Evaluation of serum uromodulin as a marker of acute pancreatic-renal syndrome in the early phase of acute pancreatitis

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OBJECTIVES

Acute pancreatitis (AP) is one of the most common acute gastrointestinal diseases. About 15-20% of patients develop severe AP (SAP) with organ failure, including acute renal failure (AKI). Uromodulin (UMOD) is a glycoprotein produced selectively by renal tubular cells and released into tubules. Small amounts of UMOD reach renal interstitial space and blood. Serum UMOD (sUMOD) has been shown to positively correlate with glomerular filtration rate (GFR) among patients with chronić kidney diesase.

The aim of the study was to evaluate the usefulness of sUMOD as a marker of AKI in the early phase of AP.

METHODS

The study included 66 patients (32 women, 34 men, mean age 61±18 years) admitted to the surgery department within first 24 hours from the onset of AP. Serum UMOD was measured with ELISA in samples collected at 24, 48 and 72 hours from the onset of abdominal pain. GFR was estimated using the following equations: MDRD, CKD-EPI based on serum creatinine and cystatin C, and kinetic equation.

RESULTS

Mean concentrations of sUMOD decreased non-significantly during the first 3 days of AP (168.0±79.5; 147.9±65.8; 144.7±77.0 ng/mL; p=0,3). At each studied time-point, sUMOD correlated significantly with GFR estimated with studied equations (positive correlations; R values from 0.29 to 0.50; $p<0.05$) and with serum creatinine, cystatin C, and urea (negative correlations; R values from -0.34 to -0.52; $p<0.05$) [Figure 1]. At 24h, sUMOD correlated negatively with urine albumin/creatinine ratio (R=-0.48; $p<0.001$). Patients with AKI had lower mean sUMOD than those without AKI, but the difference was not significant (129.9±62.0 vs. 182.0±81.6 at 24h; p=0.07) [Figure 2]. Receiver operating characteristic curves analysis did not confirm the usefulness of sUMOD in early diagnosis of AKI in the course of AP, nor in the diagnosis of SAP.

CONCLUSIONS

Serum UMOD concentrations correlate with renal filtration among patients with AP. However, the diagnostic utility of sUMOD for the early prediction of SAP or the diagnosis of AKI complicating AP is insufficient.

CONTACT

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Figure 1.

