

Infection is a risk factor for faster progression to renal replacement therapy and death in chronic kidney disease

Hicham Cheikh Hassan^{1,2}, Mila Tang¹, Ognjenka Djurdjev³ and Adeera Levin⁴

¹St Pauls Hospital, Vancouver, Canada, ²UNSW, Sydney, Australia, ³British Columbia Provincial Renal Agency, Vancouver, Canada, ⁴University of British Columbia, Vancouver, Canada

BACKGROUND: Chronic Kidney Disease (CKD) affects 10-13% of adults and causes an increased morbidity and mortality. Infection is a significant cause of mortality in patients with CKD. While infection is a well-established, common and an increasing cause of death in patients undergoing renal replacement therapy (RRT) It remains understudied and neglected in CKD patients.

METHODS: We aim to establish if infection is a risk factor for faster progression to RRT and mortality using a large pan-Canadian cohort (CanPREDDICT study) of prospectively followed up patients with CKD from outpatient nephrology clinics. Baselines characteristics were recorded and patients were followed at six monthly intervals. Infections were counted during each six monthly interval. Patients were divided into 3 groups based on the number of infections (0, 1 and ≥ 2). Endpoints were death and commencing RRT.

RESULTS: 2529 patients were included in the cohort and followed up for a mean of 35.3 months. The cohort was mainly composed of elderly (median age 70.6 years), male (62.5%), Caucasian (88.7%) patients with the main cause of renal disease from diabetes (28.7%) and hypertension (25.9%). Transplantation occurred in 20 patients (0.8%). Mortality occurred in 399 patients (15.8%) and RRT was commenced in 464 patients (18.3%).

25.9% of patients sustained an infection. Compared to patients with no infection they were more likely to be male ($p < 0.001$), have a history of diabetes ($p = 0.015$) and cardiovascular disease ($p < 0.001$), have a lower eGFR ($p = 0.006$) with a higher albumin ($p < 0.001$) and C reactive protein ($p = 0.003$). There was no difference in age ($p = 0.71$) or urine albumin/creatinine ($p = 0.89$). Patients with infections were more likely to suffer a mortality (0 infections 13.2%, 1 infection 20.8%, ≥ 2 infections 26.4%, $p < 0.001$) and undergo RRT (0 infections 16.2%, 1 infection 24.5%, ≥ 2 infections 24.3%, $p < 0.001$).

CONCLUSIONS: Infection is a risk factor in patients with CKD for increased mortality and faster progression to RRT.

