Role of lipoprotein(a) and its autoantibodies in polyvascular atherosclerotic disease

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Background: Lipoprotein(a) [Lp(a)] is an independent risk factor of cardiovascular disease. The role of Lp(a) and its autoantibodies in the development of atherosclerosis, depending on the severity of lesion, is uncertain.

Purpose: To define the relationship of Lp(a) level and autoantibodies to Lp(a) with atherosclerosis of different vascular beds.

Methods: The study included 1288 patients older than 18 years with instrumental examination of three vascular beds (coronary, carotid and lower limbs arteries). Patients were divided according to the number of affected vascular beds (stenosis ≥50%): 0 (n=339), 1 (n=470), 2 (n=315), 3 (n=164). Levels of lipids, Lp(a) and autoantibodies to Lp(a) were measured in serum of all patients.

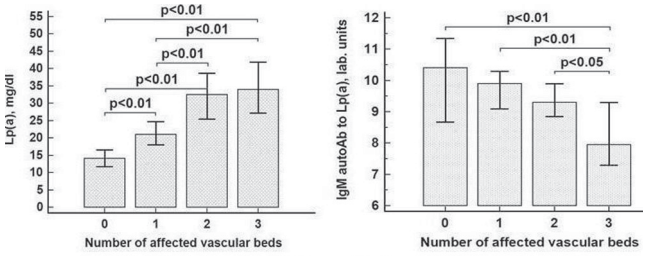
Results: Lp(a) concentration steadily increased and the level of IgM autoantibodies decreased with the number of affected vascular beds (Figure). There was no any association between IgG autoantibodies to Lp(a) and stenotic atherosclerosis. In logistic regression analysis adjusted for age, sex, hypertension, diabetes mellitus, smoking, elevated Lp(a) level was an independent predictor of stenotic atherosclerosis and it was associated with severity of lesions (table).

Conclusions: Lipoprotein(a) is an independent risk factor of stenotic atherosclerosis and its concentration increases with the number of affected vascular beds, while IgM autoantibodies to Lp(a) possess cardioprotective properties.

Risk factors and atherosclerosis

Risk factors	Number of affected vascular beds			
	0 (n=339)	1 (n=470)	2 (n=315)	3 (n=164)
Male gender	1	4.3 (3.0–6.1)*	4.2 (2.7–6.4)*	7.5 (4.0–14.1)*
Hypertension	1	2.3 (1.7–3.2)*	5.3 (3.4–8.2)*	9.5 (4.9–18.6)*
Diabetes mellitus	1	1.2 (0.8–1.8)	3.2 (2.0–5.0)*	3.7 (2.1–6.5)*
Smoking	1	1.8 (1.3–2.6)*	1.9 (1.2–2.8)*	2.8 (1.6–4.8)*
Lp(a) ≥30 mg/dL	1	2.3 (1.7–3.3)*	3.5 (2.4–5.1)*	5.6 (3.3–9.5)*

Data are presented as odds ratio (95% confidence interval). *p<0.01 compared with group I.



Lipoprotein(a) concentration and the level of its IgM autoantibodies depending on affected vascular beds.