Секция «Клиническая медицина»

Metabolic disorders as a factor in the development of arterial stiffness in hypertensive patients with nonalcoholic fatty liver disease.

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Recent studies have demonstrated that the development of arterial stiffness depends largely on increasing glucose levels in plasma (Jin Young Shin et al., 2011), as well as a number of other metabolic parameters. In particular, a low concentration of total bilirubin in a population of women in Korea places them at risk of arterial stiffness (ES Kim et al., 2014).

The objective of our study was to identify a presistent relationship between glucose concentration, total bilirubin in plasma, arterial stiffness parameters and results of daily monitoring of patients with non-alcoholic fatty liver disease (NAFLD) and type II diabetes.

Materials and Methods: The study was carried out on 30 patients at the Clinical Hospital №64 of Moscow in 2014. Sample sex ratio was 1: 1; mean age - 54,3 ± 20; BMI - 30,34 ± 11,47; waist circumference (men / women): 98,13 ± 8,13 / 92,53 ± 11,53 cm. In a study using ambulatory blood pressure (BP) monitoring, blood pressure and heart rate measurements were taken in a sitting position: mean systolic pressure (mSYS)= 159,51 ± 7,27 mmHg; mean diastolic (mDIA) = 88,64 ± 7,21 mmHg; heart rate (HR) = 72,91 ± 4,79 bpm; as well as in a standing position: mSYS = 155,47 ± 6,72 mmHg; mDIA = 87,67 ± 8,08 mmHg; HR = 76,2 ± 5,1 bpm. Parameters of carbohydrate metabolism obtained via blood analysis: fasting glucose = 6,37 ± 0,98 mmol/L; fasting insulin = 16,23 ± 7,05 mcIU/ml; HOMA index = 4,82 ± 2,76. In addition, we assessed the lipid profile of our subjects: total cholesterol = 6,21 ± 1,3mmol/L; LDL = 4,19 ± 0,77mmol/L; TWG = 1,97 ± 0,95mmol/L; HDL = 1,21 ± 0,45 mmol/L. The distribution of patients according to the number of components of metabolic syndrome (MS) was as follows: 7-component MS = 16.67%; 6-component MS = 20%; 5-component MS = 13.33%; 4-component MS = 40%; 3-component MS = 10%. Characteristics of circadian BP profile: circadian systolic BP = 147,93 ± 11,83; circadian diastolic BP = 87,27 ± 9,11; daytime mSYS = 150,97 ± 11,87; daytime variable systolic = 15,03 ± 4,25; daytime mean diastolic = 89,67 ± 9,81; daytime variable diastolic BP = 12,07 ± 4,41; nighttime mSYS= 138,33 ± 13,49; nighttime variable systolic BP = 12,47 ± 3,96; nighttime mean dyastolic= 78,8 ± 9,79; nighttime variable diastolic BP = 9,57 ± 3,41; systemic systolic pressure = 8,7 ± 6,39; systemic diastolic pressure = 12,37 ± 7,33; systemic systolic pressure <0 = 3.33; systemic systolic pressure 0-10 = 60%; systemic systolic pressure> 10 = 36.7%; systolic variability > 15 in the daytime = 46.67%; the frequency of nocturnal hypertension (systolic BP> 120; diastolic BP> 70) = 93.33%; frequency of combined daytime hypertension (systolic BP> 135; BP 85) with nighttime= 86.67%; the frequency of isolated nocturnal hypertension (nighttime BP> 120/70) = 3.33%.

Results: Via correlation analysis a negative correlation was established between the concentration of total bilirubin and plasma glucose levels and aortic pulse wave velocity (PWVao) - r = -0.201; p = 0.005, and the average PWVao r = -0.05; p = 0.001 for bilirubin; (PWVao) - r = -0.27; p = 0.005, and the average PWVao r = -0.427; p = 0.001. A statistically significant negative dependence of HOMA index of the average blood pressure at night (r = -0,33; p = 0,04) and the mean diastolic blood pressure at night (r = -0,34; p = 0,05) was revealed.

Discussion and Conclusion: The results obtained allow us to evaluate the antioxidant effect of bilirubin as a factor in the development of arterial stiffness. It has been established that the concentration of bilirubin in registered cases of high incidence of arterial stiffness is lower. Evaluation of carbohydrate status confirms the influence of type II diabetes on the development

of arterial stiffness with NAFLD.

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