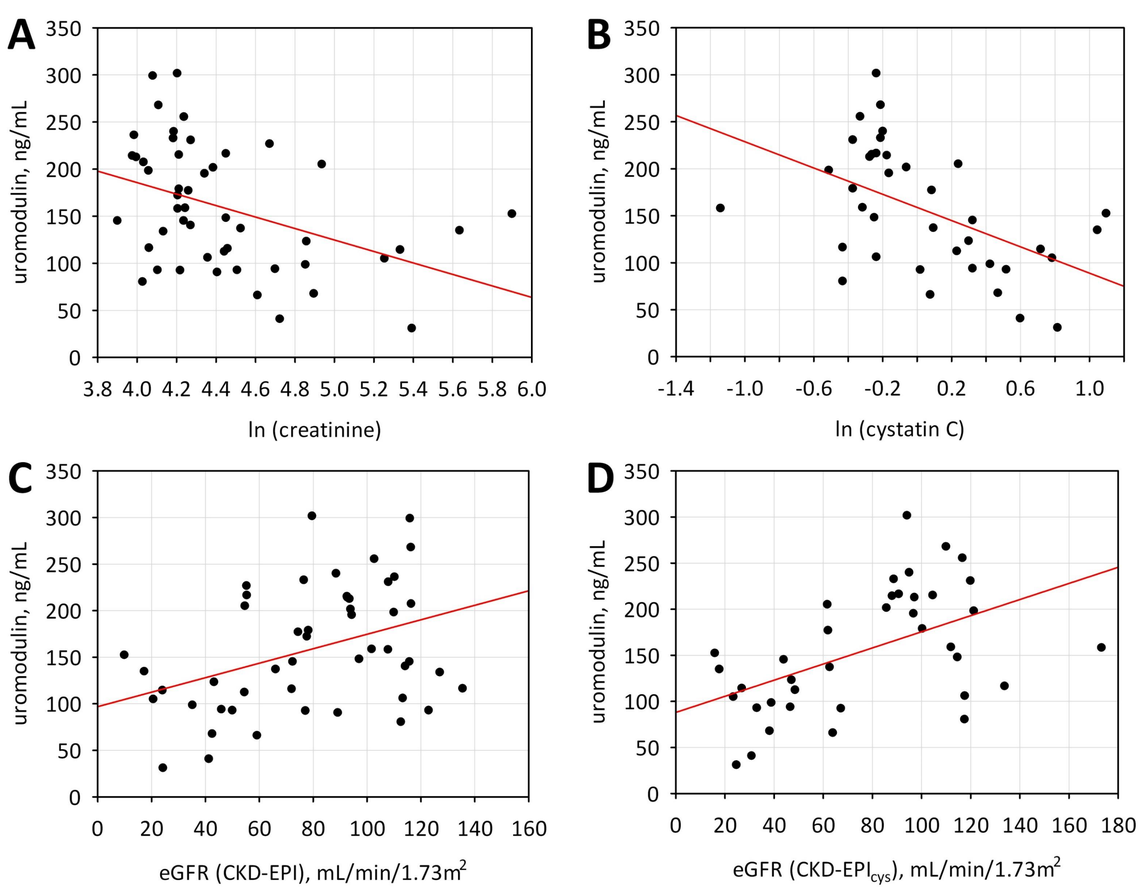
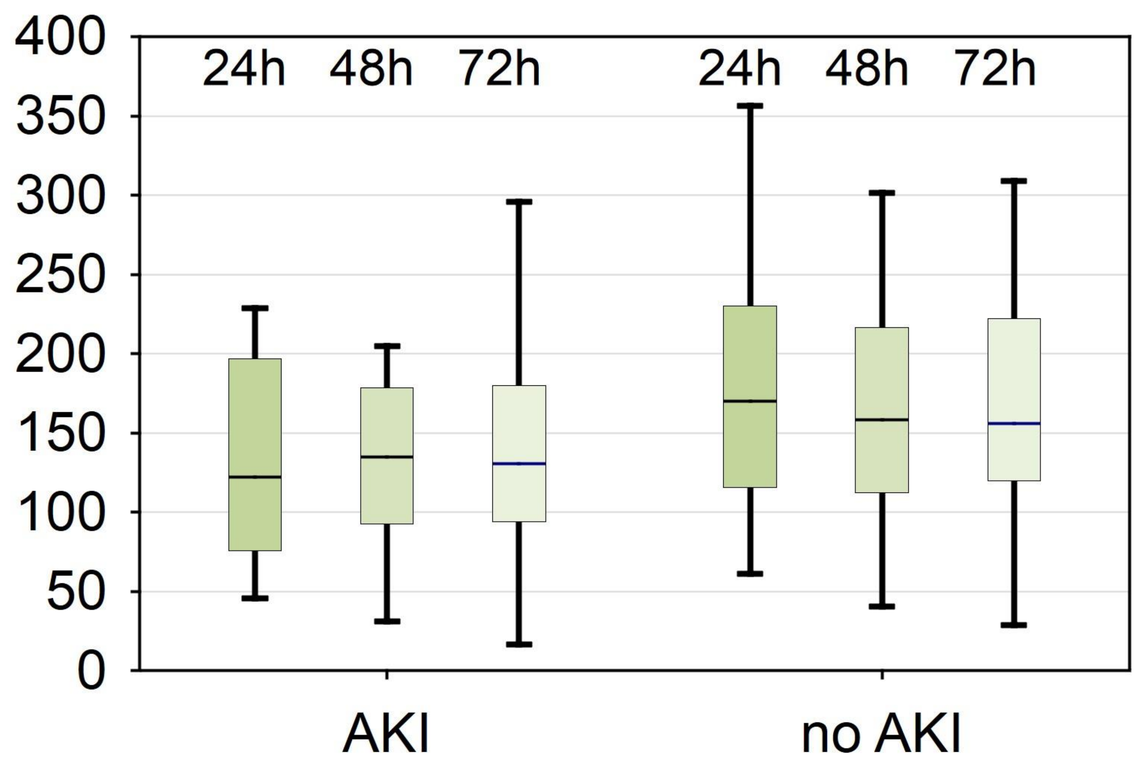


Figure 2.



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