Title

Trajectories of Pre- and Post-ESRD Serum HDL Cholesterol Concentrations in US Veterans: A Transition of Care in CKD Study

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Abstract

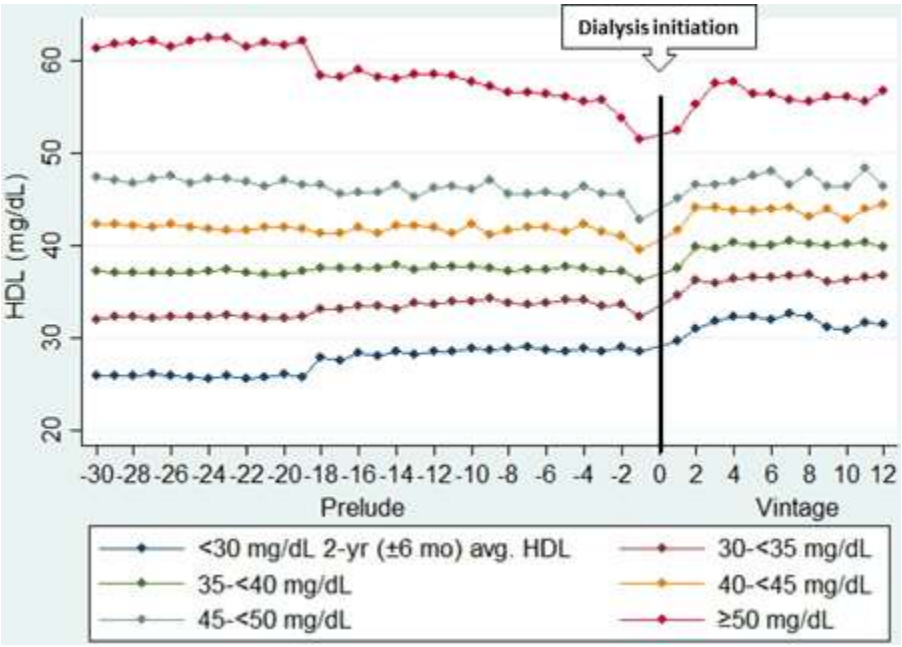
Introduction: End-stage renal disease (ESRD) is associated with decreased serum concentrations of HDL cholesterol (HDL-c) and apolipoproteinA_1 deficiency. However, limited data exist on the trajectory of HDL-c as patients transition to ESRD. Given that in the ESRD population, low and elevated serum HDL-c levels are associated with worse all-cause and cardiovascular (CV) mortality, we aimed to investigate the trajectory of HDL-c concentrations in a cohort of pre- and post-ESRD US veterans.

Methods: We used a mixed-effects regression model to evaluate over 2-years pre- and 1-year post-ESRD trends of HDL-c among 29,457 US veterans who transitioned to ESRD with hemodialysis (HD) therapy during 2007-2014. We stratified patients by HDL-c levels measured at 2 years (+/-6 months) prior to the start of HD: <30, 30-<35, 35-<40, 40-<45, 45-<50 and >=50 mg/dL.

Results: The mean +/- SD age of the patients was 71 +/- 11 years; 2% were female and 70% were white. We observed distinct trajectories surrounding ESRD transition according to HDL-c strata at the 2 year baseline period. Prior to the start of HD, a noticeable decrease and increase in HDL trends were observed in patients with the highest and lowest baseline HDL-c levels, respectively. Across all groups, we found a sudden decline

in HDL-c levels at 1 month prior to start of dialysis. With the exception of patients in the highest HDL-c group, there was a rapid recovery to slightly higher than pre-HD mean HDL-c values after dialysis.

Conclusions: In this study, we found HDL-c trajectories change significantly in patients with the highest and lowest baseline HDL levels through the transition to ESRD. This is in light of prior findings that high and low levels of HDL-c are also associated with worse CV and all-cause mortality in prevalent ESRD patients. Future studies will need to assess whether changes in HDL-c during this transition can partly explain the relatively higher risk of mortality in these two patient subgroups.



Lipids; HDL; Renal function; Epidemiologic methods; Kidney