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**The creatinine to uromodulin ratio in serum predicts major cardiovascular events independently from the presence of type 2 diabetes**

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**Introduction:**

Low concentrations of the kidney protein uromodulin are associated with type 2 diabetes (T2DM) and with chronic kidney disease (CKD). The serum creatinine to uromodulin ratio recently has attracted interest as a marker of CKD.

**Purpose:**

The purpose of this study was to investigate whether the creatinine to uromodulin ratio also is associated with the risk for major cardiovascular events.

**Methods:**

We measured uromodulin in 529 coronary patients and prospectively recorded major cardiovascular events (coronary death, fatal and non-fatal ischemic stroke, and non-fatal myocardial infarction) over up to 8 years.

**Results:**

During follow-up, a total of 91 major cardiovascular events occurred. The incidence of major cardiovascular events was significantly higher in patients with T2DM (n=141) than in those who did not have diabetes (25.4% vs. 14.6%; p=0.004). The creatinine to uromodulin ratio significantly predicted major cardiovascular events both univariately (HR 1.37 [95%CI 1.21-1.56], p<0.001) and after multivariate adjustment including the presence of T2DM (HR 1.36 [CI 1.18-1.58], p<0.001).

**Conclusion:**

In conclusion, this study for the first time shows that the serum creatinine to uromodulin predicts major cardiovascular events independently from conventional risk factors including the presence of T2DM. Given that the biological role of uromodulin is still elusive this result appears important and may stimulate future research on uromodulin.
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The creatinine-uromodulin ratio in serum as risk predictor for major adverse cerebrocardiovascular events (MACCE). The Forest plot represents the hazard ratios (HR) with 95% confidence interval (CI) for the association between the creatinine-uromodulin ratio and the risk for MACCE in the study population. Model 1 represents univariate analyses. Model 2 includes the covariates age, gender, and body mass index (BMI). Model 3 includes the parameters included in model 2 and in addition systolic blood pressure (SBP), diastolic blood pressure (DBP), high density lipoprotein (HDL) and low density lipoprotein (LDL) cholesterol, the type 2 diabetes (T2DM) status, the current smoking status, c-reactive protein (CRP), the neutrophile-lymphocyte ratio (NLR), pro brain natriuretic protein (proBNP) and the CAD status.