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Stroke severity, recovery and recurrence in chronic kidney disease: population-based study

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Background And Aims

Chronic kidney disease (CKD) is associated with cerebrovascular disease and related mortality, and with under-utilisation of acute and preventive treatments, but any impact on initial event severity, recovery, and recurrence risk is unclear. We aimed to determine whether CKD is associated with worse initial stroke severity and recovery, and whether CKD is independently predictive of recurrent stroke.

Methods

In a population-based study of all TIA/stroke (Oxford Vascular Study), we studied initial stroke severity and early recovery using the National Institutes of Health Stroke Scale (NIHSS) and modified Rankin scale (mRS), respectively, in relation to CKD (eGFR<60ml/min/1.73m2) in all patients presenting with TIA and ischaemic stroke from 2002-2017. Cox proportional hazard models were used to determine the risk of recurrent stroke.

Results

Among 2969 patients presenting with TIA/ischaemic stroke, 1197 (40.3%) had CKD. CKD was associated with ischaemic stroke vs TIA (adjusted OR=1.31, 95%CI=1.11-1.56; p=0.002) and with greater initial NIHSS (adjusted OR=1.31, 1.07-1.60; p=0.008). Among patients with stroke, CKD was also associated with worse one-month mRS scores (adjusted OR=1.40, 1.13-1.74; p=0.002). The unadjusted HR for recurrent stroke with CKD (HR=1.72, 1.45-2.05; p<0.001) attenuated with adjustment for age (HR=1.36, 1.13-1.64; p=0.001) and with additional adjustment for vascular risk factors (HR=1.28, 1.05-1.55; p=0.012).

Conclusions

CKD is associated with severity of cerebrovascular events (stroke vs TIA; initial NIHSS; 1-month mRS) and is independently predictive of stroke recurrence. Further research should determine to what extent this reflects under-treatment/prevention.