Introduction:
Acute kidney injury (AKI) is relatively common in patients with Severe Traumatic Brain Injury (sTBI) and it can contribute to morbidity and mortality. NephroCheck is a point-of-care urine test that flags two biomarkers that indicate if a critically ill patient is at risk for AKI. We investigated the incidence of subclinical AKI in patients with sTBI.

Methods:
We performed a prospective observational study of all adult patients with severe TBI admitted to ICU from January 2017 to April 2018 inclusive. All consecutive patients with a clinical need for ICP monitoring were included for analysis. Urine samples of severe TBI patients was collected at ICU admission from 33 patients to measure NephroCheck (NC) test [IGFBP7]x[TIMP-2] was performed using the NephroCheck® Astute1 40 ™ meter. Serum creatinine was collected at admission, during the first three days, at ICU dismission and 60-days follow up to assess renal recovery. The diagnosis of AKI was based on KDIGO criteria. Hemodynamics, electrolytes, PEEP, P/F, kind of fluid administered, Fluid Balance, % Fluid overload, length of stay, The Sequential Organ Failure Assessment score, injury severity scores and mortality were collected.

Results:
A total of 15 patients (45%) presented a median NC higher values at ICU admission. One patient with positive NC value experienced AKI at 24 hrs. The positive NC group had more plasma transfusion (p-value 0.03) and a lower median hematocrit at 24 hrs (p-value 0.013), but similar hospital length of stay (p=0.17) and mortality rate (p=0.80)

Conclusion:
NC at ICU admission identifies subclinical AKI in TBI patients and it might be used to predict clinical AKI. Hemodilution (but not fluid overload) seems to be associated with development of subclinical AKI. Higher NC at ICU admission is not associated with worst long-term outcome in TBI patients.

References: