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Background: Previous studies have shown that cardiovascular risk is increased in patients with gout. There are many studies on the effect of uric acid lowering therapy on CV risk in gout patients, but few studies have compared allopurinol and benzbromarone.

Objectives: A nationwide population-based cohort study is designed to compare cardiovascular risk according to the treatment of allopurinol and benzbromarone in Korean gout patients.

Methods: We used South Korea's database of the Health Insurance Review and Assessment service (HIRA) to identify gout patients 18 years of age or older who newly started allopurinol or benzbromarone between 2009 and 2015. The start date of allopurinol or benzbromarone is defined as the index date. We excluded patients who have been prescribed uric acid lowering agents or have been on dialysis for one year prior to the index date. During the study period, patients who used uric acid lowering agents other than allopurinol and benzbromarone or who used both drugs in combination were also excluded from the study. The primary outcome of the study was the occurrence of a composite cardiovascular endpoint, which included coronary revascularization, hospitalization due to MI, ischemic stroke, and transient ischemic attack (TIA). Cox proportional hazard regression analysis and Kaplan-Meier curves were used for the analysis.

Results: 257,097 allopurinol initiators and 7,868 benzbromarone initiators were included in the study. The mean age was 54.4 years, 86% were male. The mean adherence of drug administration was 68.2% for allopurinol initiators and 75.5% for benzbromarone initiators. In baseline, the benzbromarone initiator had more cardiovascular comorbidities and related drug administration than the allopurinol initiator. In allopurinol and benzbromarone initiators, the adjusted hazard ratio (aHR) of the composite CV endpoint was 1.01 (95% CI 0.83-1.21), which was not significantly different. No significant difference was found between the two groups in each of the items of the composite CV endpoint and hospitalization for heart failure. The results did not change even when 1:3 propensity score matching was performed for baseline characteristics. In subgroup analysis of high risk patients with cardiovascular disease, there was no significant difference between allopurinol and benzbromarone initiators. However, when the analysis was limited to the group taking allopurinol ≥ 200 mg and benzbromarone ≥ 50 mg, there was no difference in primary outcome and other outcomes, but the risk of coronary revascularization was higher in benzbromarone initiator (aHR 1.58, 95% CI 1.16-2.14).

Conclusion: In our study, there was no significant difference in cardiovascular risk between allopurinol initiator and benzbromarone initiator. In the high risk group of cardiovascular disease, there was no difference in risk between the two drugs.

Disclosure of Interests: None declared

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POS0138

ALTERED RISK OF GOUT ACCORDING TO CHANGE OF METABOLIC PARAMETERS IN YOUNG ADULTS

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Background: Many studies have shown a link between gout and metabolic syndrome (MetS). It is well known that lifestyle modifications such as weight reduction and abstinence from alcohol are effective in the treatment of gout, but data are lacking on how exactly the change of metabolic parameters affects gout.

Objectives: The purpose of this study was to investigate the relationship between gout risk and metabolic parameters in a nationwide population based young adult cohort, and to determine whether changes in metabolic parameters affect gout risk changes.

Methods: Among adults aged 20-39 years who participated in national health check-up programs from 2009 to 2012, a total of 6,290,914 subjects were included in the study, excluding subjects who were previously diagnosed with gout. To determine the effect of changes in metabolic parameters on gout incidence, 2,701,138 subjects who participated in the health examination once more 2 years later were used for the analysis. Outcome was defined as the occurrence of gout, when the ICD-10 code (M10) was registered twice in the claim database. The Cox proportional hazard model and Kaplan Meier curve were used for the analysis.

Results: The incidence rate of gout was higher in those with MetS compared to those without (10.1 vs. 3.6 per 1,000 person-years). The risk of gout in people

with MetS was 85% higher (adjusted HR 1.85, 95% CI 1.83-1.87) and was more significant in men than in women (adjusted HR 1.88 in male and 1.56 in female). Each component of MetS was also associated with increased gout risk, and hypertriglyceridemia showed the highest adjusted HR. The greater the number of MetS components, the higher the gout risk. The risk of gout was 70% higher in those who had MetS consistently (adjusted HR 1.71, 95% CI 1.67-1.75) and 44% higher in those with newly developed MetS (adjusted HR 1.47, 95% CI 1.40-1.48) than those who did not have MetS at the two health examinations. Similar risk patterns were observed according to the change of each metabolic parameter. Among the metabolic parameters, the change in hypertriglyceridemia was associated with the greatest difference in the change in gout risk.

