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## **TIMP-2/IGFBP7 for Predicting Acute Kidney Injury**

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Urine tissue inhibitor of metalloproteinases-2/insulin-like growth factor-binding protein 7 (TIMP-2/IGFBP7) (NephroCheck, Ortho Clinical Diagnostics, Raritan, NJ, USA) is a US Food and Drug Administration-approved biomarker for risk assessment of acute kidney injury (AKI) in critically ill adult patients in intensive care units. Its clinical impact in the emergency department (ED), however, remains unproven. We evaluated the utility of NephroCheck for predicting AKI development and short-term mortality in the ED.

We conducted a prospective, observational, five-center international study and consecutively enrolled ED patients admitted with  $\geq 30\%$  risk of AKI development (assessed by ED physician: ED score) or acute diseases. Serum creatinine level was measured on ED arrival (T0), day 1, and day 2 (T48), and urine was collected at T0 and T48 for NephroCheck testing. We performed Receiver operating characteristic curve and reclassification analyses.

A total of 529 patients were enrolled (213 females; median age, 65 yrs), and AKI developed in 59 (11.2%) patients. The T0 NephroCheck value was higher in the AKI group than in the non-AKI group (median 0.77 vs. 0.29 (ng/m)<sup>2</sup>/1,000,  $P = 0.001$ ), and it better predicted AKI development than the ED score (area under the curve [AUC], 0.64 vs. 0.53;  $P = 0.04$ ). In reclassification analyses, adding NephroCheck to the ED score improved the prediction of AKI development ( $P < 0.05$ ). The T0 NephroCheck value predicted 30-day mortality (AUC, 0.68;  $P < 0.001$ ).

NephroCheck could predict both AKI development and short-term mortality in at-risk ED patients. NephroCheck would be a useful biomarker for early ruling-in or ruling-out of AKI in the ED.