Gout is associated with many metabolic and cardiorenal comorbidities. Several previous studies investigated the comorbidity patterns of gout with distinct comorbidity subgroups based on 9 variables: obesity, hypertension, diabetes, hypercholesterolemia, hypertriglyceridemia, coronary heart disease (CHD), heart failure (HF), chronic kidney disease (CKD), and liver disease.

Methods: We used cluster analysis on a large, representative general population sample of the United States to identify discrete phenotype patterns of gout that have implications in pathogenesis of gout and/or for personalized care in the management of gout.

Background: Gout is associated with many metabolic and cardiorenal comorbidities. Several previous studies investigated the comorbidity patterns by cluster analysis; however, no such study has been based on the entire general population. As such, the generalizability, which is essential to these pattern analyses, remains unknown.

Objective: We used cluster analysis to identify subgroups among participants with gout with distinct comorbidity subgroups based on 9 variables: obesity, hypertension, diabetes, hypercholesterolemia, hypertriglyceridemia, coronary heart disease (CHD), heart failure (HF), chronic kidney disease (CKD), and liver disease.

Results: Cluster analysis identified 5 different subgroups (C1-C5) (Table 2). C1 had the highest proportion of patients with CKD (97%), C2 consisted of patients with gout but few other comorbidities. All patients in C3 had diabetes, but no HF, CHD, or CKD. C4 consisted primarily of patients with liver disease (85%), with high prevalences of lipid abnormalities and obesity. C5 had the highest proportion of patients with CHD and HF.

Conclusion: These findings from a nationally representative data of US adults indicate that gout comorbidities have 5 distinctive phenotypic patterns. These subgroups may have implications in pathogenesis of gout and/or for personalized care in the management of gout and comorbidities.