Background

- AKI is common and associated with significant short and long-term outcomes.
- AKI acquired before hospitalization is increasingly being recognized, but has not been well characterized.

Objectives

- To compare characteristics of individuals whose serum creatinine (sCr) improved after admission to an urban academic medical center

Methods

- We obtained discharge and inpatient serum Creatinine (sCr) data for fiscal years 2011-2012 from UAB medical center
  - We included all inpatients ≥18 years old who had ≥3 inpatient sCr measurements
  - We excluded patients with a history of ESRD, kidney transplant, minimum sCr <0.4, or baseline GFR <5 mL/min/1.73m².
  - We excluded patients with inpatient AKI as defined by an absolute increase ≥0.3mg/dl from the lowest of the first three sCr or receiving inpatient dialysis.
  - We defined resolving, community-acquired AKI as a sCr decrease ≥0.3mg/dl from the first inpatient sCr
  - We limited analysis to the first 22 days of hospitalization or 60 sCr measurements.
  - We compared patient characteristics, AKI incidence and inpatient mortality rates for those with community-acquired AKI vs No AKI.
  - We defined chronic kidney disease (CKD) as estimated glomerular filtration rate (eGFR) <60 mL/min/1.73m² as calculated from first hospital sCr.

Results

- Individuals with AKI present before hospital admission:
  - were older (58 vs 55),
  - had longer length of hospital stay (6 days vs 4 days)
  - had higher baseline sCr (1.8 vs 0.92)
  - had higher peak sCr (1.9 mg/dl vs 0.99 mg/dl)
  - were more likely to be male (58% vs 50%)
  - were more likely to be of Black race (37% vs 32%)
  - were more likely to have chronic kidney disease (62% vs 15%)
  - were more likely to spend time in an Intensive Care Unit (37% vs 18%)
- Inpatient mortality was greater among those with AKI present before admission compared to those without AKI (4.3% vs 1.1%)

Community-Acquired Acute Kidney Injury

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>CA AKI</th>
<th>No AKI</th>
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</thead>
<tbody>
<tr>
<td>Number (%)</td>
<td>10,607 (29.7%)</td>
<td>16,739 (46.9%)</td>
</tr>
<tr>
<td>Age, median (IQR)</td>
<td>58 (46-70)</td>
<td>55 (42-67)</td>
</tr>
<tr>
<td>Males (%)</td>
<td>6,115 (58%)</td>
<td>8,410 (50%)</td>
</tr>
<tr>
<td>Blacks (%)</td>
<td>3,972 (37%)</td>
<td>5,349 (32%)</td>
</tr>
<tr>
<td>CKD (%)</td>
<td>6,523 (62%)</td>
<td>2,453 (15%)</td>
</tr>
<tr>
<td>LOS, median (IQR)</td>
<td>6 (4-11)</td>
<td>4 (3-6)</td>
</tr>
<tr>
<td>Any ICU day</td>
<td>3,928 (37%)</td>
<td>3,027 (18%)</td>
</tr>
<tr>
<td>Inpatient Death</td>
<td>453 (4.3%)</td>
<td>176 (1.1%)</td>
</tr>
<tr>
<td>Base sCr (SD)</td>
<td>1.8 (1.2)</td>
<td>0.92 (0.40)</td>
</tr>
<tr>
<td>Peak sCr (SD)</td>
<td>1.9 (1.3)</td>
<td>0.99 (0.41)</td>
</tr>
</tbody>
</table>

P<0.01 for all comparisons

Conclusions

- AKI present prior to hospital admission is associated with increased length of hospital stay, ICU admission, and inpatient mortality.
- Patient demographics, ICU admission rates, and baseline kidney function are worse for those with community-acquired AKI than those without AKI.
- Community-acquired AKI which resolves during hospitalization, has a better risk profile and reduced inpatient mortality than hospital-acquired AKI (10.8% mortality; Wang et al Am J Neph 2012;35:349).
- These results show the burden of Community-Acquired AKI at one large medical center and highlight the importance of efforts to characterize populations at risk in order to create opportunities for prevention, timely diagnosis, and treatment.