Indicators Car Diovascular Activity and Risk Factors

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Abstract: A young, practically healthy contingent characterized by a fairly high frequency of cardiovascular risk factors. Their quantity and quality characteristics depend on gender. In young people of both sexes, there is a relationship between the number of risk factors for cardiovascular diseases and the level of blood pressure during the day - as the number of these factors increases, the average daily, average daily and average nighttime values of systolic pressure, increase diastolic, mean and pulse blood pressure.

Key words: risk factors, arterial hypertension, systolic blood pressure, diastolic blood pressure, pulse pressure.

Introduction. One of the main directions of health care development at present is the formation of effective measures for the prevention of cardiovascular diseases (CVD), which account for the highest percentage of disability and mortality among the population of most highly developed countries [6].

The basis for the development of measures to preserve health is the concept of risk factors (RF) [7].

According to the recommendations approved by the European Scientific Society of Cardiology (2007), the main RF of atherosclerosis include: arterial hypertension (AH), age, smoking, heredity, dyslipidemia, overweight, depression [8]. The study of cardiovascular risk factors, including hypertension, at the level of the youth population has practically not been carried out [2].

Meanwhile, according to hypertension, it is emphasized that the criteria for increased blood pressure are largely conditional, since there is a direct relationship between the level of blood pressure and the risk of CVD, starting with a value of 115/75 mm Hg. [8]. In addition, the youth population in this perspective corresponds to the earliest stages of the cardiovascular continuum.

The purpose of the study: to study the indicators of daily monitoring of blood pressure in relation to some factors of cardiovascular risk in young people from among the student contingent.

Materials and research methods: The study included 204 students of BSMI of both sexes aged 18 to 22 years (average age 20.3 ± 0.32 years) - 80 boys and 124 girls.

The inclusion criteria for the study were age from 18 to 22 years old, studying at a higher educational institution, consent of the surveyed to complete all stages of the study. Exclusion criteria: presence at the time of examination of acute or exacerbation of chronic diseases, non-random nature of the subject's appeal for the study. The survey included: a survey on a standard questionnaire to find out passport data, family history, the presence of bad habits; determination of anthropometric parameters; questioning to identify psychological disorders; measurement of blood pressure (BP) by traditional and monitoring methods; determination of the lipid spectrum of blood.
RF assessment was carried out in accordance with the recommendations for diagnostics and correction of lipid metabolism (2007).

The heredity of the subject was considered burdened if there were indications of the development of early CVD in close relatives (<65 years in women, <55 years in men) [7,8].

A person who smoked at least 1 cigarette per day during the last month and more or quit smoking less than 1 year ago was considered a smoker [5].

The study of the blood lipid profile was carried out no later than 72 hours. Before taking blood, the subjects were instructed about diet, smoking, alcohol, and physical activity. The following parameters were determined: total cholesterol (TC), high density lipoprotein cholesterol (HDL cholesterol), low density (LDL cholesterol), very low density (VLDL cholesterol), triglycerides (TG), and the atherogenic coefficient (AC) was calculated. Dyslipidemia was diagnosed with the following lipid profile: total cholesterol> 5.0 mmol / L, LDL-C> 3 mmol / L, HDL-C <1 mmol / L in men and <1.2 mmol / L in women, TG> 1.7 mmol / L.

Anthropometry included the determination of height and weight, followed by the calculation of BMI. To characterize BMI, the WHO classification (2006) was used, in which the degree of overweight or underweight is assessed by the Quetelet index (the ratio of weight in kg / height in m²).

Depression and anxiety severity was identified and assessed using the Hospital Anxiety and Depression Scale (HADS). At the same time, three areas of values of the total indicator reflecting the level of anxiety-depressive disorders (TDR) were distinguished: 0-7 points - "normal", 8-10 points - "subclinically expressed anxiety / depression", 11 points and above - “clinically expressed anxiety / depression” [10].

Measurement of blood pressure by the indirect method of N.S. Korotkov (office measurement of blood pressure) was performed on both hands three times with a 5-minute interval while sitting in a comfortable position. The average of the last two measurements was defined as the level of systolic and diastolic blood pressure (SBP and DBP).

