Abstract 16746: Serum Paraoxonase Activity is a Better Predictor of Mortality than Serum HDL Cholesterol Level in Patients on Maintenance Hemodialysis

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Abstract

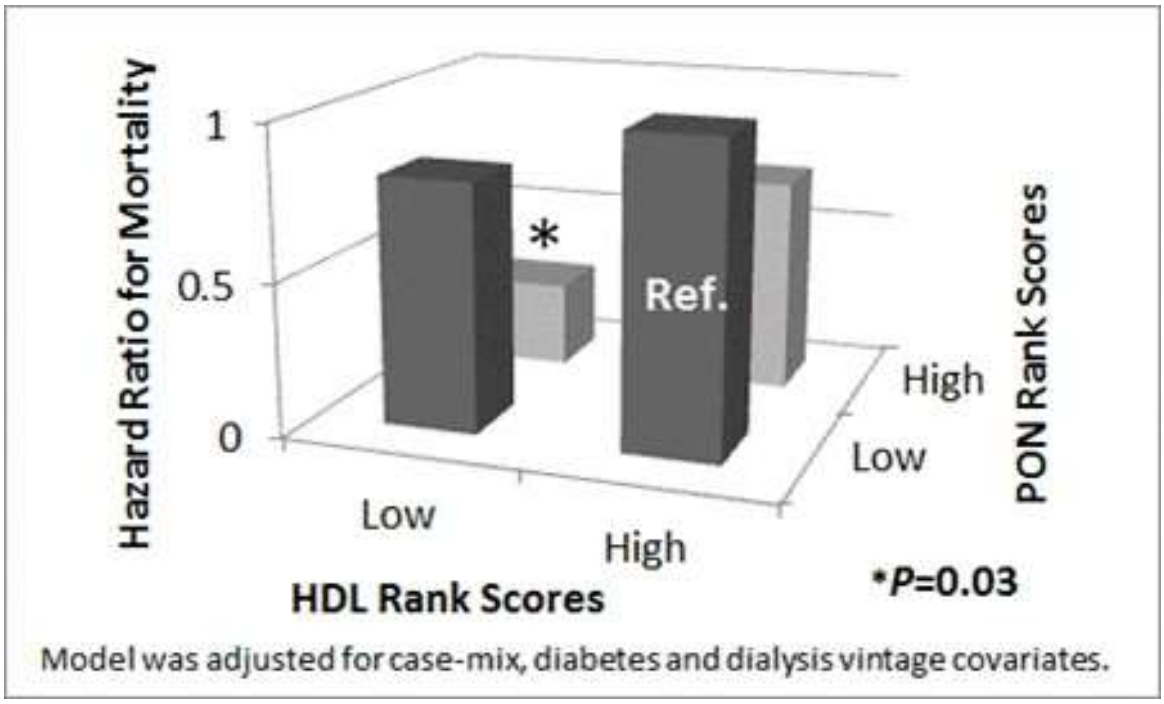
Introduction: End stage renal disease (ESRD) is associated with a significantly higher risk of mortality. Serum high density lipoprotein cholesterol (HDL-C) level is not an accurate predictor of mortality in ESRD as elevated levels can be paradoxically associated with worse outcomes. Markers of HDL function including antioxidant activity may be more accurate predictors of death in this ESRD population. Paraoxonase (PON), a major antioxidant enzyme associated with serum HDL, is thought to play a major role in HDL antioxidant activity.

Methods: Serum PON activity was measured in 299 maintenance hemodialysis (MHD) patients who enrolled in a prospective cohort study between 06/2014-10/2014 and followed for 629.1 patient-years and 21 healthy age- and gender-matched controls. Multilevel Cox models were used to assess the association between all-cause mortality and serum PON activity, adjusting for case-mix, diabetes and dialysis vintage covariates, and rank scores were created.

Results: Serum PON activity was significantly lower in MHD patients compared to controls (P=0.0002; mean +/- SD, 100.3 +/- 26.1 and 135.2 +/- 38.7 kU/L, respectively). While PON activity correlated with various clinical laboratory indices, it did not correlate with HDL-C, providing further evidence that serum HDL-C level is not a reliable index of HDL function. In the fully adjusted model, low serum PON activity was significantly associated with higher mortality compared to reference high serum PON activity (HR [95% CI]: 1.91 [1.10, 3.31]; P=0.02).

Interestingly, patients with low serum HDL-C and high PON activity rank scores had a significantly lower risk of death versus the reference group (high HDL and low PON rank scores) [Figure].

Conclusions: Serum PON activity may be a more reliable predictor of mortality than HDL-C level in MHD patients. Future research will need to further expand on the potential clinical utility of this important marker.



HDL; Mortality