

P058

## P058 -Admission diagnosis as predictor of severity and one-year mortality in patients with acute kidney injury – a clinical audit.

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### Introduction:

While patients with severe acute kidney injury (AKI) are known to be at higher risk of mortality, factors contributing to the severity of AKI and the associated mortality as well as effective treatments remain elusive. To improve service delivery in our trust, we analysed admission diagnosis, comorbidity and follow-up blood tests in patients with AKI.

### Methods:

We carried out a clinical audit of all AKI care for patients admitted to the University Hospitals of Leicester between 15th to 27th of January and 1st to 16th of June 2017. Patients with AKI were identified using the NHS England AKI algorithm. Dialysis patients were removed, and for each time period only the first episode of AKI was captured. Admission diagnosis, comorbidity, follow-up blood test at one month and mortality were provided by local datawarehouse. All data were handled in accordance with trust Audit and Information Governance policies and procedures. Admission diagnosis was coded to capture cardiovascular, gastrointestinal and respiratory disease or sepsis. Comorbidity status was scored into the Charlson Comorbidity Index (CCI) as revised by Quan. We analysed risk factors for severity of AKI using binary logistic regression comparing stages 2-3 with stage 1. Predictors of one-year mortality were evaluated using a Cox proportional hazards model with landmarking for the follow-up blood test.

### Results:

We identified 739 patients with AKI with a mean age 69.3 years. One-year mortality was 39.1% overall, and 33.2%, 50.4% and 60.3% for patients with AKI stages 1, 2 and 3 respectively. 60.6% of deaths were in patients with AKI stage 1. On admission, cardiovascular and gastrointestinal diagnoses were most common (Table 1), while the median CCI score was 1 (Interquartile Range: 0-2). Sepsis alone was predictive of AKI stages 2-3, being associated with a 4.86-fold increased risk (95% Confidence Interval: 2.35-10.08) compared to AKI stage 1. Neither sepsis nor other admission diagnoses conferred an increased risk of death at one year. We observed a 1.68 (CI: 1.21-2.33) and 2.43 (CI: 1.66-3.56)-fold higher mortality risk in patients with stages 2 and 3, respectively. CCI scores showed a 1.24-fold increase in the risk of one-year mortality per point (CI: 1.16-1.34) (Table1). Follow-up blood tests were not associated with a change in one-year mortality.

### Conclusions:

The results from this audit indicate a need for patient-specific management of AKI with early intervention in patients with a diagnosis of sepsis or with significant comorbidity. By contrast, routine follow-up appointments after discharge may not be effective in identifying patients at need of further specialist treatment. Given the higher risk of moderate to severe AKI in patients with sepsis, regular assessment to screen for worsening renal function may be appropriate. While the risk of mortality is increased in patients with AKI stages 2-3, the high proportion of overall deaths accounted for by patients with AKI stage 1 suggests that it may be of benefit to shift some clinical focus towards this population.