Introduction and Aims: The relevance of educational attainment to vascular and non-vascular outcomes in people with chronic kidney disease (CKD) is uncertain. We aimed to estimate the relevance of highest educational attainment to the risk of vascular events, cause-specific mortality, and progression of CKD; and determine whether there are gradients in health outcomes by educational attainment.

Methods: An observational analysis was undertaken among 9270 adults, aged 40 years or older with moderate-to-severe CKD who were participants randomized into the Study of Heart and Renal Protection (SHARP) multicenter trial. The exposure was highest educational attainment ranging from “no formal education” to “tertiary education.” Cox proportional hazards regression, stratified by country, and adjusted for age, sex and ethnicity was used to assess the relevance of highest educational attainment to vascular events, cause-specific mortality and CKD progression.

Results: With decreasing levels of education, there was a significant trend (p<.001) towards increased risk of vascular events. Participants with no formal education were at a 45% higher risk of vascular events (adjusted relative risk (RR) 1.45, 95% CI 1.19-1.79) compared to tertiary educated participants. The trend for mortality across education levels was also significant (p<.001): all-cause mortality risk was twice as high among those with no formal education compared with tertiary educated participants (RR 2.05, 95% CI 1.73-2.44), and significant increases were seen for both vascular (RR 1.84, 95% CI 1.34-2.46) and non-vascular (RR 2.15, 95% CI 1.75-2.69) causes of death. Lifestyle factors and prior disease explain most of the excess mortality risk. Among 6245 participants not on dialysis at baseline, education level was not significantly associated with the progression to end-stage renal disease or doubling of creatinine (test for trend p=.42).

Conclusions: In moderate-to-severe CKD, lower levels of educational attainment are associated with higher vascular and non-vascular risk, but are not associated with renal progression. These findings suggest educational attainment should be considered when calculating risk of adverse health outcomes in patients with CKD. The causal factors responsible for the education-mortality gradient need to be identified, and targeted interventions developed to address them.

Trial registration: Clinicaltrials.gov NCT00125593. www.clinicaltrials.gov