



suPAR as a standard prognostic test in the acute medical unit at Hvidovre Hospital

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BACKGROUND

Soluble urokinase plasminogen activator receptor (suPAR):

- Inflammatory biomarker
- Associated with presence and progression of diseases
- Implemented as one of the acute care blood samples routinely measured on admission to the Acute Medical Unit, Hvidovre Hospital, Denmark, in 2013

METHODS

- Plasma suPAR levels were measured at the Dept. of Clinical Biochemistry with the suPARnostic AUTO Flex ELISA
- Data on ICD-10 diagnoses, admission time, readmission and mortality was extracted from Danish registries
- The Charlson score (number and severity of comorbidities) was calculated from ICD-10 diagnoses
- Follow-up for 30 and 90 days

AIM

To verify the prognostic value of suPAR in acute medical patients with regard to readmission and survival.

STUDY POPULATION

- 17,312 consecutively admitted, unselected, acute medical patients
- Included between 11/18/2013 and 09/30/2015

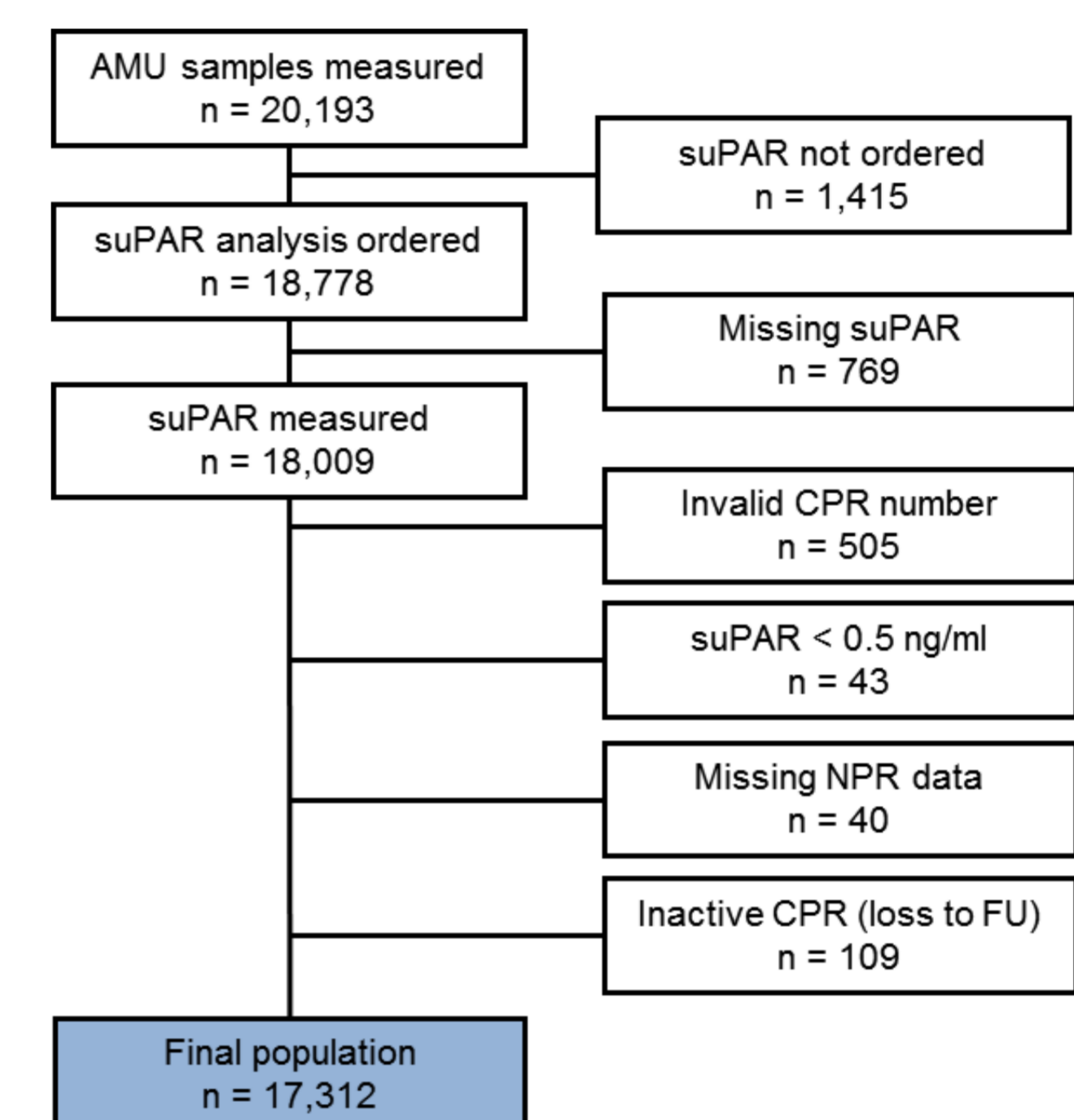


Figure 1. Flow-chart for study population
CPR number = personal ID number; NPR = national patient registry.

