Predictors of cardiovascular events in patients with primary systemic vasculitis: a 5-year prospective observational study

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Introduction: Granulomatosis with polyangiitis (GPA) is one of antineutrophil cytoplasmic autoantibody (ANCA)-associated systemic vasculitis and is characterised by necrotizing inflammation of small/medium-sized blood vessels. Systemic vasculitis exhibits an enhanced cardiovascular morbidity and cardiovascular disease (CVD) has become a leading cause of death in this group of patients.

Objectives: The aim of the present study was to assess the prevalence of clinical manifestation of atherosclerosis and its relation with classic risk factors for atherosclerosis, echocardiographic parameters and laboratory findings in GPA patients.

Patients and methods: The group of consecutive patients with GPA were followed in the study. In all patient's echocardiography and laboratory tests were performed.

Results: One hundred six patients with GPA (mean age 50.4±14.9 yrs, 67 female) were prospectively followed for 5.1±1.6 yrs. In 19 patients (18%) cardiovascular disease (9 acute coronary syndromes, 4 symptomatic peripheral vascular diseases and 6 strokes) occurred in association with GPA. Analysis showed that the levels of hs-CRP on both visits correlated with BVAS, PR3-ANCA, D-dimer and creatinine. In a multivariate model, only age was predictive of cardiovascular events in this group of patients (OR=1.078, 95% CI: 1.025–1.134, p=0.003). During observation in patients without CVD the level of hs-CRP and D-dimer were significantly reduced on the follow-up visit (p=0.041, p=0.0002). On the other hand, in patients with CV events there was no significant differences in both markers' concentrations despite clinical remission.

Conclusions: Patients with granulomatosis with polyangiitis have high risk of cardiovascular disease. The age was the only independent predictor of cardiovascular events. Persistent elevation of inflammatory and prothrombotic markers despite clinical remission of the disease could be an indicator of premature atherosclerosis development in patients with systemic vasculitis.

Table. Univariable and multivariable analysis for the predictive of cardiovascular events

Variable	Univariable analysis, OR [95% CI]	P	Multivariable analysis, OR [95% CI]	P
Age	**1.06 [1.02– 1.10]**	**0,003**	**1.078 [1.025 – 1.134]**	**0.003**
Sex	1,31 [0,45 – 3,78]	0,620		
BVAS	14,00 [0,89 – 1,12]	0,970		
Hs-CRP	1,01 [0,79 – 1,29]	0,932		
PR3-ANCA	0,998 [0,993 – 1,002]	0,286		
creatinine	0,882 [0.335-2.324]	0.799		
D-dimer	1.338 [0.896 -1.999]	0,115		

BVAS - The Birmingham Vasculitis Activity Score