Relation between interleukin-6 gene polymorphism and postoperative cardiovascular events at patients with peripheral arterial disease

Adina Liliana Stoica (1), Valentina Uscatescu (2), Ileana Constantinescu (2), Carmen Ginghina (3)
(1) Institut "Prof. Dr. C.C. Iliescu", Chirurgie Vasculaire, Bucharest, Roumanie – (2) Institut Fundeni, Bucharest, Roumanie – (3) Institut "Prof. Dr. C.C. Iliescu", Cardiologie, Bucharest, Roumanie

IL-6 plasmatic concentration is influenced by environmental and genetical factors, including the -174G>C and nt 565 G>A polymorphism of IL-6 promoter.

Objective: To assess the association between -174G>C and nt 565 G>A polymorphism of IL-6 promoter and short term postoperative cardiovascular risk at patients with peripheral arterial disease (PAD).

Methods: We included 32 consecutive patients with Fontaine stage II-IV PAD proposed for nonemergent vascular surgery. We analyzed the -174G>C and nt 565 G>A polymorphism of IL-6 promoter, inflammation markers (fibrinogen, C reactive protein-CRP) and atherosclerosis risk factors (age, smoking, diabetes mellitus, hypertension, metabolic syndrome, dyslipidemia). Patients were followed for cardiovascular events (cardiac death, acute myocardial infarction, unstable angina, stroke) 30 days after surgery.

Results: Allele frequency in our group was: -174 G allele-67.25% and -174 C allele 32.75%; nt565 G allele-67.25% and nt565 A allele-32.75%. Two patients had acute cardiovascular events after surgery (6.25%); both patients with genotype -174 G/C and nt565 G/A. Inflammation markers were increased at patients with genotype-174 GG (fibrinogen 468.36±134.15 mg/dl; CRP 16.23±2.43 mg/dl) and GC (fibrinogen 478.67±121.63 mg/dl; CRP 44.47±8.77 mg/dl), versus CC genotype (fibrinogen 355.67±112.22 mg/dl; CRP 4.34±0.8 mg/dl). Also increased values of inflammation markers were present at genotype nt565 GG (fibrinogen 467.71±134.33 mg/dl; CRP 14.75±2.26 mg/dl) and GA (479.27±121.28 mg/dl; CRP 45.85±8.01 mg/dl), versus AA genotype (fibrinogen 355.67±112.22 mg/dl; CRP 4.34±0.8 mg/dl), but without statistical significance. There was no correlation between IL-6 promoter polymorphism and other atherosclerosis risk factors.

Conclusion: Genotypes -174 G/C and nt565 G/A are associated with a high risk of short term postoperative acute cardiovascular events at patients with peripheral arterial disease undergoing a nonemergent vascular surgery.