

Soluble urokinase plasminogen receptor (suPAR): a future risk marker for hemodialysis patients?

I. Griveas, C. Andriopoulos, P. Sitaras, M. Aktsiali. Private Dialysis Unit 'Nefroiatriki', Athens, Greece

Objectives:

Soluble urokinase plasminogen receptor (suPAR) is a protein in the blood that has recently been described to reflect the severity status of systemic inflammation and according to recent literature data could be a marker of low grade inflammation. The objective of this study was to evaluate the diagnostic value of suPAR in hemodialysis (HD) patients and its correlation to other traditional inflammatory markers.

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Methods:

We measured plasma suPAR levels in 127 patients on maintenance HD. suPAR levels were compared with C-reactive protein (CRP), albumin, hematocrit (Hct), hemoglobin (Hb), ferritin, parathormone (PTH). We also examined the above parameters subgroups, especially in diabetics, elderly and patients according to their access for HD. Relations between parameters were studied by Spearman's correlation. According to suPAR levels, we focused on what degree can be predictive for hospitalizations and mortality in HD population.

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Results:

suPAR levels were elevated in all of our patients with mean values 14.75 ± 6.31 ng/ml SD (normal values <4). Plasma suPAR concentrations were negatively correlated to albumin ($r=0.366$), Hct ($r=0.272$) and PTH ($r=0.270$). Diabetics had slightly increased suPAR levels compared to non-diabetics (15.69 ± 5.29 vs 14.78 ± 6.69). Patients with central venous catheters had significant increased suPAR levels compared to patients with fistulas or grafts (18.72 ± 8.14 vs 13.92 ± 5.37). We did not notice significant differences in suPAR levels of elderly patients. In a study period of 30 months after measurement of suPAR levels we noticed that mortality was higher in patients with elevated concentrations of suPAR ($p=0.77$). Patients with at least 3 hospitalization incidents in the above study period had higher suPAR levels compared to ones with no hospitalization incidents (13.32 ± 2.34 vs 10.81 ± 3.90).

The above results suggest that plasma suPAR concentrations may be a promising inflammation biomarker for HD population. Since its independent association with nutritional status, anemia, mineral bone disease, hospitalization and mortality, extensive studies are needed for more solid conclusions.

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Conclusions:

