

one of the 3 criteria. Patients with spine deformation were older ( $p=0.043$ ), with higher BMI ( $p=0.004$ ) and had a trend to be more hypogonadal ( $p=0.06$ ). Concerning quality of life, AcroQoL's average was 70.9% (score 0 to 100, maximal quality of life =100, range 32-98), HAQ's average was 0.18 (score 0 to 3, maximal quality of life 0, range 0-1.38) and Oswestry's average was 9.8 (score 0 to 100, maximal quality of life 0, range 0-44).

**Conclusion:** This study shows for the first time that acromegaly patients are not at an increased risk of vertebral fractures. This result differs from the literature that reported more than 30% of VF in this population. Our study bring several points of explanation. First, the vertebral abnormalities were frequent in our patients and can overestimate the VFs without a qualitative analysis of the X-ray. Secondly, the right endocrine balance plays an important role in osteoporosis. Our patients were well supplemented, it can reduce the risk of osteoporosis. More studies are needed to confirm this new hypothesis.

## REFERENCE

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## AB0883 SYSTEMIC INFLAMMATION AND ATHEROSCLEROSIS IN PATIENTS WITH GOUT. RESULTS FROM THE NOR-GOUT STUDY

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**Background:** The association between gout and cardiovascular disease (CVD) is well known,<sup>1</sup> whereas mechanisms behind this association are poorly understood.

**Objectives:** This study aimed to evaluate factors associated with asymptomatic carotid atherosclerosis in patients with gout.

**Methods:** In this prospective study patients with crystal-proven gout were included after a recent disease flare, if the serum urate level was >360  $\mu\text{mol/L}$  (>6 mg/dl). We analysed baseline data in patients without established CVD who were referred to a CVD risk evaluation, including ultrasound of the carotid arteries, blood pressure measurement and laboratory tests. Carotid atherosclerotic plaques were defined in the longitudinal view as protrusions into the lumen of  $\geq 1.5$  mm or at least 2 times the adjacent intima-media thickness according to the Mannheim criteria.

**Results:** Of the 79 gout patients included, approximately 10% were females, and mean (SD) age was

52.1 $\pm$ 13.1 years. Thirty-two (40.5%) had carotid plaques (Table). Only 9.3% were current smokers, while mean (SD) body mass index was high (29.1 $\pm$ 4.7 kg/m<sup>2</sup>). Lipids were in the normal range, with a mean (SD) total cholesterol at 5.3 $\pm$ 1.09 mmol/L and low density lipoprotein cholesterol 3.12 $\pm$ 0.95 mmol/L. Systolic blood pressure was in the normal range 134.0 $\pm$ 15.1 mmHg, although 29.1% of the patients were treated with anti-hypertensive agents. In univariate analyses, higher age, hypertension and higher erythrocyte sedimentation rate (as a marker of systemic inflammation) were significantly associated with the presence of carotid plaques ( $p=0.01$  and  $p=0.04$ , respectively) (Figure). Serum urate levels or disease duration were not associated with carotid plaques ( $p=0.27$  and  $p=0.44$ , respectively).

**Conclusion:** Our results indicate an association between systemic inflammation and atherosclerosis in patients with gout. To be able to efficiently prevent CVD in this patient group, prospective studies with larger sample sizes are needed to elucidate the mechanisms behind the increased risk of CVD in gout patients.

Table. Patient characteristics

Number n (%)	79 (100.0)	32 (40.5)	47 (59.5)	-
Age (years) mean $\pm$ SD	52.1 $\pm$ 13.1	60.0 $\pm$ 10.4	46.7 $\pm$ 12.1	
Sex male/female n (%)	72/7 (91.1)/ (8.9)	28/4 (87.5)/ (12.5)	44/3 (93.6)/(6.4)	0.43
Disease duration (median IQR)	6.0 (3.0-12.0)	6.0 (3.8-14.3)	5.0 (2.0-10.0)	0.44
<b>CV risk factors</b>				
Smoking n (%)	7 (9.3)	2 (2.7)	5 (6.7)	0.69
BMI mean $\pm$ SD	29.1 $\pm$ 4.7	28.5 $\pm$ 4.2	29.5 $\pm$ 5.0	0.35
TC (mmol/L) mean $\pm$ SD	5.3 $\pm$ 1.09	5.21 $\pm$ 1.18	5.39 $\pm$ 1.02	0.48
LDL-c (mmol/L) mean $\pm$ SD	3.12 $\pm$ 0.95	3.24 $\pm$ 1.07	3.04 $\pm$ 0.84	0.41
BP systolic (mm Hg) mean $\pm$ SD	134.0 $\pm$ 15.1	138.0 $\pm$ 16.2	131.3 $\pm$ 13.9	0.06
BP diastolic (mm Hg) mean $\pm$ SD	82.8 $\pm$ 8.0	83.6 $\pm$ 6.9	82.3 $\pm$ 8.8	0.46
<b>Co-morbidities n (%)</b>				
Hypertension	36 (45.6)	21 (26.6)	15 (19.0)	0.01
Diabetes	4 (5.1)	3 (3.8)	1 (1.3)	0.30
<b>Biomarkers mean<math>\pm</math>SD</b>				
S-urate ( $\mu\text{mol/L}$ )	495.6 $\pm$ 84.0	481.8 $\pm$ 97.5	504.9 $\pm$ 73.2	0.27
ESR (mm/h)	12.9 $\pm$ 13.9	17.3 $\pm$ 17.6	9.8 $\pm$ 9.7	0.04
CRP (mg/L) median (IQR)	3.5 (2.0-7.8)	5.0 (2.0-13.5)	3.0 (1.0-6.0)	0.09

