The levels of brain natriuretic peptide plasma concentrations in men with essential hypertension citizens of Podillia region in Ukraine with different BNP gene variants

Iuliia P. Pashkova

Vinnytsya National Medical University named after N. Pirogov, Department of Internal Medicine of Medical Faculty №2, Vinnytsa, Ukraine

Objective: The brain natriuretic peptide (BNP) biomarker application for myocardial dysfunction diagnosis in men citizens of Podillia region in Ukraine with essential hypertension (EH) and left ventricular hypertrophy (LVH) by determining the plasma levels in patients with different BNP gene variants.

Design and method: The study involved 191 middle-aged male residents in Podillia region. Among them 112 men from the main group were diagnosed EH with LVH, whose average age was 49,67±0,83 years and 79 healthy men whose age (49,01±0,73 years) and made the control group ($p>0,05$). The BNP (T-381C) gene polymorphism was determined by PCR, and the level of BNP plasma concentrations was established by ELISA.

Results: It was determined that in both healthy men inhabitants of Podillia region and in patients with EH and LVH dominates the C allele and the genotype T381C of the BNP gene ($p<0,05$). During the statistical analysis were combined carriers of the heterozygote genotype T381C and carriers of the homozygote genotype C381C in the joint group - the C allele carriers. The plasma BNP level in the control group carriers of the genotype T381T was 15,95±0,69 pg/ml (n=25), and the C allele carriers - 24,41±0,48 pg/ml (n=54) ($p<0,05$). The plasma BNP level in the main group carriers of the genotype T381T was 102,08±3,81 pg/ml (n=43), and the C allele carriers - 150,50±3,32 pg/ml (n=69) ($p<0,0000001$).

Conclusions: The T381C genotype and the C allele of the BNP gene dominate among the healthy men and the patients with EH and LVH, residents of Podillia region, age 40-60 years. The carriers of the genotypes T381T of the BNP gene have significantly lower plasma levels of the aforementioned peptide among the control group and in the patients with EH and LVH. This may require further in-depth research of genetic influence on the BNP plasma concentrations, along with other factors.