PREDICTIVE PERFORMANCE OF TIMP2 AND IGFBP7 BIOMARKERS IN TRAUMA PATIENTS FOR EARLY IDENTIFICATION OF ACUTE KIDNEY INJURY

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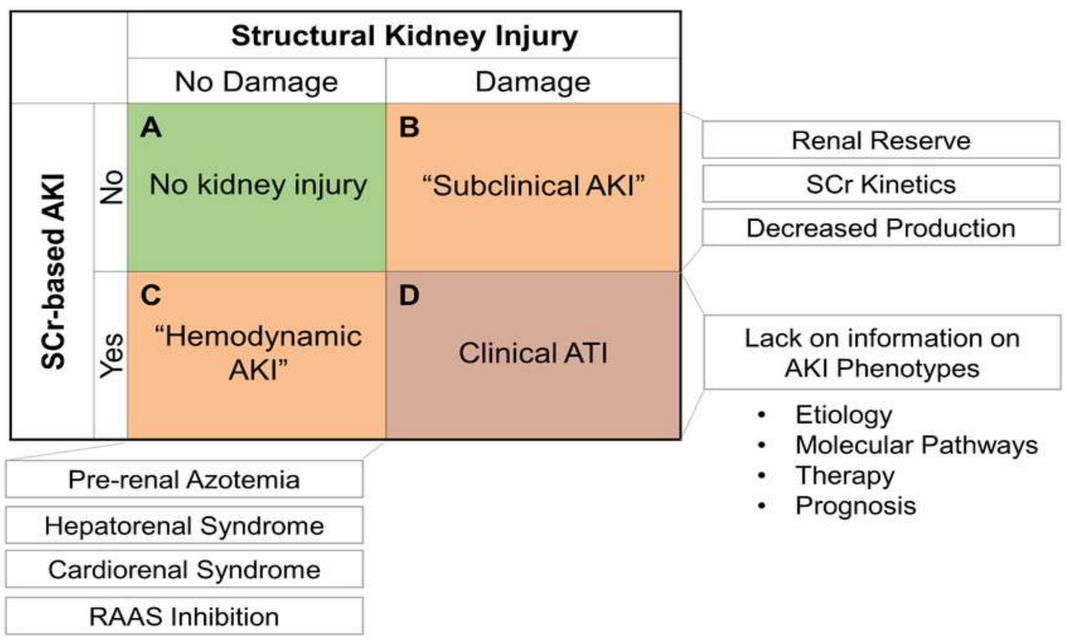
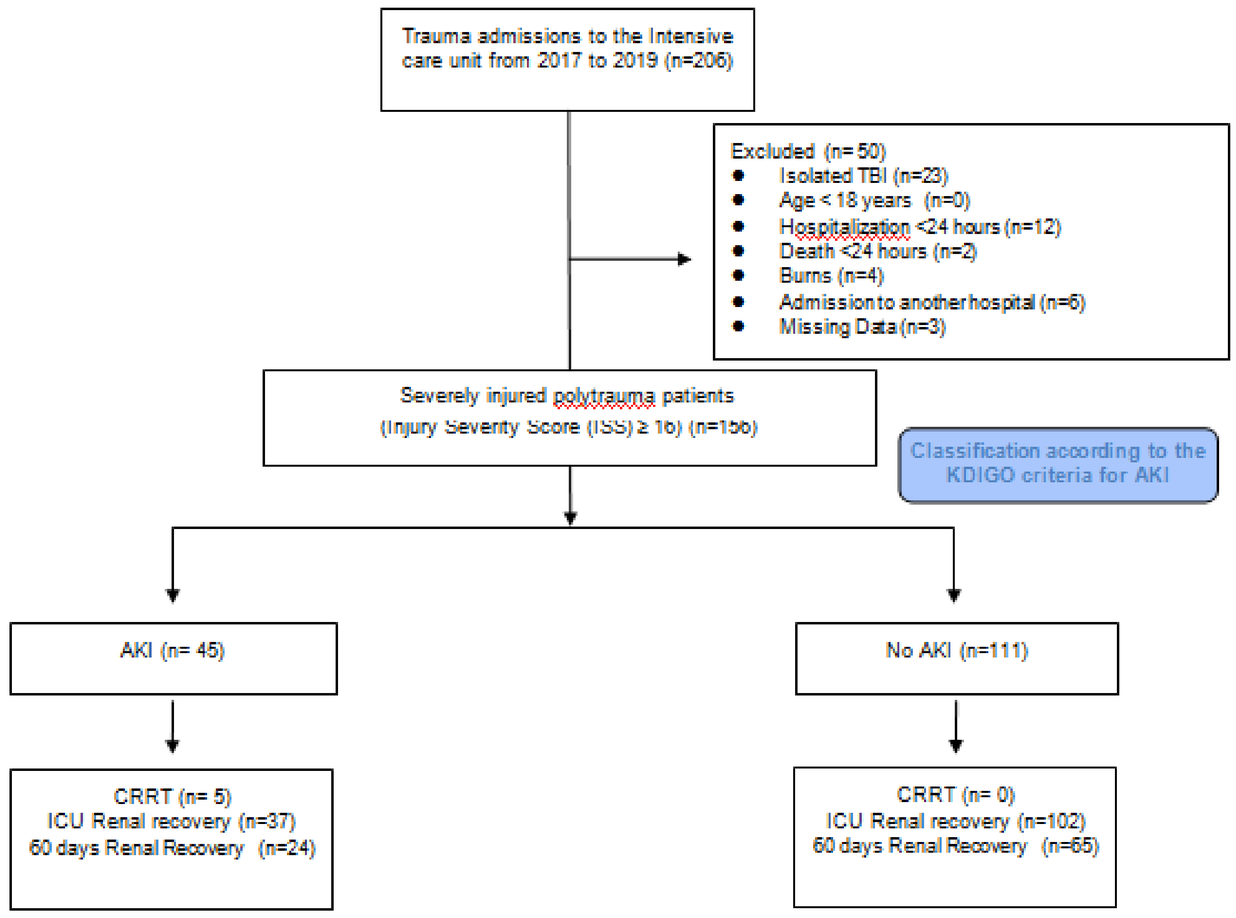
BACKGROUND