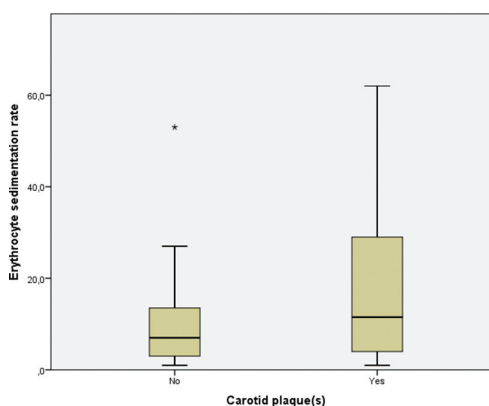


Figure. Association of carotid plaques and systemic inflammation

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## AB0884 CLINICAL AND DEMOGRAPHIC CHARACTERISTICS OF PATIENTS WITH OCHRONOTIC ARTHROPATHY

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**Background:** Alkaptonuria (AKU) is a metabolic disorder that causes accumulation of oxidized homogentisic acid (HGA) in the connective tissues. The excessive deposition of HGA and its metabolites can cause

joint destruction and skeletal abnormalities which the entity is clinically referred as ochronotic arthropathy (OA) [1].

**Objectives:** To assess clinical, demographic features and radiographic findings in patients with OA.

**Methods:** Adult AKU patients registered in the database were included in the study. All patients investigated for the presence of OA and inflammatory symptoms. Patients with musculoskeletal symptoms (MSK) underwent conventional X-rays and routine laboratory evaluation. In cases suggestive of inflammatory disease additional work-up such as autoantibodies, HLA-B27 and MRI with inflammatory protocol were performed.

**Results:** Six out of 15 patients had symptoms compatible with OA (40%; 4 male [M], 2 female [F], median age 56 [51-62] years). The median duration of MSK symptoms were 7 (2-19) years. None of the patients had family history of rheumatologic disease. Baseline CRP were normal in all patients. The HLA-B27 test was negative in all cases. One patient had high titers of rheumatoid factor along with positive anti-CCP that were accompanying erosive arthritis on MCP joints by X-rays. Two patient had positive ANA. All patients had chronic back pain and had changes compatible with OA in their spines (narrowing of the intervertebral spaces, vacuum phenomenon and intervertebral disc calcification). Two patient had inflammatory type of pain character (IBP). Radiographic sacroiliitis according to modified New York criteria was present in 2 cases. Inflammatory spine and SIJ lesions were detected by MRI in 1 patient. Extra-articular involvement including enthesitis (1 patient), interstitial lung disease (1 patient) and scleritis (1 patient) was also noted. The clinical and demographic characteristics of the OA are given in Table 1.

**Conclusion:** There was a high prevalence of inflammatory arthritis (2 axSpA; 1 RA) in OA (50%) which contradicts with the common concept that OA is a degenerative disorder. According to our results, inflammatory disease should be carefully screened in OA patients as accumulated metabolic products may trigger inflammatory pathways.

