objectives: The aim was to evaluate ultrasound (US) as a diagnostic tool for gout using the OMERACT US Working Group's 2015 US definitions for elementary lesions in gout using a) positive urate crystal microscopy or b) clinical diagnosis of gout blinded to the US assessment as gold standard for determining the sensitivity and specificity of each elementary lesion.

Methods: US examination (28 joints, 26 tendons) were performed in patients with clinically suspected gout. Joints were evaluated for the four OMERACT elementary lesions of gout (Double contour (DC), Tophus, Aggregates and Erosions) and tendons for aggregates and tophus. The lesions were registered as either present or absent for each patient. The US assessment was compared to 2 different gold standard references: 1) presence/absence of monosodium-urate (MSU) crystals by joint fluid microscopy and 2) the final clinical diagnosis based on the clinical assessment by a rheumatologist, blinded to US findings but not microscopy findings (table 1).

Results: 51 patients (44 males, 7 female), mean age of 62(30 – 89) years were included. 34 of these had a positive microscopy for MSU crystals whereas 15 patients had a negative microscopy and in 2 patients joint aspiration was not possible. Of the patients without positive microscopy 3 were clinically diagnosed as having gout by a US blinded assessor whereas 14 were diagnosed with other diseases.

DC, tophus and aggregates were found to be statistically significantly more frequent in both patients with positive MSU microscopy and in patients with clinically diagnosed gout (p-values range from 0.003 to <0.0001), compared to patients with negative MSU microscopy and other clinical diagnoses, respectively. All four elementary lesions were found to have high sensitivity (ranges from 0.74–0.88) for gout, both when MSU microscopy and when clinical diagnosis was used as gold standard reference. DC and aggregates had the highest sensitivities (0.85–0.88). Low specificity (0.33–0.64) was found for both aggregates and erosions, both when microscopy and clinical diagnosis was considered the gold standard. In contrast, DC and tophus showed high specificities for patients with microscopically proven gout (0.73 and 0.87, respectively) and particularly patients with clinically diagnosed gout (both 0.93).

DC and tophi were also found to have high positive predictive values (PPV) for gout for patients with microscopically proven gout (0.88 and 0.93, respectively) and especially for patients with clinically diagnosed gout (both 0.97). In contrast negative predictive values (NPV) were relatively low for all lesions (ranges from 0.36–0.72).

Abstract FRI0229 – Table 1. US findings in patients with microscopically proven or clinically defined gout.

		Microscopy gold standard reference						Clinical diagnosis gold standard reference					
		No. 49						No. 51					
		Microscopy positive	Microscopy negative	Sensitivity	Specificity	PPV	NPV	Fisher's exact test	Clinical gout	Clinical no gout	Sensitivity	Specificity	PPV
US lesions**	No.	34	15					P-value*	No.	37	14		
DC	Present	33	4	0.85	0.73	0.85	0.69	0.0001	33	32	1	0.85	0.93
	Absent	1	11						1	5	13		0.72
Tophi	Present	29	2	0.79	0.87	0.93	0.65	<0.0001	30	29	1	0.78	0.93
	Absent	7	13						7	8	13		0.62
Aggregates	Present	37	7	0.88	0.53	0.61	0.67	0.003	37	32	5	0.85	0.64
	Absent	1	8						1	5	9		0.64
Erosions	Present	35	10	0.74	0.33	0.71	0.36	0.73	36	28	8	0.75	0.43
	Absent	14	5						1	9	6		0.40

*P-values are calculated using Fisher's exact test, two-sided p-values.

**Joints evaluated by US: Metacarpophalangeal, wrist, elbow, metatarsophalangeal, tibiotaral and knee joints. Tendon compartments evaluated by US: Extensor tendons of the wrist, flexors, peroneus, tibialis posterior, quadriceps and patella tendons.

Conclusions: The OMERACT US definitions of gout elementary lesions seem to be a valid tool for diagnosis of gout in clinical practice. Particularly, DC and tophi seem to have a high specificity and high PPV for the disease.

Disclosure of Interest: None declared

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FRI0230 CROWNED DENS SYNDROME, YET ANOTHER RHEUMATIC DISEASE IMPOSTER

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Background: Crowned Dens Syndrome (CDS) is defined as acute cervical or occipital pain, usually associated with elevated acute phase reactants, due to local inflammatory reaction related to calcifications in the ligaments surrounding the odontoid process. Virtually all previous descriptions of CDS have been related to calcium pyrophosphate dehydrate (CPPD) arthropathy.

