

Category : **Renal: failure**

A47 - Serial measurement of urinary c-c motif chemokine ligand 14 (ccl14) and the persistence of severe acute kidney injury during critical illness

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Introduction:

In critically ill patients with stage 2-3 acute kidney injury (AKI) elevated urinary C-C-motif chemokine ligand 14 (CCL14) predicts persistence of severe AKI however the relationship of its trajectory to kidney outcomes has not been reported.

Methods:

Using existing data from two multicenter studies (Ruby and Sapphire), we analysed urinary CCL14 at 12h intervals after onset of moderate to severe AKI. CCL14 was measured with the NEPHROCLEAR™ CCL14 Test (Astute Medical). Primary endpoint was persistent severe AKI (PS-AKI), defined as 72hrs of stage 3 AKI, or death or receipt of dialysis prior to 72h. We stratified the CCL14 concentrations into three levels: Low (≤ 1.3 ng/mL), Medium (> 1.3 to ≤ 13 ng/mL), and High (> 13 ng/mL) based on previously determined clinical risk cut-offs and grouped patients by CCL14 levels across 3 samples.

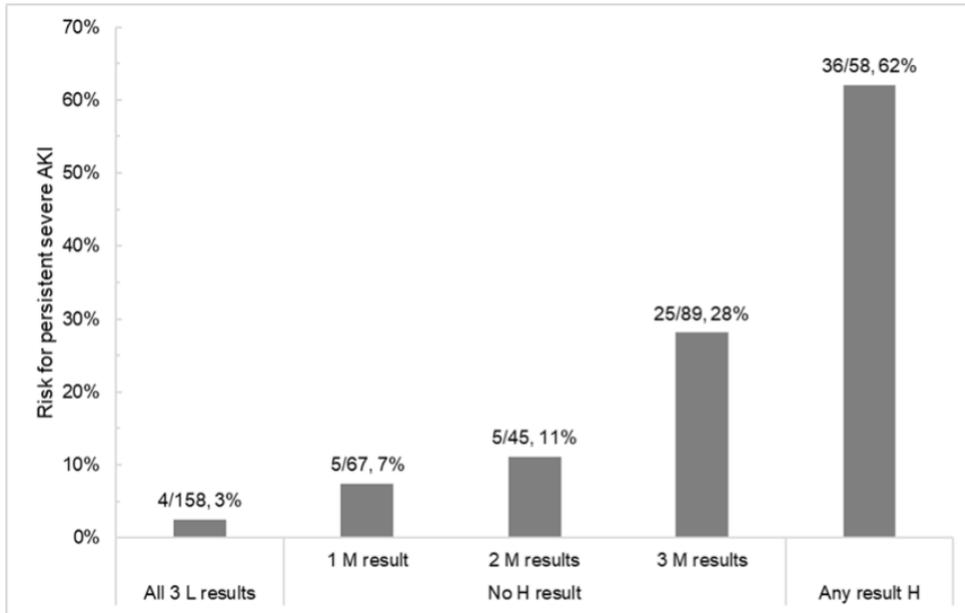
Results:

We included 417 patients (Median 65yr) with 3 consecutive CCL14 measurements, 75 developed PS-AKI. Initial CCL4 levels were low in 196 (47%), medium in 180 (43%) and high in 41 (9.8%). In 66% of cases CCL14 category was unchanged from first to last timepoint. 158/196 patients with initially low levels of CCL14 remained in this category and had the lowest risk of developing PS-AKI, while patients with High CCL14 at any time had the highest risk. Patients with CCL14 levels in the mid-range (> 1.3 to ≤ 13 ng/mL) had intermediate risk and the risk increased with number of medium CCL14 results (Fig).

Conclusion:

In two-thirds of patients CCL14 levels were stable over 24h. High CCL14 levels at any time conferred highest risk of PS-AKI while those with persistently low levels had lowest risk. Clinicians can have confidence in the prognostic interpretation of a single CCL14 result, but serial measurement may help refine prognosis over time.

Image :



CCL14 trajectory over 24hrs and kidney outcomes in patients with moderate to severe AKI. Urinary CCL14 levels were classified as low (L), medium (M) or high (H)