The mean age was 59.8 years, and the mean BMI was 30.95. Combines the patient’s age with aspartate aminotransferase (AST), alanine aminotransferase (ALT), and the incidence of Fibrosis score (kPA) that measures liver stiffness (E score). Consecutive gout patients with gout were evaluated at one center from 11/1/2016 - 11/12/2021. We found in 40 (85.1%) and was not significantly different in males or females (p=0.058). 53.7% (n=29) had hyperuricemia (serum urate (SU) >6.8 mg/dL) and 46.3% (n=26) had hyperlipidemia. Comorbidities included: dyslipidemia (86.7%), obesity (19.1%), and hypertension (26.2%). 6.93% patients with OSA had gout (p<0.0001). The odds of having gout is 2.65 times higher in patients with OSA than patients without OSA (hazard ratio = 2.393, 95% confidence interval: 1.286-4.497, p<0.0001). After PSA, both groups had 891,526 patients. Age, BMI, and hypertension showed significantly greater in those with severe or moderate fibrosis (3.77) versus those with no or mild fibrosis (1.59, p=0.0045). There was a significant correlation between the Fibrosis score and FIB-4 score (r=0.24, p=0.0009) but neither the frequency nor severity of NAFLD in gout is well described. Elastography should confirm the actual frequency of NAFLD in gout and provide a means to manage this comorbidity more effectively.

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HEPATIC STEATOsis AND FIBROSIS IN PATIENTs With GOUT DETECTED BY ELASTOGRAphy

Keywords: Imaging, Comorbidities, Gout

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Background: Gout is associated with non-alcoholic fatty liver disease (NAFLD), but neither the frequency nor severity of NAFLD in gout is well described. Elastography is a well-established ultrasonic method to evaluate both steatosis and fibrosis in the liver but has not been applied to evaluate gout patients.

Objectives: To determine how common hepatic steatosis and fibrosis are in patients with gout using FibroScan technology.

Methods: We employed FibroScan technology, a validated transient elastography method, to evaluate patients with gout. Consecutive gout patients with insurance coverage were evaluated at one center from 11/1/2016 - 11/12/2021. We assessed the FibroScan score (kPA) that measures liver stiffness (E score) and the controlled attenuation parameter dB/m (CAP) score that assesses steatosis. In addition, we assessed the four-factor fibrosis (FIB-4) Index formula that combines the patient’s age with aspartate aminotransferase (AST), alanine aminotransferase (ALT), and platelet count.

Results: 47 gout patients (7 females, 14.9%; 40 males, 85.1%) were evaluated. The mean age was 59.8 years, and the mean BMI was 30.95 kg/m². Tophi were present in 11 (26.2%) of those with recorded information. The disease’s duration ranged from 0-49 years. Comorbidities included: dyslipidemia (86.7%), diabetes (31.1%), hypertension (63.6%), CHF (12.8%), CAD (12.8%), chronic kidney disease (5.3%), obesity (46.8%), and/or gout were excluded. Hyperuricemia was defined as urate levels ≥ 405 µmol/L. The association between hyperuricemia and SIS was assessed by multivariate logistic regression analysis. We calculated Odds ratios (OR) and 95% confidence intervals (CI), crude and with adjustments for age, smoking, body mass index (BMI), diabetes, dyslipidemia, and hypertension. A SIS score >0 was considered to indicate the presence of coronary atherosclerosis and was used as the cutoff value.

Results: In total, 2,438 men (mean age, 57.3 years) and 2,511 women (mean age, 57.4 years) were included. Urate levels were higher in men than in women (mean levels, 348 vs 270 µmol/L, respectively). Hyperuricemia was more common in men than in women (18% vs 2%); Age, BMI, and hypertension showed no differences between men and women, and diabetes and dyslipidemia were more common in men than in women (4% vs 2% and 13% vs 9%, respectively). Any CTA-detected atherosclerosis (SIS>0) was found in 1,404 (57.6%) men and 792 (30%) women. Hyperuricemia was significantly associated with SIS>0 in men (OR, 1.3; 95% CI, 1.04-1.6) but not in women (OR, 1.3; 95% CI, 0.72-3.2) in the multivariate logistic regression analysis (Table 1). Conclusion: Hyperuricemia was independently associated with the presence of coronary artery atherosclerosis, as reflected by SIS, in men but not in women. Findings are compatible with a pathophysiological role of urate in atherosclerosis. Whether the observed difference between sexes reflects biological differences in effect of urate or is explained by other factors, such as later onset of atherosclerosis or less statistical power in women will be examined in follow-up studies.

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