Objectives: To evaluate patients admitted with acute neck pain and/or headache for CDS not only in those with CPPD arthropathy but also in patients with other rheumatic diseases

Methods: Twenty four cases of CDS treated in Zion Medical Centre in 2016–2017 were prospectively reviewed. Patients were evaluated according to clinical and laboratory features, background rheumatic disease, response to treatment and invasive investigational procedures undertaken.

Results: All patients (age range 54 to 87 years, 67% females) presented with acute onset pain in upper neck and/or occiput accompanied with extreme neck stiffness. Nineteen of 24 patients (79%) had elevated erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP). Five patients (21%) complained on concomitant severe diffuse headache. Four of those underwent temporal artery biopsy, which was negative for arteritis in all cases, and one was subjected to lumbar puncture, which was non-contributory.

The diagnosis of CDS was based on computed tomography imaging in all patients, with precipitations of calcium pyrophosphate dehydrate seen most often in transverse ligament (figure 1) or in alar ligaments.

Seventeen patients (71%) had known rheumatic disease on presentation: 10 patients had the diagnosis of CPPD arthropathy, 3 patients had ankylosing spondylitis, 2 patients had rheumatoid arthritis, 1 patient had Behcet's disease and 1 suffered from Familial Mediterranean Fever (table 1). In 4 more patients CDS was the presenting symptom of CPPD disease, diagnosed during hospitalisation.

All patients were treated with glucocorticoids as 0.5 mg/kg prednisone plus colchicine 0.5 mg bid resulting in dramatic improvement in both clinical (head/neck pain alleviated and cervical spinal mobility regained) and laboratory measures.

Abstract FRI0230 – Table 1. Clinical and laboratory feature of 24 patients with crowned dens

Age, median(range)	71(44-87)
Female (ratio)	16/24 (66%)
Presentation symptoms:	No. (%)
Neck pain	24 (100%)
Headache/Fever	5 (20.6%) 1 (4%)
Antecedent rheumatologic diagnosis:	No. (%)
Calcium pyrophosphate dehydrate	14 (58%)
Ankylosing spondylitis	3 (12.5%)
Rheumatoid arthritis	2 (8.3%)
Behcet's disease	1 (4%)
Familial Mediterranean Fever	1 (4%)
Elevated CRP/ESR, (mean)	19 (60 mg/l)
Patient underwent temporal artery biopsy	4 (16.6%)

Conclusions: CDS should be considered and craniocervical junction exposed in the context of acute cervical or occipital pain with stiffness and elevated inflammation markers not only in patients previously diagnosed with CPPD, but rather in diverse clinical settings. Particularly, CDS should be recognised as a possible alternative diagnosis in older patients referred with suspicion to giant cell arteritis because of new headache and elevated ESR/CRP. While generally believed to be a rare phenomenon, CDS was seen in 24 patients in 400-bed general hospital within 2 years and is probably widely underdiagnosed.

Disclosure of Interest: None declared

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FRI0231 STUDY OF URATE TRANSPORTERS IN PRIMARY HYPERURICEMIA AND GOUT

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Background: The urate transporters are one of the main genetic determinants of serum uric acid concentrations.

Objectives: In this study we investigated the effects of non-synonymous allelic variants of urate transporters in a cohort of patients with primary gout and/or asymptomatic hyperuricemia.

Methods: The cohort consisted of 165 gout patients (151 men, 14 women); 58 hyperuricemic individuals (39 men/19 women); 115 normouricemic controls were used for comparison. Gouty arthritis was diagnosed according to the 1977 preliminary criteria of the American College of Rheumatology. Coding regions of *ABCG2*, *SLC2A9*, *SLC22A11*, *SLC22A8*, *SLC17A3*, and *SLC17A1* genes were amplified and sequenced directly. To estimate the functions of the identified non-synonymous allelic variants, we used the protein prediction algorithms.

