

Chronic kidney disease (CKD) leading to acute kidney injury and dialysis initiation – analysis of UK Renal Registry data

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Background and aims: The UK Renal Registry (UKRR) now captures data for individuals who experience acute kidney injury (AKI) or have a diagnosis of progressive CKD managed by renal centres, in addition to information for people on renal replacement therapy (RRT). The aim of this study is to describe the clinical and demographic features of individuals reported to the UKRR as having CKD managed by renal physicians, comparing those who did, and did not transition to RRT. AKI alert data were used to categorise individuals who did and did-not receive an AKI alert.

Methods: We restricted analyses to 8 renal centres across the country who reported on their patients with CKD at the 31st December 2016, with follow-up data available for 24 months, capturing AKI alert data (when available as not all labs reported throughout the follow-up) and RRT incidence. Descriptive analyses are provided for demographics at baseline (age, sex, eGFR at 31st December 2016, ethnicity), modality of RRT-start, and mortality.

Results: At 31st December 2016, there were 12,638 people with a diagnosis of CKD reported to the UKRR, with a median age of 77 (IQR: 68-84), 45 % female, 5.8 % Asian and 1.2% Black ethnicity. Among these individuals, 10,071 (79.7%) had an e-GFR <30 ml/min/1.73m² based on the last creatinine value in the 12 months before 31st December 2016, 2,080 (16.5%) had an e-GFR between 30 and 59 ml/min/1.73m² and 296 (2.34%) did not have a serum creatinine value which allowed for calculation of e-GFR. Between 1st January 2017 and 31st December 2018, 3,723 (30%) individuals with CKD have also been reported as having an AKI episode (AKI warning test results sent from laboratories to the UK Renal Registry Master Patient Index dataset). Among these, 2,484 (67%) had one AKI alert and 1,239 (33%) had more than one. 640 (5%) individuals within the CKD cohort started RRT during the follow-up period (24-months) (figure 1). Among those, 66 individuals (10%) died at 2 years. Among those with CKD who did not start RRT and did not have AKI episodes during the 24-months follow-up period (65%), 1498 individuals (18%) died (Table 1). Analysis by stage of first AKI alert, after 31st December 2016, shows that the incidence of AKI stage 1 (67.42%) and AKI stage 3 (30.10%) is much higher than AKI stage 2 (2.48 %).

Conclusion: Amongst people with CKD managed by renal centres, more individuals die than start dialysis over a 24-month period. This is consistent with previous general population studies of people with CKD stages 3-5. Further work using individual clinical and demographic information is needed to better understand the outcomes of individuals with advanced CKD. AKI often precedes RRT start adding to the evidence that RRT initiation is not entirely predictable.