Table 1						
	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
Age (yr), Sex	55, F	56, M	51, M	56, M	59, F	62, M
Symptom duration/year	7	19	17	6	2	7
Structural changes documented by X-rays						
Cervical	+	+	+	+	+	+
Dorsal	+	+	+	+	+	+
Lumbar	+	+	+	+	+	+
SIJ (Right/Left)	2/3	0/1	2/3	1/1	1/1	0/0
Shoulder	-	+	+	+	+	+
Hip	-	+	+	+	-	+
Knee	+	+	-	+	-	-
Wrist	+	-	-	-	-	-
Total joint replacement	Bilateral knee	-	-	Right hip	-	Bilateral hip
Inflammatory manifestations	IBP, inflammatory SIJ and spine lesions by MRI	IBP, Scleritis, enthesitis, structural changes in SIJs by MRI	ILD, erosive arthritis, SIJ MRI was suggestive of crystal deposition	-	-	-
Laboratory findings			ANA, RF, CCP positivity		ANA, RF positivity	

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AB0885

## THE RELATIONSHIP BETWEEN METABOLIC SYNDROME SEVERITY AND THE RISK OF MORTALITY IN GOUT PATIENTS: A POPULATION-BASED STUDY

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**Background:** Metabolic syndrome (MetS) is common amongst gout patients. The MetS is diagnosed when a patient has at least 3 of the following 5 conditions of hyperglycemia, hypertension, hypertriglyceridemia, low high-density lipoprotein (HDL) cholesterol or abdominal obesity.

Little is known about the relationship between the cumulative effects of all five metabolic syndrome conditions and the risk of mortality among adult patients with gout. Metabolic Syndrome Severity Score (MetSSS) is a new clinical prediction score that employs available components (sex, age, race, systolic blood pressure, waistline circumference, high-density lipoprotein, triglycerides and fasting blood glucose). MetSSS is a validated summary score that accounts for

the combined effects of all 5 metabolic features. MetSSS allows examination of associations between MetS severity and the risk of mortality.

**Objectives:** To use the MetSSS to examine the overall associations between MetS severity and the risk of mortality related to all-causes, cardiovascular disease and diabetes amongst United States (US) gout patients.

**Methods:** Mortality-linked data for 12,101 adults aged 18 to 90 years who participated in the Third National Health and Nutrition Examination Survey (NHANES) III (1988-1994) was analyzed. Data from NHANES III were linked to national mortality records for all participants up to time of death or end of study (i.e. 23 years following initial recruitment). All 5 metabolic features were used to calculate gender-race/ethnicity specific MetSSS Z-scores in gout patients. The Z-score is the number of standard deviations from the mean a data point is and allows a continuous representation of all MetS conditions while accounting for gender-race/ethnicity disparities.

**Results:** A total of 3,381 deaths were observed, of whom 215 had gout. The prevalence of gout amongst adults was 2.59% (95% CI; 2.13%-3.05%). Moderate to high MetS severity was significantly prevalent among gout patients (47.33% vs. 21.16% no gout; P-value <0.0001). The mean MetSSS Z-score for gout patients was significantly higher than those without gout (0.71 vs. -0.04 no gout; P-value <0.0001). For gout patients, a one-unit increase in MetSSS score was associated with a significant increase in the risk of all-cause mortality Adjusted Hazard Ratio (aHR) 1.46 (95% CI; 1.13, 1.87).

In a disease-specific survival model, a one-unit increase in MetSSS score was associated with a aHR 1.62 (95% CI; 1.21, 2.15) increase in heart disease related mortality among gout patients. Amongst those with gout, a one-unit increase in MetSSS score was associated with increased risks of diabetes- and hypertension- related mortalities aHR 2.53 (95% CI; 1.43, 4.62), aHR 1.73 (95% CI; 1.07, 2.79), respectively.

**Conclusion:** The Z score calculation in our study allowed a quantification of increased diabetes- and hypertension- related mortalities, all- cause and cardiovascular mortality in patients with gout.

Use of the MetSSS can provide an opportunity to identify patients at highest risk influencing patients to change their lifestyle and better comply with treatment.

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AB0886

## IS THE SENSE OF SMELL IMPAIRED IN GOUT PATIENTS?

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**Background:** The sense of smell is sensitive to hundreds of thousands of odorants. Smell disorders significantly compromise the quality of life. A National Health and Nutrition Examination Survey (NHANES) 2013-2014 survey among US population aged 40 years of age and older years found smell dysfunction in ~ 20.5 million (13.5%) of Americans (1). Prevalence increased with age. Other factors influencing the sense of smell include ethnicity, smoking, medications, head trauma, chronic sinusitis, upper respiratory tract infections, alcoholism and neurological disorders. The University of Pennsylvania Smell Identification Test (UPSIT) (2) is a well-validated test of olfactory function that correlates with odor detection and other quantitative measures of olfaction. This test has become the 'gold standard' for olfactory testing and is comprised of four test booklets, each containing 10 microencapsulated (scratch & sniff) odors. Patients with gout, the most common inflammatory arthritis, frequently have multiple associated comorbidities, affecting many organs and aspects of one's health.