Conclusion: In young adults, MetS was associated with a higher risk of gout, especially with more components, the higher the risk. Since the occurrence of MetS is associated with an increased risk of gout, prevention of MetS would be important to reduce gout incidence.

Disclosure of Interests: None declared

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POS0139

TWO-YEAR REDUCTION OF URATE LOAD IN DUAL-ENERGY CT DURING A TREAT-TO-TARGET APPROACH IN GOUT PATIENTS: RESULTS FROM A LONGITUDINAL STUDY (NOR-GOUT)

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Background: Dual-energy computed tomography (DECT) detects urate depositions, and is included in the ACR/EULAR classification criteria for gout. There is lack of longitudinal studies in large patient populations for changes in urate deposition measured by DECT during urate lowering therapy (ULT).

Objectives: To explore by DECT the longitudinal changes urate depositions during a treat-to-target approach in gout with ULT.

Methods: In a prospective observational study, patients with crystal-proven gout were included if they presented after a recent gout flare and with increased serum urate levels ($>360 \mu\text{mol/L}$ / $>6 \text{ mg/dl}$). In a treat-to-target approach they received ULT with escalating drug doses with monthly follow-up during the first year until the treatment target was met with serum urate $<360 \mu\text{mol/L}$ or $360 \mu\text{mol/L}$ if tophi.

A DECT scanner (General Electric Discovery CT750 HD) acquired data from bilateral forefeet and ankles at 80 KV and 140 KV, processed with a software with a 2-material decomposition algorithm which colour codes urate. Follow-up DECT was performed after one and two years.

Images were scored with a semiquantitative method (Bayat et al. 2015) by one experienced radiologist in known order and blinded to serum urate and clinical data. Each scan assessed four regions: the first metatarsophalangeal (MTP1) joint, the other joints of the toes, the ankles and midfeet, and all visible tendons in the feet and ankles. Each region was then scored according to the maximum amount of urate deposition observed on visual inspection (0=no deposits, 1=dots, 2=single deposit, 3=more than one deposit). A total DECT sum score was derived by adding all values from the four regions, with a maximum score of 12.

Results: DECT was at baseline measured in 187 of 211 patients. 95.2% were males, mean (SD) age was 56.7 (13.7) years, disease duration 8.1 (7.9) years, and 17% had clinical tophi.

The total DECT scores and all subscores decreased from baseline to 2 years ($p<0.001$ for all comparisons versus baseline), table 1.

The mean (SD) serum urate level ($\mu\text{mol/L}$) decreased from 501 (80) at baseline to 311 (48) at 12 months and 322 (67) at 24 months. Reaching the treatment target $<360 \mu\text{mol/L}$ after year 1 or 2 was only numerically but not statistically related to reductions in DECT scores. Patients with clinical tophi at baseline had larger reductions in total DECT scores after 1 (3.4 vs. 1.5, $p<0.01$) and 2 years (6.5 vs. 2.3, $p<0.001$) than patients without tophi.

Conclusion: During a treat-to-target approach urate deposition visualised by DECT were clearly reduced in ankles and feet after 1 year with further reduction after 2 years.

Table 1.

	Baseline (n=187) Mean (SD)	1 year (n=157) Mean (SD)	2 years (n=166) Mean (SD)
MTP1 (0-3)	1.4 (2.0)	1.0 (1.7)	0.6 (1.3)
Toes (0-3)	1.0 (1.8)	0.6 (1.4)	0.3 (1.0)
Ankle/Midfoot (0-3)	1.2 (2.1)	0.7 (1.6)	0.3 (1.0)
Tendons (0-3)	1.0 (1.7)	0.5 (1.2)	0.3 (0.8)
Sum score (0-12)	4.6 (6.4)	2.8 (4.7)	1.5 (3.2)