Acute kidney injury (AKI) is a common cause of organ failure in trauma patients who survive their initial injuries, and is independently associated with increased morbidity and mortality, and prolongs length of hospital stay. The purpose of the study is to assess the incidence of AKI in patients who sustained traumatic injuries, examine risk factors associated with the development of AKI in this population, and to evaluate the predictive performance of the NephroCheck Test at ICU admission for early AKI diagnosis in trauma patients, as compared to current methods based on serum Creatinine.



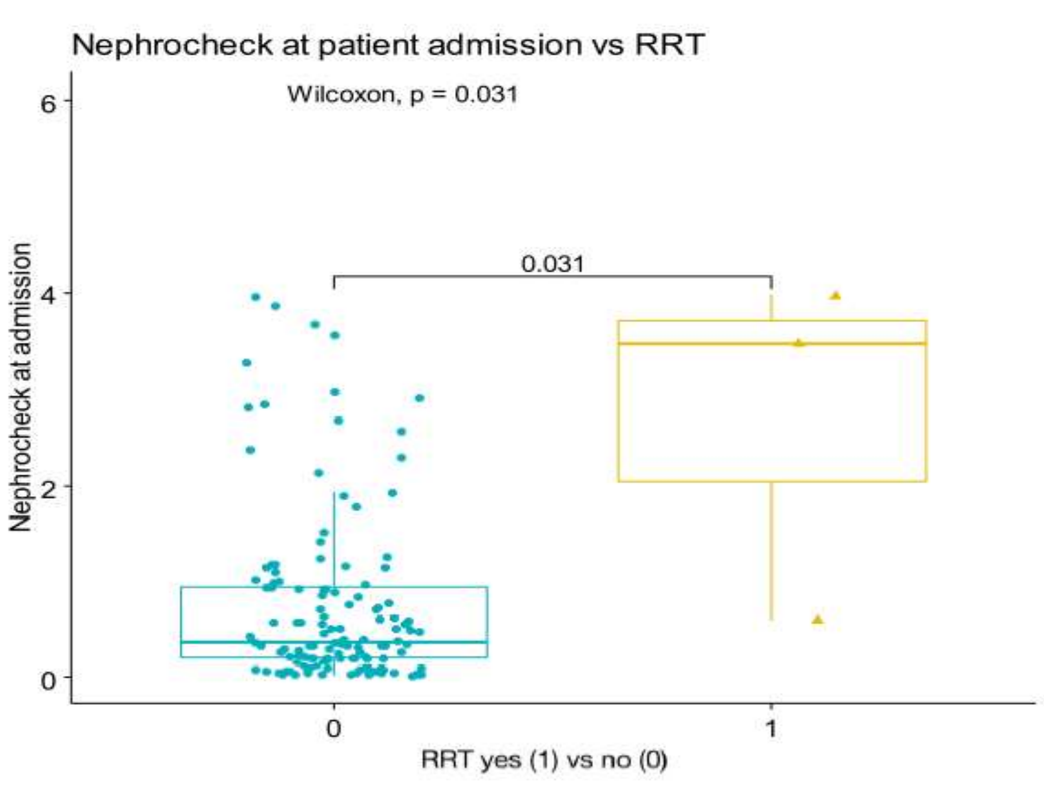
METHODS

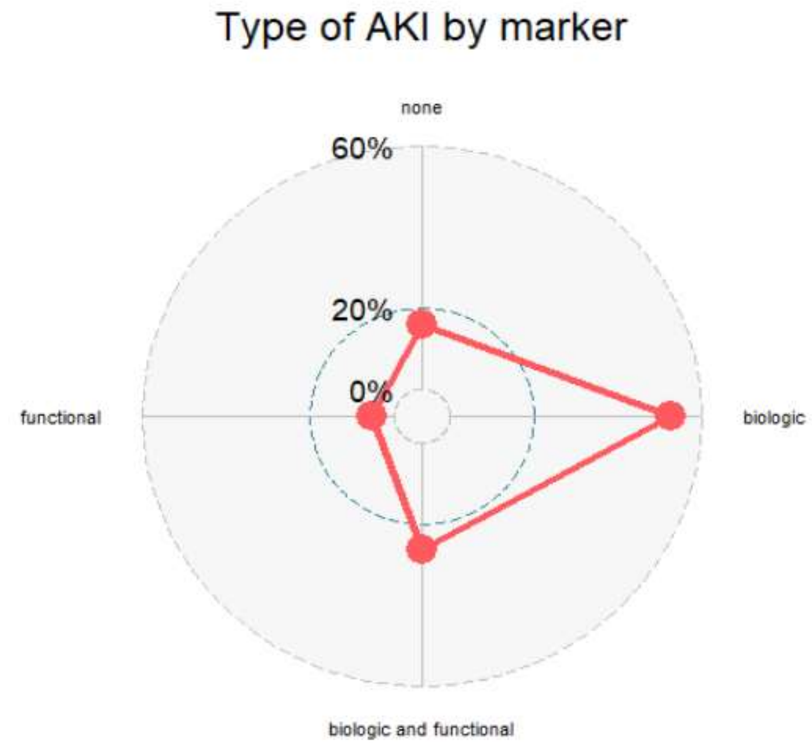
We conducted a retrospective cohort study of injured adultpatients consecutively admitted to a multidisciplinary ICU from May, 2017 through May, 2019. Detailed data of trauma patients between May, 2017 and May, 2019 were retrieved from ICU medical records. In particular, patients' demographics, anthropometry, comorbidities, ISS, SOFA score on admission, hemodynamic parameters, biochemical parameters and fluid balance, urinary output, sCr values at baseline, 24 hours, 48 hours, and 72 hours. Urine samples for measuring [TIMP-2] x [IGFBP7] concentrations were obtained and analyzed immediately following enrollment.



RESULTS

Among 153 patients eligible for analysis, 45 were included in AKI and 108 in no-AKI cohorts. There was no difference for ISS, type and mechanism of injury, GCS, heart rate and systolic BP at admission, although not significant shock index was higher in AKI patient.
Patients with AKI within 7 days were overweight (68 vs 42 years, p<0.001) and obese (BMI 26.2 vs 24.7, p<0.048). [TIMP-2] x [IGFBP7] values were higher in AKI patients compared to those who did not develop AKI, and significantly correlate with RRT and episodes of hypotension .





CONCLUSIONS

[TIMP-2] x [IGFBP7] may help to identify patients with tubular damage in trauma patients that may or may not evolve into a clinically manifest syndrome. Future research is warranted to reduce the potential for harm associated with possible subtype of AKI.

REFERENCES

• Ostermann M, Zarbock A, Goldstein S, et al. Recommendations on Acute Kidney Injury biomarkers from the acute disease quality initiative consensus conference. A Consensus Statement. JAMA 2020.
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