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The Association of Serum Cholesterol and ASCVD and Non-ASCVD Hospitalization Rate Across CKD Stages in 2 Million US Veterans

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Abstract 13138: The Association of Serum Cholesterol and ASCVD and Non-ASCVD Hospitalization Rate Across CKD Stages in 2 Million US Veterans

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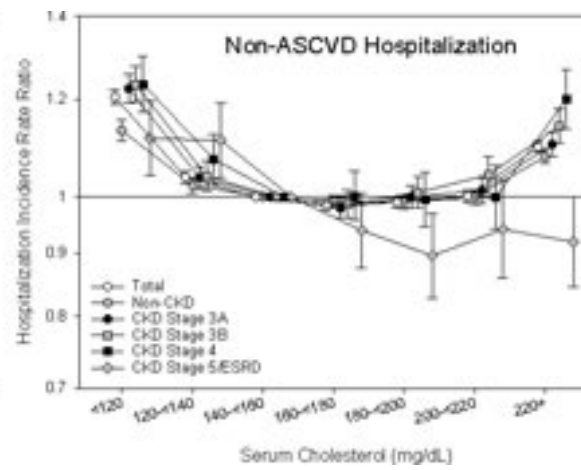
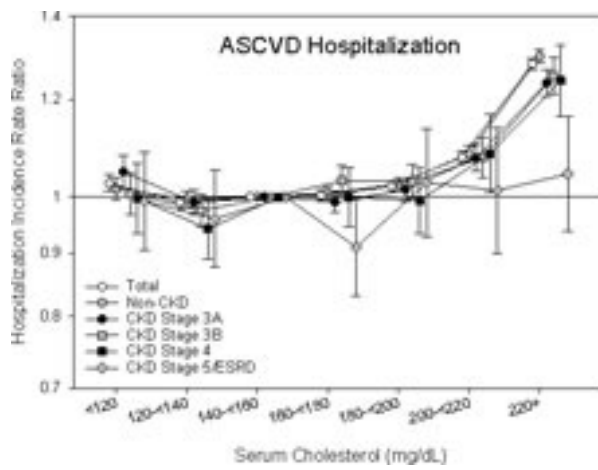
Abstract

Introduction: Higher total cholesterol (TC) is a predictor of atherosclerotic cardiovascular disease (ASCVD) and mortality. Yet, studies have shown that higher TC is paradoxically not associated with worse mortality in chronic kidney disease (CKD). Less is known about the relationship of TC with ASCVD and non-ASCVD hospitalization rates across stages of CKD.

Methods: In a cohort of 2 million US veterans with TC measurements from 2004-2006, we examined the association of TC with ASCVD and non-ASCVD hospitalization incidence rate ratios (IRR) across CKD stages using negative binomial models adjusted for clinical characteristics, use of statins and non-statins, and laboratory measures.

Results: Mean cohort age was 63±14 years, and included 15% African-American, 19% diabetic, and 32% statin-users. The median[IQR] of TC and eGFR were 177[152,205] mg/dL and 75[60,91] mL/min/1.73m², respectively. Patients with higher TC (≥220 mg/dL) had a 30% higher rate of ASCVD hospitalizations for non-CKD compared to the reference (TC 140-<160 mg/dL), and 25% for CKD 3A-4. There was a U-shaped association between TC and non-ASCVD event rate, where both lower and higher TC had a higher rate of non-ASCVD events for non-CKD and CKD 3A-4. The IRR of non-ASCVD events for TC≥220 mg/dL incrementally increased between CKD stage 3A-4. Associations were different for CKD stage 5/end stage renal disease(ESRD) which showed no relationship of higher TC with ASCVD hospitalizations, and lower rates of non-ASCVD hospitalizations.

Conclusions: Higher TC were associated with higher ASCVD and non-ASCVD hospitalization IRRs across all stages except for CKD stage 5/ESRD. The association of TC and non-ASCVD event rates incrementally increased across progressing stages. Studies are needed to see if higher rates of non-ASCVD events with high TC compete with ASCVD events across advancing CKD, and to understand the pathophysiology underlying these associations.



Cholesterol; Atherosclerosis; Epidemiology