CORRELATIONS PERFORMANCE OF CEREBRAL CIRCULATORY WITH INDICATORS STRUCTURE AND SIZE OF THE BODY IN PRACTICALLY HEALTHY GIRLS OF MESOMORPHIC SOMATOTYPE

Summary. In practically healthy women mesomorphic somatotype set multiple reliable direct connections wave amplitude of systolic blood flow and fast with all total, most longitudinal body size, majority girth of limbs and muscular body mass component by Matejko method; time of rapid blood flow with most longitudinal body size, ectomorphic component somatotype and body mass muscle component by Matejko method; average speed of fast and slow blood flow with most girth of limb and muscle mass component of the body by Matejko. Also installed multiple feedbacks dicrotic index with all total, the majority of the longitudinal body size, half the diameter of the trunk and muscular and skeletal components of body weight by the method of Matejko.

Key words: rheoencephalography, practically healthy girls, constitutional body settings, mesomorphic somatotype.

Introduction

The brain - one of the main target organs at various somatic diseases. Cerebrovascular complications largely determine the fate of the patients, as are the major cause of disability and death. Functional and structural changes of intracerebral vessels with prolonged duration of disease can cause a variety of neurological and psychiatric disorders and lead to stroke or transient cerebrovascular accident [5, 7, 8].

Modern literature has a large number of works devoted to research rheoencephalography circulation of the brain in healthy people of all ages, which have shown that in the process of growth and development of cerebral circulation undergoes significant changes [13, 14]. Changes in cerebral blood flow in the process of growth and development is explained by morphofunctional structural features of the brain vasculature. According to several studies, diameters and other morphological parameters arteries blood supply of brain are not only age but also have constitutional features [12, 15, 16].

Rheoencephalography indicators rarely used in constitutionology. It is believed that these figures increasingly reflect other aspects of variability (eg, age, sex) and therefore can not be used in the full morphological correlations in the study [2]. But there is another point of view: regardless of age and gender characteristics within a population can always provide stable and recurring rheoencephalography pattern options and cerebral hemodynamics to be linked with the constitutional characteristics, and highly correlated with them. Evidence suggests that this dependence really exist [6, 13, 15, 16]. Its related with influence general laws of growth and development of the body and general trends shaping for cerebrovascular [4, 9].

Purpose - to determine performance characteristics ties cerebral circulation with figures of the structure and size of the body in practically healthy girls of mesomorphic somatotype.

Materials and methods

Anthropometric, somatotypological and rheoencephalography study conducted in 150 practically healthy urban women aged from 16 to 20 years, the third generation residents of Podilia region of Ukraine at the Research center of Vinnitsa National Medical University n.a. Pirogov. Committee on Bioethics VNMU n.a. Pirogov found that materials research does not deny the major bioethical standards of the Helsinki Declaration, the European Convention on Human Rights and Biomedicine (1977), the relevant provisions of the WHO and the laws of Ukraine.

Anthropometric studies in accordance with the scheme V. Bunak [3] included a definition: total body size, longitudinal,
transverse, covering size, pelvic size and thickness of skin and fat folds (TSFF). Cranioemetry included a definition: the circumference of the head (glabella), sagittal curves, the greatest length and width of the head, the smallest width of the head, the width of the face and lower jaw. [1] Somatotypes determined by the method J. Carter and B. Heath [17] and the component composition of body weight - the method J. Matiegka [18] and the American Institute of Nutrition (AIN) [19].

Rheoencephalography parameters determined by computer diagnostic complex, which provides simultaneous detection of ECG, phonocardiograms, basic and differential tetrapolar rheogram and blood pressure. As a result, processing rheogram automatically determined characteristic points on the curve, determine key indicators, and formed a justified opinion on the circulatory system of the investigated area [10].

Analysis of the obtained results connections were performed using the Spearman method in the license statistical package “STATISTICA 6.1” (belongs to CNIT VNMU n.a. Pirogov, license number AXRX910A374605FA).

**Results. Discussion**

Quantitative analysis of reliable and unreliable communications medium strength indicators of cerebral circulatory with anthropo-somatic parameters of body in practically healthy girls of mesomorphic somatotype showed the following distribution of amplitude, time and estimates rheoencephalography parameters: 37 of possible connections of 290 (12.8%) with amplitude parameters (of which 9.7% authentic direct medium strength, 1.0% false direct medium strength, 1.4% reliable reverse medium strength, 0.7% false reversible medium strength); 15 of 290 possible connections (5.2%) with temporary indexes (of which 3.2% authentic direct medium strength, 1.0% false direct medium strength, 1.0% reliable reverse medium strength); 38 of 464 possible connections (8.2%) with estimated parameters (of which 3.2% authentic direct medium strength, 2.2% false direct medium strength, 2.2% reliable reverse average power 0.6 % false reversible medium strength). Registered no significant association only for indicator tone arteries medium caliber and shallow.