Results: In *ABCG2* gene, we detected nine non-synonymous variants (two common, seven rare including one novel): p.V12M, p.Q141K, p.R147W, p.T153M, p.K360del, p.F373C, p.T434M, p.S476P and p.D620N. The p.Q141K (rs2231142) variant had a significantly higher minor allele frequency (0.23) in the gout patients compared to the European-origin population (0.09) and was significantly more common among gout patients than among normouricemic controls (OR=3.15, p<0.0001). In addition, patients with non-synonymous *ABCG2* allelic variants had an earlier onset of gout (41.5 vs. 48 years, p=0.0478) and a greater likelihood of a familial history of gout (42% vs. 26%, OR=2.02, p=0.043)¹. We identified novel intron variant c.689+1G>A which is associated with two abnormal splicing variants, leading to premature introduction of the stop codon, mislocalized ABCG2 signal on plasma membrane and no urate uptake activity².

In *SLC2A9* gene, seven missense variants were identified (six common, one rare): p.A17T, p.G25R, p.T275M, p.D281H, p.V282I, p.R294H, and p.P350L. In

SLC17A3, the analysis revealed common allelic variants p.A100T and p.G279R. Rare non-synonymous variants p.V202M and p.R343L were found in *SLC22A11*. Only one common missense variant p.T269I was identified in *SLC17A1*. In *SLC22A8* sequencing revealed three rare variants: p.R149C, p.V448I and p.R513G. The precise impact of *SLC22A11*, *SLC22A8*, *SLC17A3*, and *SLC17A1* in the context of hyperuricemia and gout in our cohort is unclear and will be further studied include functional characterisation of selected dysfunctional variants.

Conclusions: Genetic variants of *ABCG2*, common and rare, increased the risk of gout and had a significant effect on earlier onset of gout and the presence of a familial gout history. Genotyping the rare variants of *ABCG2* along with its common variants is essential for evaluating the individual risk for gout.

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FRI0232 ULTRASONOGRAPHIC FEATURES OF GOUTY DACTYLITIS OF THE HANDS

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Background: Dactylitis is a manifestation of gout that can occur on debut or throughout the course of the disease, although it is usually considered a sign of chronicity or a hallmark of long-term disease. Classically, the synovitis or tenosynovitis mediated by the deposit of microcrystals has been interpreted as an inflammatory effect due to proximity. The etiological prevalence based on imaging studies is unknown.

Objectives: To determine the prevalence of different ultrasonographic features of dactylitis of the hands in patients with gout.

Methods: A cross-sectional study was conducted based on a registry of ultrasound images of patients with gout and clinical dactylitis either in debut or throughout evolution. The selection of patients followed strictly clinical criteria based on the corresponding medical reports. All images were obtained in a medium-high gamma GE equipment and were obtained by the same operator over three years. Given that no comparisons were planned, no masking of the clinical situation of the patients was made in the eyes of the interpreter. The interpretation of findings was dichotomous in the determination of synovitis, tenosynovitis and enthesopathy according to EULAR definition criteria. The identification of tophi was made according to the definition of Avila Fernandes et al. (doi: 10.1007/s00256-010-1008-z) The overlapping of findings was counted independently at the moment of establishing the prevalence.

Results: We included images of 66 patients diagnosed with gout and with dactylitis of at least one finger at the time of the ultrasound evaluation. The mean age of the patients was 59.2 SD 4.3 years. Sixty-two patients were male. Of the total number of patients, 60 had tenosynovitis of the flexor tendinous apparatus (90.9%). Four of these patients also presented tenosynovitis of the tendinous extensor apparatus. No patient presented only extensor tenosynovitis. Enthesopathy was identified in 6 patients (9.1%), in no case did enthesopathy occur with power Doppler signal. Synovitis was identified in 43 patients (65.1%). Of these, in 13 patients a grade I was registered and in 26 a power Doppler signal was demonstrated. Tophi were identified in 16 patients (24%).

Conclusions: CONCLUSIONS: This is, as far as we know, the first iconographic study of gouty dactylitis based on ultrasound. According to our results, tenosynovitis of the flexors is the most frequent finding in gouty dactylitis while enthesopathy is rather rare. The presence of significant synovitis is the second most frequent finding while tophi as conditioning agents of synovitis were the least frequent finding. We understand that the knowledge of the echographic characteristics of gouty dactylitis can serve as a clinical guide when making therapeutic decisions in cases where this clinical sign lasts despite the control of other manifestations.

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