

## DRIVERS OF PROGRESSION OF CORONARY ATHEROSCLEROSIS IN PATIENTS WITH CHRONIC KIDNEY DISEASE

ACC Poster Contributions

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**Background:** Chronic kidney disease (CKD) is associated with adverse cardiovascular outcomes in patients with coronary artery disease (CAD). Intravascular ultrasound (IVUS) has been employed to evaluate the impact of medical therapies on plaque progression. The factors that promote disease progression in CAD patients with CKD have not been defined.

**Methods:** 5,408 patients with CAD underwent serial evaluation of coronary atheroma burden using IVUS in 7 clinical trials. Disease burden, progression, and its predictors were compared in patients stratified according to CKD stage.

**Results:** Increasing CKD stages were associated with greater age, female gender, and higher likelihood of hypertension, hyperlipidemia, and prior coronary revascularization. Baseline levels of percent atheroma volume (PAV) and total atheroma volume (TAV) were slightly increased with CKD stage, but there were no significant differences in degree of progression (Table). Predictors of PAV progression included: diabetes ( $p=0.02$ ), hyperlipidemia ( $p=0.037$ ), and smoking ( $p=0.03$ ) in patients with GFR  $>90$ , and hypertension ( $p=0.04$ ) with GFR 60-90. With GFR  $<60$  none of the traditional risk factors were found to predict disease progression.

**Conclusions:** With increasing renal impairment, traditional risk factors do not predict atheroma progression. Other factors such as inflammation and vitamin D deficiency may be important in this patient group.

Table. Baseline plaque and progression among patients with chronic kidney disease

Parameter	CKD Stage (mL/min/1.73m <sup>2</sup> )			P Value
	Stage I GFR $>90$	Stage II GFR 60-90	Stage III-V GFR $<60$	
Baseline PAV (%)	38.3 +/- 8.9	39.1 +/- 9.5	40.0 +/- 9.5	0.001
Baseline TAV (mm <sup>3</sup> )	188.6 +/- 82.3	196.2 +/- 85.3	194.2 +/- 88.6	0.030
Change in PAV (%)	0.3 +/- 3.2	0.4 +/- 3.8	0.7 +/- 3.8	0.540
Change in TAV(mm <sup>3</sup> )	-5.8 +/- 20.8	-3.9 +/- 26.4	-2.9 +/- 23.3	0.193