

PUBLICATIONS

PHARMACOGENETIC ANALYSIS OF THE EFFICACY OF ANTIHYPERTENSIVE THERAPY INCLUDING EPLERENONE IN PATIENTS WITH ARTERIAL HYPERTENSION AND PERMANENT ATRIAL FIBRILLATION CONSIDERING THE C-344T POLYMORPHISM OF THE CYP11B2 GENE

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To evaluate the cardio- and vasoprotective efficacy of antihypertensive therapy including eplerenone in patients with arterial hypertension (AH) and permanent atrial fibrillation (AF), considering the C-344T polymorphism of the CYP11B2 gene.

The study included 81 patients with AH and permanent AF. Mean patient age was 61.5 ± 9.3 years, mean AH duration was 12.7 ± 8.6 years, and mean AF duration was 5.61 ± 1.97 years. Of these, 41 (50.6%) were women and 40 (49.4%) were men. All patients received eplerenone, at a mean dose of 34.8 ± 12.3 mg/day, in addition to standard antihypertensive therapy. The follow-up period was 6 months. Echocardiographic (EchoCG) examination was performed using a Clearview-350 “Affiniti 30” ultrasound system (PHILIPS, the Netherlands) in M- and B-modes in accordance with American Society of Echocardiography recommendations. Common carotid artery intima-media thickness (IMT) was assessed by duplex scanning. Serum creatinine was measured on a DAYTONA autoanalyzer using a biochemical method. Glomerular filtration rate (GFR) was calculated from serum creatinine using the CKD-EPI formula. Morning urine microalbuminuria (MAU) was determined by enzymatic analysis on a Mindray BS 380 biochemical analyzer (China), and the urinary MAU/creatinine ratio was assessed. DNA samples were genotyped for the CYP11B2 gene C-344T polymorphism using an enzymatic DNA amplification system. According to the CYP11B2 C-344T polymorphism, patients were divided into two groups: C-allele carriers ($n=77$) and T-allele carriers ($n=85$). Results were considered statistically significant at $p < 0.05$.

In both groups, there was a significant decrease in left ventricular myocardial mass index: from 141.5 ± 45.7 to 129.7 ± 31.7 g/m² ($p < 0.001$) in C-allele carriers, and from 142.6 ± 53.2 to 130.4 ± 38.8 g/m² ($p < 0.001$) in T-allele carriers. However, only C-allele carriers showed a significant reduction in carotid IMT, from 0.99 ± 0.18 mm to 0.95 ± 0.16 mm ($p = 0.020$). In addition, patients in this group showed a significant decrease in the MAU/creatinine ratio, from 81.1 ± 68.1 to 54.6 ± 29.6 mg/mmol ($p < 0.05$), whereas the corresponding change in T-allele carriers did not reach statistical significance.

Thus, carriage of either allele of the CYP11B2 gene C-344T polymorphism did not affect the extent of LVH regression during antihypertensive therapy including eplerenone in patients with AH and permanent AF. A significant decrease in LVMI was observed among both T- and C-allele carriers of the CYP11B2 gene C-344T polymorphism. However, C-allele carriage was associated with a more pronounced regression of vascular abnormalities and improvement in endothelial function.