

Publication

A combined cardiorenal assessment for the prediction of acute kidney injury in lower respiratory tract infections

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BACKGROUND: The accurate prediction of acute kidney injury (AKI) is an unmet clinical need. A combined assessment of cardiac stress and renal tubular damage might improve early AKI detection. **METHODS:** A total of 372 consecutive patients presenting to the Emergency Department with lower respiratory tract infections were enrolled. Plasma B-type natriuretic peptide (BNP) and neutrophil gelatinase-associated lipocalin (NGAL) levels were measured in a blinded fashion at presentation. The potential of these biomarkers to predict AKI was assessed as the primary endpoint. AKI was defined according to the AKI Network classification. **RESULTS:** Overall, 16 patients (4%) experienced early AKI. These patients were more likely to suffer from preexisting chronic cardiac disease or diabetes mellitus. At presentation, BNP (334 pg/mL [130-1119] vs 113 pg/mL [52-328], $P = 267$ pg/mL or NGAL <231 ng/mL correctly identified 15 of 16 early AKI patients (sensitivity 94%, specificity 61%). During multivariable regression analysis, the combined BNP/NGAL cutoff remained the independent predictor of early AKI (hazard ratio 10.82; 95% CI, 1.22-96.23; $P = .03$). **CONCLUSION:** A model combining the markers BNP and NGAL is a powerful predictor of early AKI in patients with lower respiratory tract infection.

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