Monitoring of novel urinary protein markers in sepsis

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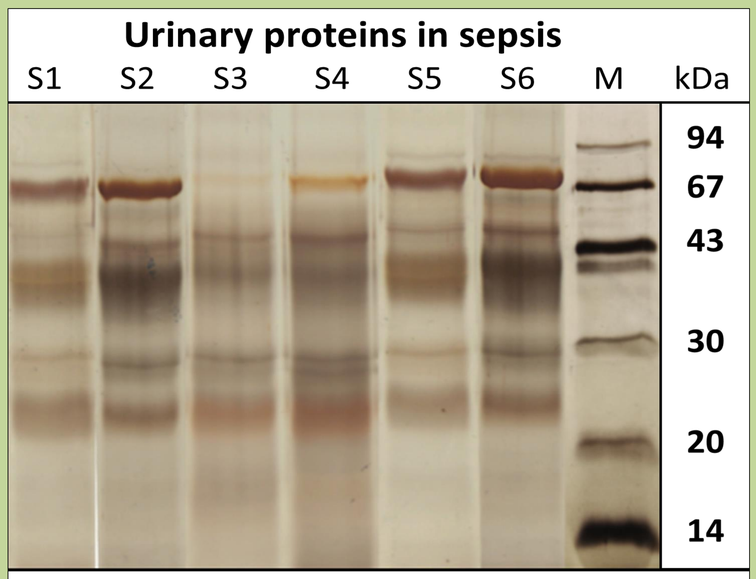


SDS PAGE with silver staining

PATIENTS AND SAMPLING

Control group
Healthy individuals
n=53 (33♂/20♀)
53± 19 years

Septic patients
ICU patients
n=35 (21♂/14♀)
66 ±13 years

Simultaneously obtained spot urine and serum samples were analyzed

METHODS

u-ORM (orosomucoid): automated immune turbidimetry (Cobas 8000/c502, Dako reagents)

u-ACT (actin): quantitative (ECL) western blot (Syngene, Dako reagents)

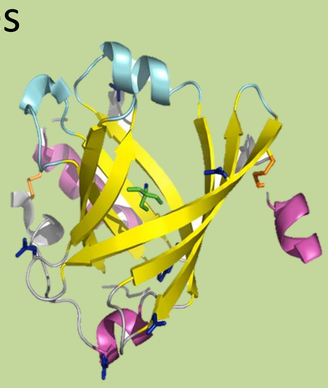
u-CYSC (cystatin-C): automated immune turbidimetry (Cobas 8000/c502, DiaSys)

The concentration data were referred to urinary creatinine (u-CREAT).

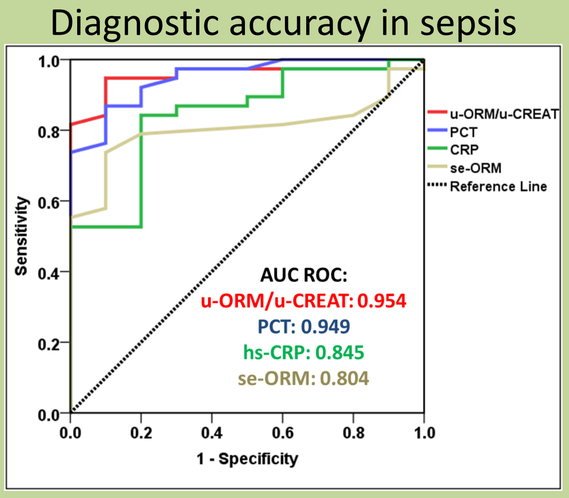
AIMS of the study were to **measure non-conventional protein markers in urine** and to investigate their **clinical relevance** in sepsis.

URINARY OROSOMUCOID (u-ORM)

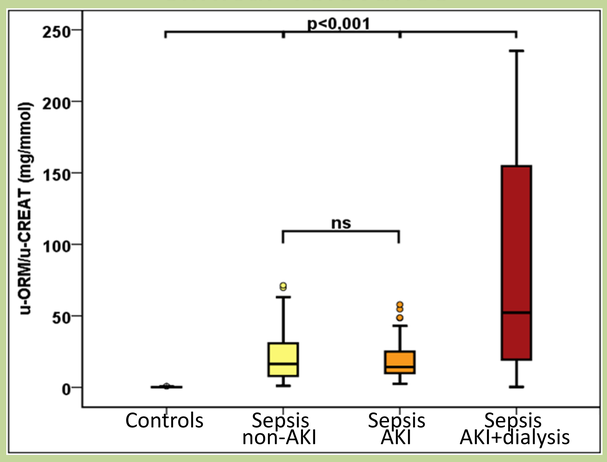
183 amino acids+45% carbohydrates
41-43 kDa
Acute phase protein
Anti-inflammatory effects
Carrier function
u-ORM is normal component of urinary proteins



