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	

REFERENCES

- Phornphutkul, C., et al., *Natural history of alkaptonuria*. New England journal of medicine, 2002. 347(26): p. 2111-2121.

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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.

REFERENCES

- Wiley JF, Carrington MJ. A metabolic syndrome severity score: A tool to quantify cardio-metabolic risk factors. *Prev Med* 2016;88:189-195.
- Thottam GE, Krasnokutsky S, Pillinger MH. Gout and metabolic syndrome: a tangled web. *Curr Rheumatol Rep* 2017;19:60.

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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.

Objectives: To determine whether gout patients have an impaired sense of smell.

Methods: This was a cross-sectional prospective study of gout patients seen in our rheumatology clinic. The first 30 clinic patients were recruited during the period 7/15/17-5/25/18. Each patient was administered the 40-item UPSIT. UPSIT scores were compared to age- and sex-matched controls from a normative database maintained at the University of Pennsylvania Smell and Taste Center using a paired t-test.

Results: Gout patients ranged in age from 31 - 86 years (mean: 59 years); 26 (87%) of patients were ≥ 40 years old and included 26 men and 4 women. The duration of gout ranged from 1- 43 years (mean: 9 years), with 19 having gout for >5 years. Visible tophi were observed in 6 patients (33%). C-reactive protein was within normal range except in one gout patient. Serum urate levels ranged from 5.1-12 mg/dL (mean: 6.29 mg/dL). Two patients were current smokers; both have microsomia. No patients had head trauma, chronic sinusitis, upper respiratory tract infections, alcoholism or neurological disorders.

The mean UPSIT scores of the two groups did not differ significantly [respective patient and control means (SDs) = 31.40 (5.79) and 31.80 (4.37); $t_{29} = -0.342$, $p = 0.74$].

Conclusion: This is the first study to quantitatively assess smell function in patients with gout. Despite being a systemic inflammatory disease, with multiple associated comorbidities, we did not find a statistically significant effect of gout on smell function using a well validated olfactory test.

REFERENCES

- [1] Liu G, Zong G, Doty RL, Sun Q. Prevalence and risk factors of taste and smell impairment in a nationwide representative sample of the US population: a cross-sectional study. *BMJ Open* 2016;6:e013246.
- [2] Doty RL, Shaman P, Dann M. Development of the University of Pennsylvania Smell Identification Test: a standardized microencapsulated test of olfactory function. *Physiol Behav* 1984;32:489-502.

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AB0888 A SURVEY FOR DIAGNOSIS AND TREATMENT OF PATIENTS WITH GOUT IN KOREA

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Background: The prevalence and incidence of gout has risen over the past few decades and the socioeconomic costs of gout have been increasing accordingly, but it is unclear whether proper medical care is provided for patients with gout.

Objectives: This study aims to investigate the actual status and adequacy of diagnosis and management of gout patients.

Methods: The patients with gout who visited between November 2017 and February 2018 were consecutively enrolled. Data were collected using a pre-designed questionnaire and reviews of medical records. The collected data included diagnosis and management of gout before starting a steady treatment in our clinic, and disease status at first visit to our clinic.

Results: In total, 172 gout patients were enrolled. The average age of the patients was 55 (interquartile range (IQR): 45-66) years, and 94.2% were men. The average disease duration was 8 (IQR: 4-13) years. The average age of first gout symptoms was 45 (IQR: 36-53) years. The first symptom started in the feet for 93.4% of patients. The patients in which the first symptom region was around large joints were 35.1%, and 17.3% of patients developed first gout symptoms around multiple joints. Several patients (64%) visited the hospital directly after their first acute gout attack. The first physicians to examine gout patients were orthopedic surgeons (38.2%), emergency doctors (23.6%), and rheumatologist (16%). Upon initial medical examination, 67% of patients were clinically diagnosed or suspected with gout. Monosodium urate crystals in synovial fluid or tophi were confirmed in 10.5%. Furthermore, 31% of patients had a history of pharmacology urate lowering therapy (ULT) after acute gout attack, and 84.4% were indicated for pharmacologic ULT upon first visit to our clinic. Additionally, 47.6% of patients showed symptoms of chronic kidney disease, past urolithiasis, or tophi, and 52.4% suffered from ≥ 2

gout attacks/year. However, only 11.3% of patients were receiving continuous ULT before visiting our clinic.

