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Racial Differences in the Association of Triglycerides with ASCVD and non-ASCVD Outcomes According to CKD Status

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Background/Synopsis: High triglycerides (TG) are risk factors for atherosclerotic cardiovascular disease (ASCVD), but a lipid paradox in the general population has been noted. African-Americans (AA) with ASCVD are more likely than their peers to have normal TG levels. Racial differences in mortality outcomes between AA and White patients are notable in chronic kidney disease (CKD) patients. Yet, it is unclear if there is a relationship between TG and ASCVD outcomes according to CKD status.

Objective/Purpose: Thus, we examined the difference in TG with ASCVD or non-ASCVD outcomes for African-Americans vs Whites, with and without CKD.

Methods: Among 2,798,639 US veterans receiving care from 2004-2006 and followed until 2014, we compared associations of TG with time to first ASCVD or non-ASCVD hospitalization across race and CKD. The combination of race and TG under a single referent group were analyzed with adjusted Cox proportional hazards models, separately for CKD and non-CKD strata.

Results: The cohort comprised 15% African-Americans, 24% with CKD and a median [IQR] TG of 131[90,194] and 104[73,155] mg/dL, respectively for Whites and AA. In White non-CKD patients, we observed a linear association of TG with time to first ASCVD event (ref: White with TG 120-<160 mg/dL) (Figure A). AA non-CKD patients had a similar linear pattern with first ASCVD event. For high TG ≥240 mg/dL, White non-CKD patients had the highest ASCVD risk, while the risk was lower for AA non-CKD. Among CKD patients, the TG-ASCVD relationship was attenuated where racial differences were less apparent. For non-ASCVD events, we observed stark racial contrasts in associations, independent of CKD status (Figure B). Both non-CKD and CKD White patients exhibited a slight U-shaped relationship for TG and non-ASCVD event. Yet, AA had higher hazard ratios for time to first non-ASCVD event for all levels of TG and CKD strata.

Conclusions: Racial differences for TG and non-ASCVD hospitalizations are evident for CKD and non-CKD patients. Yet for ASCVD outcomes, racial differences for high TG are observed for non-CKD patients, but mitigated among CKD. More studies are needed to understand the underlying causes of racial disparities in lipids associations with cardiovascular events as to best target these differences as one progresses to CKD.