RESULTS

Table 1. Baseline values

Variable	n or median	% or IQR
All, n (%)	17,312	100%
Male, n (%)	8,118	46.9%
Age (years), median (IQR)	61.3	43.3–76.3
Charlson score ≥1, n (%)	5,563	32.1%
Length of stay (days), median (IQR)	0.85	0.33–3.48
suPAR, median (IQR)	2.8	1.9–4.3
CRP (mg/l), median (IQR)	5.0	1.0–31.0

Table 2. suPAR is associated with readmission and mortality

Follow-up	n	suPAR median (IQR)	P
Readmitted within 30 days			
No, alive	13,719	2.6 (1.9–3.8)	
No, dead	715	6.4 (4.3–9.3)	
Yes, readmitted	2,878	3.5 (2.3–5.3)	0.0001
Died within 30 days			
No	16,453	2.7 (1.9–4.0)	
Yes	859	6.2 (4.3–9.2)	0.0001

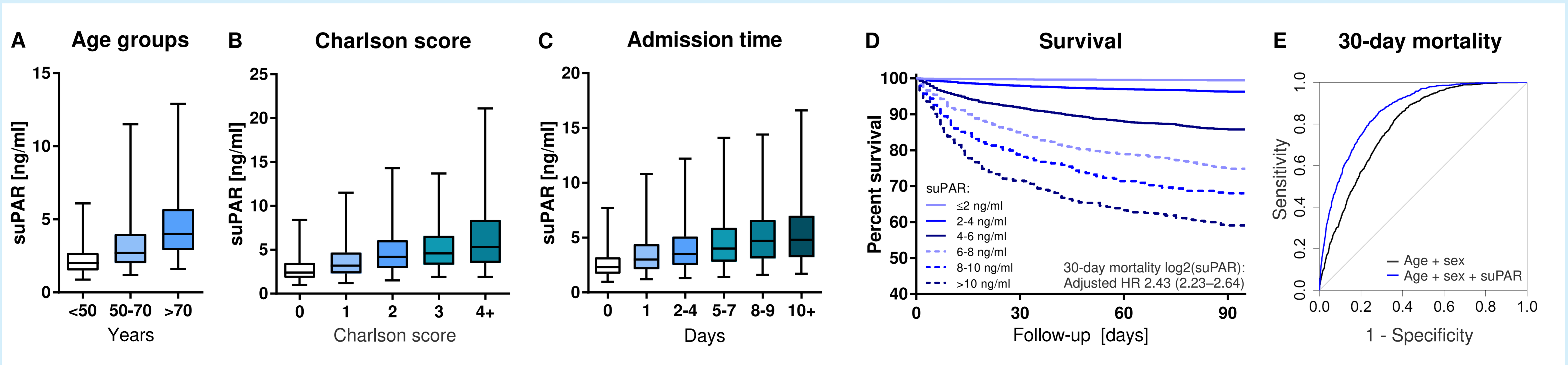


Figure 2.
A-C. suPAR increases with **A)** age ($P < 0.0001$), **B)** Charlson score ($P < 0.0001$), and **C)** length of in-hospital stay ($P < 0.0001$).
D. 90-day survival stratified by 2 ng/ml suPAR intervals, log-rank test $P < 0.0001$. Cox regression: Adjusted for age, sex, Charlson score, and CRP.
E. ROC curve analysis (30-day mortality). AUC (95% CI): Age + sex: 0.79 (0.78–0.80). Age + sex + suPAR: 0.86 (0.85–0.87), $P < 0.0001$.

CONCLUSIONS

- High suPAR was associated with:
- Increased number and severity of comorbidities
 - Longer admission time
 - High readmission rate
 - High mortality rate

suPAR remained an independent predictor after adjustment for age, sex, Charlson score, and CRP