

Abstract

Objective. To study the features of atrial fibrillation (AF) in patients with arterial hypertension (AH) and extracardiac comorbidities depending on prescribed therapy, and to assess their treatment adherence.

Materials and methods. This observational cohort study followed up for one year 536 patients aged 45–65 years with AF (paroxysmal and persistent forms) and AH. Patients were divided into 6 groups depending on the presence of extracardiac comorbidities: 1 — AH and AF without comorbidities (n = 56) — control group; 2 — AH/AF/chronic obstructive pulmonary disease (COPD) (n = 91); 3 — AH/AF/diabetes mellitus (DM) (n = 81); 4 — AH/AF/hypothyreosis (n = 87); group 5 — AH/AF/hyperthyreosis (n = 65); group 6 — AH/FP/abdominal obesity (AO) (n = 104). All the patients underwent clinical examination, anthropometry, instrumental diagnostics: electrocardiography (ECG); 24-hour Holter ECG monitoring, echocardiography (EchoCG). DNA extraction and gene polymorphisms testing were performed with polymerase chain reaction. We studied the rs1378942 and rs2200733 polymorphisms of the CSK gene of the chromosome 4q25 and rs1800795 polymorphism of the IL-6 gene of 174G/C.

Results. During 1-year follow-up over 50 % of patients with extracardiac diseases had an increase in the frequency of AF paroxysms by more than 20 % (DM — 76 %; COPD — 63 %; hypothyreosis — 57 %; hyperthyreosis — 64 %; AO — 58 %). The transformation into the chronic form of AF was significantly more frequent in patients with DM (p = 0.041), AO (p = 0.004) and hyperthyreosis (p < 0.0001). The study established statistically significant predictors of AF progression that interact multiplicatively: galectin-3 — the increase of which by 1 ng/l increased the risk of AF progression by 1.003 (91.0006; 1.005) (p = 0.016), and matrix metalloproteinase-9 (MMP-9) — the increase of which by 1 n/ml increased the risk of AF progression by 0.16. Other predictors included: the size of left atrium (LA) (p < 0.001): the increase of which by 1 cm was associated with 2.67 (91.58; 4.65) higher likelihood of AF progression, and left ventricular mass index (LVMI) — the increase of which by 1 g/m² increased the risk of AF progression by 0.9 times. When comparing the frequency of admission in patients with AF, emergency admission was significantly more frequent.

Conclusion. Early verification of the AF progression risk factors and the development of personalized algorithms as a risk meter can be used to assess the prognosis of AF and the development of its complications in patients with AH in combination with DM, COPD, hypothyreosis, hyperthyreosis, and AO.

Keywords: atrial fibrillation, arterial hypertension, comorbid diseases.