

Results and discussion. Fourteen-day functional unloading led to an increase in Cer, ASM, ROS, AGEs and RAGE, as confirmed by fluorescence microscopy data. Western blot analysis revealed a significant increase in RAGE compared to the control group. The inhibition of ASM decreased ASM and Cer levels, but had no effect on AGEs or RAGE in comparison with the untreated group. No changes in RAGE were observed by WB under these conditions. In the *ex vivo* experiments, exogenous AGEs added to soleus muscle samples, did not induce detectable changes in Cer or ASM muscle levels.

Conclusion. Thus, 14-day unloading leads to ASM/Cer upregulation and increase in AGE and RAGE levels in the soleus muscle. ASM inhibitor amitriptylin does not affect RAGE and AGEs, indicating the absence of the direct interaction between ASM/Cer and AGEs/RAGE pathway in muscles.

CARDIOVASCULAR RESPONSE TO PHYSICAL ACTIVITY AND ADDITIONAL WEIGHT LOAD IN MALE AND FEMALE STUDENTS

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Introduction. There are various functional load tests to study the state of the cardiovascular system, which allow identifying the latent stage of cardiovascular pathology, as well as assessing the reactivity of the cardiovascular system. This is relevant, since it allows assessing the functional reserve of the body, as well as identifying cardiovascular pathology in its compensated stage.

Aim of the study. The aim of the study was to conduct a new load test, which included, in addition to physical activity, an additional weight load.

Materials and methods. The studies were conducted on 29 students of both sexes (18 girls and 11 boys) aged 18-25 years. The studies included students climbing two flights of stairs with a total of 28 steps. The initial arterial systolic and diastolic pressure, as well as systolic and diastolic pressure and their changes following physical activity after students climbed and after students climbed the stairs with a 10 kg load were determined. The changes in pulse pressure and heart rate were also determined. The obtained data were processed using nonparametric statistics methods, the data were expressed as a median and the lower and upper quartiles. The data was considered reliable at $p < 0.05$.

Results and discussion. As a result of the studies, the initial systolic pressure in girls was 115.5 [102; 122] mm Hg, diastolic pressure was 76.0 [70; 80] mm Hg. In young men, the initial systolic pressure was 129.0 [116; 136] mm Hg, $p < 0.05$, diastolic pressure was 75.0 [69; 83] mm Hg. The initial pulse pressure in girls was 45.5 [35; 50] mm Hg, in young men – 53 (41; 62) mm Hg, $p < 0.05$. The initial heart rate in girls was 82 [73; 90] beats per minute, in young men it was 81 [65; 91] beats per minute. After performing the load by climbing

stairs, there was an increase in both systolic (in girls – by 13.3 [6.9; 19.1]%, in boys – by 8.3 [1.9; 8.8]%) and diastolic pressure (in girls – by 10.5 [3.8; 14.5]%), but it decreased in boys by 2.2 [10.0; 16.4]%, $p < 0.05$. Pulse pressure after the load in girls increased by 24.5 [5.7; 37.0]%, and in boys – by 25.9 [19.5; 36.1]%, $p > 0.05$. Heart rate increased in girls by 12.5 [2; 27]%, in boys – by 22 [8; 29]%, $p < 0.05$. After performing the load by climbing stairs with additional weight, there was an increase in both systolic (in girls – by 22.5 [19.0; 24.0]%, in boys – by 19.2 [14.7; 24.7]%) and diastolic pressure (in girls – by 10.5 [1.4; 16.5]%, but in boys it decreased by 4 [14.8; 14.9]%). Pulse pressure after exercise in girls increased by 44 [26; 52.2]%, and in boys – by 28.1 [15.1; 58.5]%, $p < 0.05$. Heart rate increased in girls by 15.8 [2.4; 38.5]%, in boys – by 33 [14; 42]%, $p < 0.05$.

Conclusion. During the exercise tests, some differences in the response of the cardiovascular system of girls and boys to exercise were revealed. In particular, girls showed a more significant increase in systolic blood pressure, as well as pulse pressure, but boys showed a more significant increase in heart rate, and the diastolic pressure value decreased, unlike girls, in whom it increased.

During physical exercise by climbing stairs with an additional load, the increase in systolic pressure was greater, than when climbing stairs without an additional load, while there were no differences in the increase in systolic pressure in girls and boys. As for diastolic pressure, in boys, in contrast to girls, it was noted to decrease, and to a greater extent than without an additional load. In girls, the increase in pulse pressure increased, and in boys, a higher increase in heart rate was noted.

DOUBLE OUTLET RIGHT VENTRICLE IN COMBINATION WITH MULTIPLE CONGENITAL HEART DEFECTS

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Introduction. Double outlet right ventricle (DORV) is characterized by both great arteries, aorta and pulmonary artery arising from the right ventricle. Here both large arteries are fully or partially connected to the right ventricle, more than 50% of each great vessel arises from the right ventricle, which is known as “the 50% rule”. DORV can occur as a single condition or in combination with other cardiac or noncardiac anomalies. This condition is rare and estimates about 1%-1.5% of all congenital heart diseases.

Aim of the study. Analysis of the treatment plan with respect to this complex case of double outlet right ventricle and its associated cardiac anomalies.

Materials and methods. The patient in this case study was examined at the Grodno Regional Children’s Hospital. Patient details are kept confidential, while