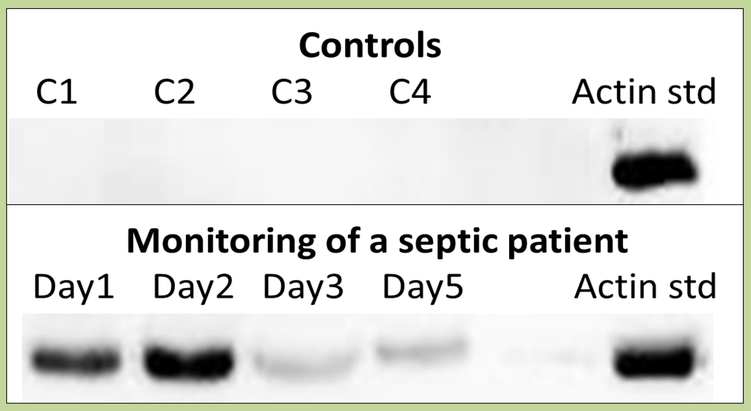
Diagnostic accuracy in sepsis



Clinical relevance

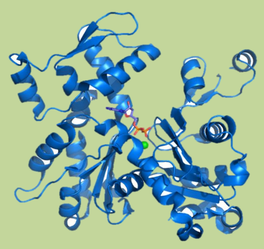


URINARY ACTIN (u-ACT)

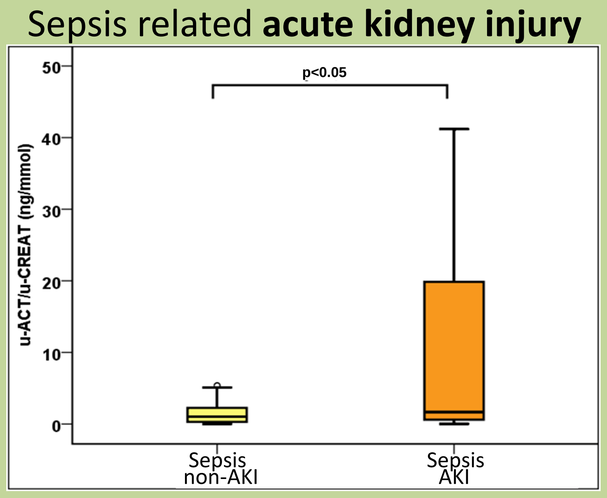


374 amino acids, 42 kDa
Monomer (G)→ Polymer (F) forms
Cellular component
Functions: muscle contraction, cell motility, cell division, platelets, etc.
In circulation it is bound to proteins.

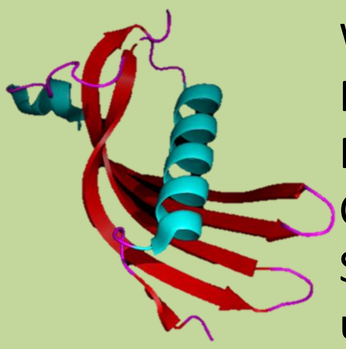
u-ACT has not been studied yet.



Sepsis related **acute kidney injury**

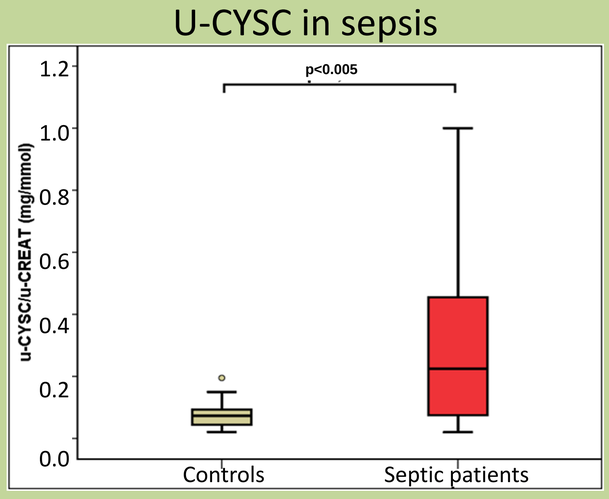


URINARY CYSTATIN-C (u-CYSC)

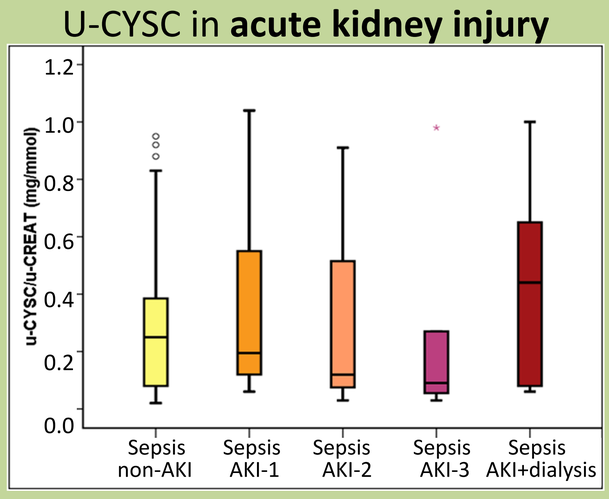


122 amino acids, 13 kDa
Well-known protease inhibitor
Produced by all nucleated cells
Freely filtrated through the glomeruli
Catabolized in the tubuli
Serum CYSC is a marker of GFR
u-CYSC might indicate tubular dysfunction e.g.:acute kidney injury (**AKI**)

U-CYSC in sepsis



U-CYSC in **acute kidney injury**



CONCLUSIONS: The early and relevant increase of **u-ORM** suggests that it might be a promising novel **diagnostic marker of sepsis**. **U-ACT** concentrations might indicate **acute kidney injury**. **U-CYSC** is a reliable marker of **tubular damage**. These novel parameters provide useful information on the septic process and could help clinicians in rapid decision making.

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