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Clinical impact of Wnt5a expression on persistence of acute kidney injury in patients with urosepsis

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Objectives : Abnormal Wnt5a expression is associated with dysregulated inflammation. However, the effect of Wnt5a activation on persistent organ dysfunction remains unclear. This prospective study investigated the association between Wnt5a levels and persistent kidney disease in patients with urosepsis.

Methods : Serum creatinine and Wnt5a levels were measured in 28 healthy volunteers and on days 1 and 5 and at discharge in 87 patients diagnosed with urosepsis. Patients with urosepsis were classified into an improving acute kidney injury (AKI) group and a persistent or worsening AKI group according to the AKI stage on days 1 and 5. AKI recovery was defined as a discharge-to-baseline serum creatinine ratio of <1.5.

Results : Wnt5a levels were significantly elevated in patients with urosepsis compared to healthy volunteers. Twenty-eight patients with urosepsis (32.2%) had persistent or worsening AKI, and their Wnt5a levels were higher on days 1 and 5 and at discharge than those with improving AKI. The association between Wnt5a levels and persistent or worsening AKI was maintained after adjusting for age, sex, baseline serum creatinine levels, and disease severity. Moreover, elevated Wnt5a levels were associated with an increased risk of major adverse kidney events. High Wnt5a levels at discharge were associated with unrecovery from AKI, irrespective of age, sex, baseline serum creatinine level, or disease severity. Moreover, participants with AKI recovery had steeper Wnt5a slope over time than those without recovery, even after adjustment.

Conclusions : Assessment of Wnt5a expression was helpful in predicting AKI persistence and adverse outcomes in patients with urosepsis. Therefore, Wnt5a may serve as a valuable biomarker for identifying the risk.