



Cardiovascular outcomes in patients with chronic kidney disease and COVID-19: a multi-regional data-linkage study

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COVID-19 significantly increases the risk of cardiovascular complications and death in patients with CKD, especially in the short-term. COVID-19 vaccination and cardiovascular risk reduction strategies must be prioritised for all patients with CKD. <https://bit.ly/3MAY7Wg>

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Abstract

Background Data describing cardiovascular outcomes in patients with coronavirus disease 2019 (COVID-19) and chronic kidney disease (CKD) are lacking. We compared cardiovascular outcomes of patients with and without COVID-19, stratified by CKD status.

Methods This retrospective, multi-regional data-linkage study utilised individual patient-level data from two Scottish cohorts. All patients tested for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in Cohort 1 between 1 February 2020 and 31 March 2021 and in Cohort 2 between 28 February 2020 and 8 February 2021 were included.

Results Overall, 86 964 patients were tested for SARS-CoV-2. There were 36 904 patients (mean±SD age 61±21 years; 58.1% women; 15.9% CKD; 10.1% COVID-19 positive) in Cohort 1 and 50 060 patients (mean±SD age 63±20 years; 62.0% women; 16.4% CKD; 9.1% COVID-19 positive) in Cohort 2. In CKD patients, COVID-19 increased the risk of cardiovascular death by more than two-fold within 30 days (cause-specific hazard ratio (csHR) meta-estimate 2.34, 95% CI 1.83–2.99) and by 57% at the end of study follow-up (csHR meta-estimate 1.57, 95% CI 1.31–1.89). Similarly, the risk of all-cause death in COVID-19 positive *versus* negative CKD patients was greatest within 30 days (HR 4.53, 95% CI 3.97–5.16). Compared with patients without CKD, those with CKD had a higher risk of testing positive (11.5% *versus* 9.3%). Following a positive test, CKD patients had higher rates of cardiovascular death (11.1% *versus* 2.7%), cardiovascular complications and cardiovascular hospitalisations (7.1% *versus* 3.3%) than those without CKD.

Conclusions COVID-19 increases the risk of cardiovascular and all-cause death in CKD patients, especially in the short-term. CKD patients with COVID-19 are also at a disproportionate risk of cardiovascular complications than those without CKD.

