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Neutrophil gelatinase-associated lipocalin is a better biomarker than cystatin C for predicting imminent acute kidney injury in critically ill patients

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Detection of acute kidney injury (AKI) as early as possible can be lifesaving in intensive care unit (ICU) patients. The conventional methods are not early enough to detect AKI; therefore, new predictive biomarkers are under development. 183 adult patients without chronic kidney disease or renal replacement therapy were included in this study. Plasma and urine concentrations of neutrophil gelatinase-associated lipocalin (NGAL) and cystatin C (CysC) were assessed at 48 hours after ICU admission and were subsequently measured each day for 7 days to monitor the development of AKI. AKI diagnosis was based on the risk, injury, failure, loss, end-stage renal failure (RIFLE) criteria. 34% of the patients had AKI, 73% of whom were diagnosed within the first 48 hours after ICU admission. 17 additional patients were diagnosed with AKI after 3 to 7 days. The mean serum creatinine level did not significantly differ between the non-AKI patients and the 17 patients diagnosed after 3-7 days (0.72 ± 0.20 and 0.83 ± 0.21 ; $p=0.060$). However, the serum and urinary NGAL levels significantly differed between these patient groups (median 75.69 (54.18-91.18) and 123.68 (90.89-166.31), $p=0.001$, and median 17.60 (8.56-34.04) and 61.37 (24.59-96.63), $p=0.001$, in the AKI and non-AKI patients, respectively); notably, the serum CysC level at 48 hours did not differ. NGAL concentrations in the urine and serum measured within 48 hours of ICU admission could be used to predict the development of AKI after 3 to 7 days in the ICU, but the CysC concentration did not demonstrate predictive value.

Biography

Itir Yegenaga has completed her Doctor degree at the University of Istanbul Medical School in Turkey; worked as Visiting Professor in Medical College of Georgia/USA in Department of Cell and Molecular Biology. She received her Nephrology degree in University of Gent Medical School/Belgium. She is working as a Professor of Medicine in Kocaeli University Medical School/Turkey for 20 years. She has published more than 25 papers in reputed journals.

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