



Prevention

ASSOCIATION OF REMNANT-LIKE PARTICLE CHOLESTEROL AND LOW-DENSITY LIPOPROTEIN TRIGLYCERIDE WITH INCIDENCE OF CARDIOVASCULAR EVENTS: THE ARIC STUDY

Poster Contributions
Poster Hall, Hall C
Friday, March 17, 2017, 10:00 a.m.-10:45 a.m.

Session Title: Advances in Cholesterol Measurement and Management
Abstract Category: 32. Prevention: Clinical
Presentation Number: 1106-068

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Background: Lipolysis of triglyceride-rich lipoproteins (TGRLs) produces remnant lipoproteins enriched with cholesterol, known as remnant-like particle cholesterol (RLPC). Elevated TGRLs also dysregulate LDL metabolism, which may increase TG content in LDL (LDL-TG). Evidence suggests RLPC and LDL-TG are atherogenic. We examined the association of RLPC and LDL-TG with incidence of cardiovascular (CV) events.

Methods: Plasma RLPC and LDL-TG levels were measured by automated homogeneous assays (Denka Seiken, Tokyo) in 9,334 men and women without prevalent coronary heart disease (CHD) or stroke at baseline (visit 4, 1996-1999) in the biracial ARIC study. Cox proportional-hazards models were used to examine the relation between RLPC and LDL-TG, CV risk factors, and risk for CV events including MI and ischemic stroke over a mean of 16 y. Data were assessed in quartiles and as continuous variables.

Results: RLPC and LDL-TG levels were higher in individuals with diabetes than those without diabetes and correlated with elevated TG ($p < 0.005$). RLPC and LDL-TG were associated with increased CV risk in minimally adjusted models. After adjusting for CV risk factors, LDL-TG remained significantly associated with risk of incident CHD and ischemic stroke but RLPC did not (Table).

Conclusions: In a large biracial cohort, LDL-TG was associated with incidence of CHD and ischemic stroke after adjusting for CV risk factors but RLPC was not. Studies are needed to examine LDL-TG as a risk marker and risk factor for CHD and stroke.

Incident CV Events	Model	RLPC		LDL-TG	
		Hazard ratio (95% confidence interval)	P	Hazard ratio (95% confidence interval)	P
CHD	Model 1	1.26 (1.19-1.34)	<0.001	1.97 (1.73-2.24)	<0.001
	Model 2	0.99 (0.92-1.06)	0.730	1.28 (1.10-1.50)	0.002
Ischemic stroke	Model 1	1.18 (1.07-1.30)	0.001	1.64 (1.32-2.04)	<0.001
	Model 2	1.05 (0.93-1.18)	0.455	1.47 (1.13-1.92)	0.005
CV disease event	Model 1	1.25 (1.19-1.32)	<0.001	1.94 (1.73-2.17)	<0.001
	Model 2	1.00 (0.94-1.06)	0.970	1.35 (1.17-1.55)	<0.001

Data are presented as hazard ratio (of per Ln unit increase for RLPC and LDL-TG) and 95% confidence interval. Exposure values assessed as continuous variables. Model 1 was adjusted by age, gender, and race; model 2 (Pooled Cohort Equation model) was model 1 plus total cholesterol, HDL-C, systolic blood pressure, antihypertensive medication use, current smoking, and diabetes mellitus. CHD included CHD death, definite or probable MI, and coronary revascularization; CV disease events included CHD events and ischemic stroke.