Introduction and Aims

Acute Kidney Injury (AKI) is associated with poor outcomes1 and two third of cases arise in the community. Current knowledge regarding the causes of community acquired AKI and the relative contribution of infection/sepsis is limited because most of the available studies use information collected on discharge. The aim of this study was to describe characteristics of infection associated community acquired AKI in unselected patients and in care home residents.

Methods

All non-elective hospital attendance data were gathered from hospital records between 1/1/15 and 31/5/17 from adult patients with a local postcode. Electronic patient records were used to identify patients prescribed antibiotics within 48hrs of attendance (community acquired infection, CAI) and patients who suffered from AKI within 48hrs of attendance (community acquired AKI, CA-AKI). AKI was defined using the NHS AKI algorithm2. Dialysis patients were excluded. Care home patients were identified using GP codes because all local patients residing in care homes are managed by one hospital managed GP service. Incidence and outcomes for patients with CA-AKI and CAI was compared with the rest of the cohort. The same analysis was performed on patients from care homes. Analysis was performed using SPSS V23.0. Chi Square test was used for categorical data, Mann Whitney U test was used for continuous non-parametric data.

Results

CA-AKI was diagnosed in 5.7% of 61471 hospital attendances. Compared to all attendances patients with CA-AKI and CAI were older (71.5 v 53.7 p=<0.001), had longer hospital stay (12 v 5 days p=<0.001), were more likely to need ICU admission (22.1% v 3.0% p=<0.001) and had higher 30-day all-cause mortality (28.4% v 4.7% p=<0.001) (Table 1). The 30-day all-cause mortality for patients with CA-AKI from any aetiology was 21.9% in whole population and 39.8% in care home population. Mortality rate for CAI was 11.6%, CA-AKI 21.9% and CA-AKI in combination with CAI 28.4%. CA-AKI in association with CAI in patients from care homes (N=2580) highlighted a 30-day all-cause mortality of 43.4% v 17.9% for care home patients without CAI and CA-AKI (p=<0.001) (Table 2)

Conclusions

Infection associated community acquired AKI identifies a group of patients with very high morbidity and mortality particularly in care home residents. Interventions, such as point of care creatinine testing, that can identify the presence of renal impairment at the time of assessment of infection in the community, may enable earlier management of sepsis and AKI and improve outcomes.

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Refs

1. Emmett L, Tollitt J, McCorkindale S, Sinha S, Poulikakos D. The Evidence of Acute Kidney Injury in the Community and for Primary Care Interventions. Nephron. 2017 Mar 25;

2. Selby NM, Hill R, Fluck RJ. Standardizing the Early Identification of Acute Kidney Injury: The NHS England National Patient Safety Alert. Nephron. 2015 Sep 10;131(2):113–7.

Tables:

Table 1

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| --- | --- | --- |
|  | Community acquired AKI and Community Acquired Infection in whole population | Significance |
| Yes | No |  |
| Count | % | Mean | Count | % | Mean |  |
| Gender | Male | 1029 | 49.9% |  | 26294 | 44.3% |  | p=<0.001 |
| Female | 1033 | 50.1% |  | 33115 | 55.7% |  |  |
| Age |  |  | 71.5 |  |  | 53.7 | p=<0.001 |
| Length Of Stay (days) |  |  | 12 |  |  | 5 | p=<0.001 |
| ICU Admission |  | 456 | 22.1% |  | 1757 | 3.0% |  | p=<0.001 |
| 30 Day Mortality |  | 585 | 28.4% |  | 2784 | 4.7% |  | p=<0.001 |

Table 2

|  |  |  |
| --- | --- | --- |
|  | Community acquired AKI and Community Acquired Infection in Care Homes | Significance |
| Yes | No |  |
| Count | % | Median | Count | % | Median |  |
| Gender | Male | 109 | 42.2% |  | 871 | 37.5% |  |  |
| Female | 149 | 57.8% |  | 1451 | 62.5% |  | p=0.137 |
| Age  |  |  | 85.0 |  |  | 85.0 | p=0.434 |
| Length of Stay (days) |  |  | 7 |  |  | 3 | p=<0.001 |
| ICU Admission |  | 23 | 8.9% |  | 50 | 2.2% |  | p=<0.001 |
| 30 Day Mortality |  | 112 | 43.4% |  | 416 | 17.9% |  | p=<0.001 |