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POS1143 GOUT AND JOINT REPLACEMENTS IN THE US

G. Singh¹, M. Sehgal², A. Mithal³. ¹Stanford University, Medicine, Palo Alto, United States of America; ²University of California, Los Angeles, Computer Sciences, Los Angeles, United States of America; ³Institute of Clinical Outcomes Research and Education, Epidemiology, Woodside, United States of America

Background: Irreversible joint damage in gout has been linked to a possible increase in knee and hip joint replacements¹. In addition, the strong association between gout and osteoarthritis^{2,3} could also lead to an increased risk of joint replacements in patients with gout. Population-based data from the UK and Taiwan have shown hazard rates of 1.14 and 1.16 respectively for knee replacements in patients with gout compared to age and gender matched controls¹. However, there is little national data in the US on clinical and economic burden of joint replacements in patients with gout.

Objectives: To evaluate total or partial hip and knee joint replacements in patients with gout in the US and to estimate their economic impact

Methods: The Nationwide Inpatient Sample (NIS) is a stratified random sample of all US community hospitals. It is the only US national hospital database with information on all patients, regardless of payer, including persons covered by Medicare, Medicaid, private insurance, and the uninsured. Detailed information including clinical and nonclinical data elements on each hospital stay including International Classification of Diseases (ICD)10 diagnosis and procedure codes, age, gender, length of stay, payer, charges, comorbidities etc. is available. We examined hospitalizations in patients with gout with hip and knee joint replacements in NIS 2018, the most recent year of data.

Results: In 2018, there were 914,510 hospitalizations with primary or secondary diagnosis of gout in the US. Of these 43,615 were for joint replacement surgeries (knee (24,840) and hip (18,755)). Patients with knee replacement were on an average 68.5 years old (95% confidence intervals 68.2 years -68.8 years). Patients with hip replacement were slightly older (mean age 70.3 years, 95% confidence intervals 69.8 years -70.7 years). Unlike general population statistics, men formed a majority of these joint replacements (68% for the knee and 72% for the hip). The average charge per hospitalization was \$69,279 and \$72,944 for knee and hip replacement respectively. The total annual national cost estimate was \$3.09 billion, with government insurances (Medicare and Medicaid) responsible for 67% of knee replacement and 70% of hip replacement costs.

Conclusion: Joint replacements in gout patients have a large clinical and economic burden in the US. This calls for an increased awareness and management of associated hip and knee arthritis in patients with gout.

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POS1144 SERUM URIC ACID TO CREATININE RATIO IS ASSOCIATED WITH URINARY URIC ACID EXCRETION IN PATIENTS WITH GOUT

Z. Zhong¹, Y. Huang¹, X. Huang¹, Q. Huang¹, Y. Liu¹, T. W. Li¹. ¹Guangdong Second Provincial General Hospital, Department of Rheumatology and Immunology, Guangzhou, China

Background: Underexcretion of uric acid is the dominant mechanism leading to hyperuricemia [1] and the 24-hour urinary uric acid excretion is an important measurement. However, it is inconvenient due to accurate timing and complete collection of the specimen.

Objectives: The aim of this study was to investigate the relationship between serum uric acid to creatinine ratio (sUACR) and 24-hour urinary uric acid excretion in gout patients.

Methods: A total of 110 gout patients fulfilling 2015 ACR/EULAR classification criteria from Guangdong Second Provincial General Hospital from January 2019

to January 2021 were retrospectively enrolled in this study. Patients were divided into underexcretion group (<3600 µmol/24h) and non-underexcretion group (≥3600 µmol/24h). The correlation between sUACR and 24-hour urinary uric acid excretion was analyzed by the Pearson's correlations analysis. Receiver operation characteristic (ROC) curves were performed to assess the utility of sUACR for discriminating between underexcretion group and non-underexcretion group. Furthermore, the risk factors of uric acid underexcretion were evaluated using binary logistic regression analysis.

Results: sUACR in the underexcretion group was significantly lower than the non-underexcretion group (p=0.0001). Besides, sUACR was positively correlated with 24-hour urinary uric acid excretion (r=0.4833, p<0.0001). Furthermore, ROC suggested that the area under the curve (AUC) of sUACR was 0.728, which was higher than that of serum uric acid and creatinine. The optimal cutoff point of sUACR was 5.2312, with a sensitivity and specificity of 71.9% and 67.9%. Logistic analysis results revealed that decreased sUACR (<5.2312) was an independent risk factor of underexcretion of uric acid (OR =5.510, 95% CI: 1.952-15.550, P=0.001).

Conclusion: sUACR is lower in gout patients with underexcretion of uric acid and may serve as a useful and convenient marker of assessing underexcretion of uric acid in gout patients.

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Figure 1. A. Comparison of serum uric acid to creatinine ratio between underexcretion group and non-underexcretion group. B. Correlation between serum uric acid to creatinine ratio and 24h uric acid excretion.

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POS1145 PREVALENCE OF CHONDROCALCINOSIS IN PATIENTS WITH INFLAMMATORY RHEUMATIC DISEASES – FREQUENTLY FOUND IN PATIENTS WITH RHEUMATOID ARTHRITIS AND VICE VERSA

M. Krekeler¹, X. Baraliakos¹, S. Tsiami¹, J. Braun¹. ¹Ruhr-University Bochum, Rheumazentrum Ruhrgebiet, Herne, Germany

Background: Calcium pyrophosphate deposition disease (CPPD), also known as pseudogout, is a prominent member of the crystal deposition diseases much like gout where urate crystals are the pathogens. CPPD is differentiated from chondrocalcinosis, a radiographic finding showing joint calcification, which may or may not be relevant for the clinical picture of patients (1).

Objectives: To determine the prevalence of chondrocalcinosis in different inflammatory rheumatic diseases.

Methods: In a retrospective cross-sectional study design we reviewed the records of not established new patients presenting to our center between 1.1.2016 and 31.12.2018. Based on the availability of radiographs of hands and feet, 514 patients were identified including 181 patients with CPPD, 273 with rheumatoid arthritis (RA), 143 seropositive (52.4%) and 130 seronegative, 30 with gout and 30 with polymyalgia rheumatica (PMR). Radiographs of hands and feet were available from all patients, of the knee in 376 cases. All images were read by two experienced readers with no access to clinical data.

Results: Almost all patients had a short disease duration of < 1 year. In patients diagnosed with CPPD all radiographs showed chondrocalcinosis (93%) at some location, mostly in the hands. This was different in seronegative (36.5%) and seropositive (30.3%) RA. Chondrocalcinosis was found less frequently also in gout (18.8%) and PMR (12.5%). More data are shown in the Table 1. Radiographic chondrocalcinosis was present in more than one joint in 36.6% patients with CPPD, in 11.9% in seropositive and in 17.3% in seronegative RA. Patients with CPPD were older and had acute attacks more often than RA patients. While RA patients were more frequently on methotrexate (MTX), patients with CPPD were more often on colchicine.