Title

Pre-ESRD Serum HDL Cholesterol Levels and One Year Post-ESRD Mortality in US Incident Hemodialysis Veterans: A Transition of Care in CKD Study

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Abstract

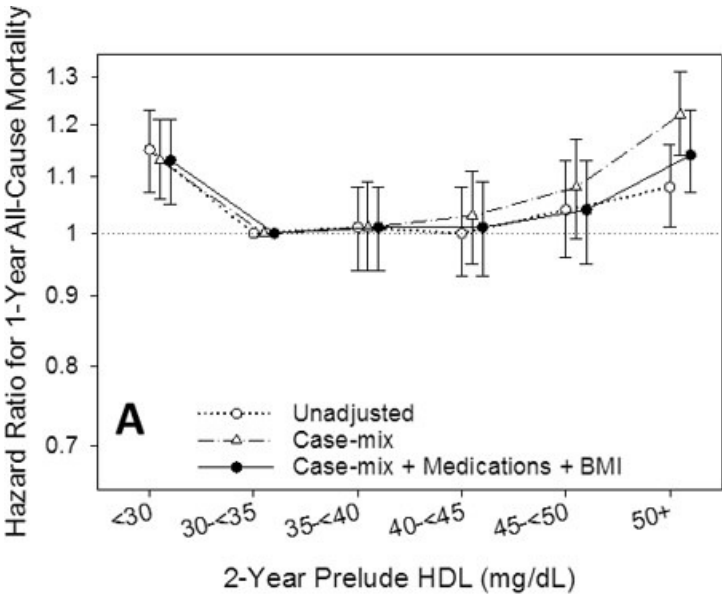
Introduction: Elevated serum concentrations of HDL cholesterol (HDL-c) in prevalent hemodialysis (HD) patients can be paradoxically associated with worse outcomes. However, many believe that serum HDL-c levels prior to transition to end-stage renal disease (ESRD) may be a more accurate predictor of outcomes post-HD initiation given that the pathogenesis of cardiovascular (CV) disease and its complications takes place over a long period of time and that serum HDL-c levels after HD initiation are not reflective of the lipoprotein concentrations prior to start of HD.

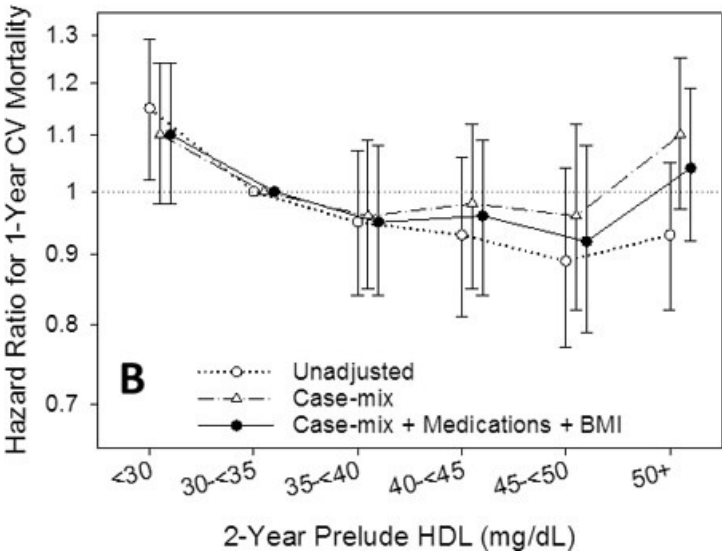
Methods: We examined 29,457 US veterans who transitioned to ESRD with HD treatment from 2007-2014 with HDL-c levels measured over 2 years prior to ESRD initiation (prelude period). We analyzed the association of 2-year prelude HDL-c with 1-year post-ESRD all-cause and CV mortality with Cox models adjusted for demographics, comorbidities and medication use.

Results: The cohort was a mean +/- SD 71 +/- 11 years old, 2% female, 70% white and had a mean +/- SD HDL-c concentration of 40.3 +/- 13.6 mg/dL 2 years prior to ESRD transition. Across all levels of adjustment, we observed a U-shaped and reverse J-shaped association between prelude HDL concentrations and 1-year post-HD all-cause and CV mortality, respectively (Figure A and B). After stratifying by use of statin therapy and

non-statin lipid-lowering therapy, a similar relationship persisted, without effect modification by medication use (P for interaction =0.28 and P for interaction =0.71, respectively).

Conclusions: Among US veterans transitioning to HD, the lowest and highest concentrations of serum HDL-c 2 years prior to ESRD initiation were associated with higher early post-ESRD all-cause and CV mortality risk. These findings suggest that the pathogenesis of abnormal HDL composition and function are at least partly related to advanced chronic kidney disease and start before the development of ESRD.





Lipids; Epidemiology; HDL; Mortality; Kidney