Daily monitoring of blood pressure (DMBP) was carried out with a measurement interval of 30 minutes during the day and 60 minutes at night. The mean daily, average daily, average nighttime systolic (SBP24, SBPad, SBPn), diastolic (DBP24, DBPad, DBPn), mean (avBP24, avBPad, avBPn) and pulse blood pressure (PP24, PP ad, PPn), in their minimum and during the day, as well as the heart rate (HR) in different periods of the day, daily index (DI) SBP and DBP, time index (TI) SBP and DBP.

Taking into account the age of the subjects and the latest European recommendations (ESC / ESH, 2007), the average daily BP ≥ 125/80 mm Hg was considered the criterion for verifying hypertension in ABPM. Art.Statistical data processing was carried out using nonparametric statistics using the STATISTICA analysis package, version 6.0. To characterize the correlations between the studied characters, the Spearman rank correlation method was used.

**Research results:** Analysis of the prevalence of individual RFs in the studied youth population revealed a burdened heredity in every second student, regardless of gender. At the time of the survey, 25% of young people and 5.6% of girls were smokers. Overweight was found in 27.5% of boys and 5.6% of girls. The results of psychological testing showed that 6.3% of young people had clinically expressed anxiety / depression.

Dyslipidemia was revealed in 15.6% of the examined. According to the results of traditional measurement of blood pressure in the studied population, arterial hypertension was detected in 13.7% of the surveyed, while in boys it was almost 3 times more often than in girls.
Thus, in general, the analysis of RF in the general population of student youth showed that among people who consider themselves healthy people, already in young years, the prevalence of the main factors of cardiovascular risk, including modifiable ones, is quite high, and among young men their representation is much higher than among girls.

Correlation relationships between the studied factors of cardiovascular risk and indicators of daily dynamics of blood pressure were analyzed. For some of them, statistically significant relationships with the indicated RFs were found (p <0.05).

For weighed down heredity in young men, such indicators were avg min 24, avg min ad, PP n, for which a straight line of moderate strength was revealed. The girls had SBPad and DBPad, DBP 24, IVDAP, which had a positive, moderate correlation.

A direct relationship between the fact of smoking in boys was determined with the min heart rate during the day and max systolic blood pressure at night, and in girls, smoking was associated with higher values of IVSAPad and PP min n. The body mass index among young men showed a statistically significant positive relationship with SBP and DBP 24, day and night, max SBP 24, as well as average BP 24 and PP 24. For girls, this RF had positive associations with indicators characterizing average blood pressure during the day, as well as IVSAD in the daytime. The lipid profile in young men showed a positive correlation with SBP and DBP 24, day and night, with the minimum and maximum values of these indicators in different periods of the day. In addition, a positive correlation was noted for lipid profile and mean blood pressure levels during the day, PR at night.

In girls, lipid levels positively correlated with the following ABPM indicators: average BP in different periods of the day, min SBP during the day, min PE at night. In boys, there was a direct statistically significant relationship between the level of depression and max SBP 24. In girls, there was a moderately negative correlation between the level of depression, expressed in points, and SISBP and DBP. In addition, a positive, moderately strong correlation between the level of depression and a number of daily indicators characterizing the night hours was determined: max SBP and DBP at night, average nighttime DBP, IVDAD at night, average night and maximum nighttime average BP.

Thus, we obtained data on the presence of a tendency towardshig her values of blood pressure according to the results of ABPM in young people who have one or another RF of CVD.

That is, the presence of one or another RF in a healthy young person is associated with a higher daily blood pressure level, which implies a greater load on organs and tissues and, ultimately, a higher total cardiovascular risk in this category compared to with persons without FR.

**Conclusion.**

1. A young, practically healthy contingent is characterized by a fairly high incidence of cardiovascular risk factors. Their number and quality characteristics depend on gender.
2. Among students, AG according to the results of office measurements is noted in 13.7%, and according to the results of its daily monitoring - in 14.7%.
3. In young people of both sexes, there is a relationship between the number of cardiovascular risk factors and the level of blood pressure during the day - as the number of these factors increases, the average daily, daily average and nightly average values of systolic, diastolic, mean and pulse blood pressure increase.

**References:**