Conclusion: Most patients were clinically diagnosed without appropriate tests for gout diagnosis, such as joint aspiration, and only a very small number of patients were receiving adequate pharmacologic ULT. The management of gout seems to be inadequate in many respects.

REFERENCES

- [1] Roddy E, Choi HK: Epidemiology of gout. *Rheumatic diseases clinics of North America* 2014, 40(2):155-175.
- [2] Singh JA, Hodges JS, Toscano JP, Asch SM: Quality of care for gout in the US needs improvement. *Arthritis and rheumatism* 2007, 57(5):822-829.
- [3] Young-II S, Kyeong Min S, Young Ok J, In Je K, Kyung Lee K, Young Deok B, Hyun Ah K: Survey of Current Trends for Diagnosis and Treatment in Korean Gout Patients. *J Rheum Dis* 2011, 18(3):187-192.
- [4] Doherty M, Bardin T, Pascual E: International survey on the diagnosis and management of gout. *Annals of the rheumatic diseases* 2007, 66(12):1685-1686.

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AB0888 ULTRASOUND FEATURES IN GOUT: A COMPARATIVE ANALYSIS WITH MATCHED CONTROL

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Background: Gout is a frequent inflammatory disease characterized by deposition of monosodium urate crystals in joints and tissues in the presence of hyperuricemia (1). Ultrasound (US) is a simple imaging technique that has gained interest in the assessment of individuals with gout due to its ability to identify inflammation and joint damage, as well as crystal deposition. The most characteristic gout US findings are the presence of intra-articular aggregates and the double contour (DC) signal, included in the 2015 ACR/EULAR classification criteria.

Objectives: To identify potential differentiating US findings between individuals with gout and matched controls.

Methods: A cross-sectional study was conducted, including 57 gout adult patients and 32 adult individuals with a normal uricemia, matched by age and gender. Sociodemographic, clinical and analytical data were collected. Bilateral US grey scale evaluation of the 1st metatarsophalangeal joint (MTP1), 2nd metacarpophalangeal (MCP2) and knee was performed in all participants. The following findings were assessed: intra-articular effusion, synovial hypertrophy, bone erosion, DC signal and intra-articular deposits. None of the participants presented with clinical signs of arthritis at the time of the evaluation.

Results: The mean age of gout patients and healthy individuals was 63.3 $\pm$ 12.6 and 63.8 $\pm$ 10.5 years, respectively. The majority of the gout patients were male (87.7%), 77.2% had previous history of podagra and 26.3% had tophi. Mean disease duration was 4.3 years. Mean uricemia was 6.7 $\pm$ 2.0 mg/dl in gout patients and 4.9 $\pm$ 0.9 mg/dl in the control group. At the time of the study, 31 patients (54.4%) were treated with allopurinol, 9 (15.8%) with febuxostat, 1 (1.8%) with both allopurinol and febuxostat and 16 (28%) were not on urate lowering therapy.

Comparatively to the control group, in the MTP1, patients with gout presented more frequently with synovial hypertrophy (26 vs 0, $p < 0.001$), bone erosion (19 vs 0, $p < 0.001$), DC signal (7 vs 0, $p < 0.05$) and intra-articular aggregates (8 vs 0, $p < 0.05$). At the knee, patients showed more often effusion (19 vs 2, $p < 0.001$), synovial hypertrophy (26 vs 1, $p < 0.001$) and DC signal (8 vs 0, $p < 0.05$). At the MCP2, only the presence of erosion was significantly more common in the gout group (8 vs 0, $p < 0.05$). DC signal was found in 17 patients and in none of the healthy subjects ($p < 0.001$); this finding was more frequently observed at the knee. There was an association between previous gout crisis in the MTP1 and the presence of erosion in this joint ($p = 0.04$). An association was found between the presence of tophi and erosion ($p < 0.001$), DC signal ($p < 0.05$) and intra-articular aggregates ($p = 0.006$). There was no association between uricemia levels, disease duration and the different US findings.