

Do outcomes for hospitalized patients with an acute kidney injury (AKI) vary across specialties in England?

Miss Winnie Magadi¹, Dr Manuela Savino¹, Mrs Fiona Braddon¹, Dr Javeria Peracha¹, Dr Retha Steenkamp¹, Prof Dorothea Nitsch^{1,2,3}

¹UK Renal Registry, Bristol, United Kingdom, ²London School of Hygiene & Tropical Medicine, London, United Kingdom,

³Royal Free Hospital, London, United Kingdom

Introduction:

AKI rates vary depending on the clinical division under which a patient is admitted, with higher rates observed in areas such as general surgery and cardiology. Although there has been a rapid increase in studies examining AKI across different clinical settings, few have considered how mortality outcomes for AKI patients differ between specialties. Previously, the National Confidential Enquiry into Patient Outcome and Death (NCEPOD) found that AKI mortality is lower in patients who are managed by renal specialists. The current study aims to describe the 30-day mortality after AKI in specialties in England.

Method:

AKI is defined using the NHS England detection algorithm, which identifies potential cases of AKI from laboratory data based on serum creatinine changes. These data held by the UK Renal Registry (UKRR) were linked to Hospital Episode Statistics (HES) to derive information on the specialty of the responsible consultant at the time the alert was triggered and 30-day mortality.

The analyses was restricted to adult patients (aged ≥ 18 years) who had a hospital acquired AKI in 2017 from 2 to 14 days post admission to an Acute Hospital Trust in England. Multivariable logistic regression analysis was used to describe associations of treatment speciality with 30-day mortality amongst those with AKI alerts, adjusting for age, sex, comorbidity (Charlson Comorbidity Index), peak AKI stage, admission method (elective versus emergency) and deprivation.

Results:

A total of 109,643 patients were included, with a median age of 78 (IQR 67-86) years. The sample comprised of patients with peak AKI stage 1 (74%), stage 2 (16%) and stage 3 (10%). Regarding the hospital setting in which patients were treated, 67% were in a medical ward, 28% in a surgical ward, 2% in an acute care setting and 1% in a renal unit. The majority of the cases were emergency admissions (72%). Most AKI alerts occurred in the following specialties; general medicine (22,866), care for the elderly (15,290), trauma and orthopaedics (10,584), cardiology (9,932) and general surgery (8,903). However, the highest proportion of HES consultant episodes with an associated AKI in 2017 were reported in specialties related to the cardiovascular system i.e. cardiac surgery (7.2%), cardiothoracic surgery (6.4%) and cardiac transplantation (4.8%).

Logistic regression analyses showed that, holding age, sex, deprivation, peak AKI stage, comorbidity and admission method constant, the odds of dying within 30 days of an AKI episode were between 1.8 – 3.0 fold higher in non-nephrology specialties (i.e. emergency and critical care, general medicine, care for the elderly, infectious disease, neurosurgery, oncology and diabetic medicine) when compared to nephrology (Table 1).

Conclusion:

Treatment specialty is associated with mortality for patients who develop a hospital acquired AKI, though this is likely confounded by underlying co-morbidity that leads to requiring particular speciality care, and frailty. Further investigations should be aimed at establishing which factors are contributing to this and in turn provide insight into the role of clinical and organisational factors in predicting outcomes, leading to better management of patients and driving improvements in patient care.