

VALUE OF PLASMATIC NGAL LEVELS IN ASSESSING SEVERITY IN ACUTE KIDNEY INJURY PATIENTS OF DIFFERENT ETIOLOGIES

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BACKGROUND

Acute kidney injury (AKI) is an established predictor of all-cause mortality in hospitalized patients.

Mortality among ICU patients with AKI has been reported to be more than 50% and if renal replacement therapy is required, mortality may be as high as 80%.

Serum creatinine is the usual marker of AKI, but its correlation with disease severity and ultimate mortality is very limited. Other biomarkers are needed.

AIM

To assess if plasmatic NGAL (Neutrophil Gelatinase-Associated Lipocalin) value at the time of AKI diagnosis is a good marker for identification of patients who would need renal replacement therapy or who die during an AKI event.

PATIENTS AND METHODS

134 patients in a tertiary hospital including different AKI-etiologicalies:

- 27 were ICU-septic patients (septic model of AKI); 52% with AKI vs 48% non-AKI,
- 50 were patients under colistin treatment (nephrotoxic model); 46% AKI vs 54% non-AKI,
- 17 patients with multifactorial-AKI
- 40 renal allograft recipients (ischemia-reperfusion model); 72.5% with AKI.

EDTA-plasma samples were collected

We tested NGAL means to immunofluorescence assay (Alere®). Results were expressed in mean±standard error.

RESULTS

In our overall patient population, 52% of patients had AKI diagnosis and 48% normal kidney function.

Plasmatic NGAL levels were significant higher in AKI patients (582 ± 44 ng/mL vs 316 ± 41 ng/mL; $p < 0.001$).

NGAL levels were significantly higher in AKI-patients who needed renal replacement therapy during hospitalization compared with those who did not needed such treatment (715 ± 73 ng/mL vs 499 ± 48 ng/mL; $p = 0.014$) and significant higher in AKI-patients who die (793 ± 111 vs 442 ng/mL; $p < 0.001$).

Finally, NGAL levels were significantly lower in those AKI-patients who recovered renal function at time of discharge (258 ± 48 ng/mL vs 336 ± 73 ng/mL, $p = 0.01$).

Age	62,19 ± 15 years
Sex	61,3% ♂ vs 37,3% ♀
AKI	N= 83 (58,5%)
Renal replacement therapy (RRT)	N=27 (18,3%)
Mortality	N=27(19%), 17 AKI

	Plasmatic NGAL (ng/ml)	
RRT (Yes/No)	715 ± 73 502 ± 50	$p = 0,02$
Renal function recovery (Yes/No)	524 ± 40 799 ± 115	$p = 0,06$
Dead vs alive	868 ± 122 529 ± 41	$p = 0,018$

CONCLUSIONS

Plasmatic NGAL in AKI-patients could be useful to distinguish patients who are at risk for renal replacement therapy or die during the event, and it may serve to identify those patients who will recover renal function.

REFERENCES

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