Prognostic Value of Serum Uric Acid for Risk Stratification of Patients with Coronary Artery Disease

Yafim Brodov, Pierre Chouraqui, Ilan Goldenberg, Valentina Boyko, Lori Mandelzweig, Shlomo Behar

Heart Institute and Neufeld Cardiac Research Institute, Sheba Medical Center, Ramat Gan

Background: The relationship between serum uric acid (SUA) levels and coronary artery disease (CAD) are conflicting. We hypothesized that a combined assessment of SUA levels and renal function could provide incremental prognostic information in patients with CAD.
Objectives: We assessed the relationship between elevated SUA, renal function and prognosis among 3107 CAD patients enrolled in the Bezafibrate Infarction Prevention (BIP) study.
Methods: The risk of all-cause mortality and the primary end point (PEP), including fatal or nonfatal myocardial infarction or sudden death, was assessed by SUA quintiles, and combined SUA and estimated glomerular filtration rate (eGFR) categories.
Results: All-cause mortality and PEP rates rose significantly with increasing SUA quintiles (8.5-12.9%, $p<0.002$; 5.3-7.9%, $p<0.05$; and 12.6-18.6%, $p<0.007$) measured from lowest to highest quintile, respectively. After multivariate analysis, patients in the highest SUA quintile ($\geq$6.73 mg/dl) exhibited increased risk for PEP (HR: 1.38 [95% CI: 1.00-1.90]), but not for all-cause mortality (HR: 1.27 [95% CI: 0.87-1.88]). Patients in the highest SUA quintile and renal dysfunction (eGFR < 60 ml/min/1.73 m^2) exhibited the highest risk of all-cause mortality and PEP [HR:1.6 (95% CI: 1.10-2.33) and HR: 1.53 (95% CI :1.09-2.16), respectively].
Conclusion: In patients with CAD, elevated SUA levels are associated with an increased risk of PEP. The combined assessment of SUA and renal function provides incremental prognostic data and identifies a high-risk subgroup for all-cause mortality beyond assessment using a single marker.