Among anthropo-somatic parameters in practically healthy women mesomorphic somatotype revealed the following distribution of relationships: with amplitude indicators - cephalometric indicators (2 - 5.7% of all indicators; of which, 2.9% authentic direct medium strength; 29% reliable reverse medium strength); total body size (6 - 40.0% of all indicators, of which 28.9% accurate direct medium strength; 4.0% false reverse medium strength); covering body size (8 - 32.0% of all indicators; of which 28.9% accurate direct medium strength; 4.0% false reverse medium strength); width of distal epiphysis of long bones of the extremities (WDE) (8 - 32.0% of all indicators; of which 28.9% accurate direct medium strength; 4.0% false reverse medium strength); body diameter (3 - 7.5% of all indicators; of which 2.5% authentic direct medium strength; 2.5% reliable reverse medium strength; 2.5% false reversible medium strength); covering body size (13 - 17.3% of all indicators, of which, 13.3% accurate direct medium strength, 2.7% false direct medium strength; of which 1.3% reliable reverse medium strength); performance component composition of body weight (2 - 10.0% of all indicators; all significant direct medium strength)

With time-indicators - cephalometric indicators(2 - 5.7% of all indicators; of which 2.9% false direct medium strength; 2.9% reliable reverse medium strength); total body size (2 - 13.3% of all indicators; all significant direct medium strength); longitudinal body size (4 - 16.0% of all indicators; of which 8.0% authentic direct medium strength; 8.0% false direct medium strength); body diameters (2 - 5.0% of all indicators; all significant inverse medium strength); covering body size (1 - 1.3% of all indicators; all significant direct medium strength); somatotype components (3 - 20.0% of all indicators; all significant direct medium strength); performance component composition of body weight (1 - 5.0% of all indicators; all significant direct medium strength). With calculated indices - total body size (6 - 25.0% of all indicators; of which 12.5% direct unreliable medium strength; 12.5% reliable reverse medium strength); longitudinal body size (6 - 15.0% of all indicators; of which 5.0% false direct medium strength; 5.0% reliable reverse medium strength, 5.0% false reversible medium strength); WDE (2 - 6.2% of all indicators; of which 3.1% authentic direct medium strength; 3.1% false direct medium strength); body diameter (8 - 12.5% of all indicators; of which 6.2% authentic direct medium strength; 4.7% reliable reverse medium strength; 1.6% false reversible medium strength); covering body size (9 - 7.5% of all figures; of which 5.8% authentic direct medium strength; 1.7% false direct medium strength); TSFF (3 - 4.2% of the total number of all indicators; of which 1.4% authentic direct medium strength; 2.8% false direct medium strength); performance component composition of body weight (4 - 12.5% of all indicators; of which 6.3% authentic direct medium strength; 6.3% reliable reverse medium strength).

In analyzing the characteristics of reliable and unreliable communications medium strength indicators of cerebral circulatory with anthropo-somatic parameters of body in practically healthy girls of mesomorphic somatotype set the following multiple correlation direct, mostly credible, medium strength (r = from 0.33 to 0.50) ties systolic wave amplitude and the amplitude of rapid blood flow with all total, most longitudinal body size, girth majority limbs and muscular body mass component method Matejko, direct mostly reliable, medium strength (r = from 0.33 to 0.50), communication time of rapid blood flow with most longitudinal body size, ectomorphic component somatotype and body mass muscle component method Matejko; reverse mostly credible, medium strength (r = from -0.33 to -0.41) ties dicrotic index with all total, the majority of the longitudinal body size, half the diameter of the trunk and muscular and skeletal components of body weight by method of Matejko and direct credible medium (r = from 0.34 to 0.53) connections of...
average speed fast and slow blood flow with most girth limb and muscle mass component of the body by Matejko. Attention is drawn to the lack of reliable and unreliable correlation of medium strength: peak performance indicators with TSFF and somatotype components; time metrics and indicators WDE and TSFF; estimates indexes with cephalometric sizes and components of the somatotype.

Conclusions and recommendations for further development
1. Among peak performance in girls mesomorphic somatotype largest number, preferably direct, connections established between systolic wave amplitude and rapid blood flow with all total, most longitudinal body size, girth majority limbs and muscular body mass component method Matejko; and among time - between time blood flow and most rapid longitudinal body size, ectomorphic component somatotype and body mass muscle component method Matejko.
2. For performance derivatives of rheoencephalography largest number of connections in girls mesomorphic somatotype set for medium speeds fast and slow blood flow (preferably direct links with most of the circumference of limbs and muscular body mass component method Matejko) and for dicrotic index (usually reversible with all total, the majority of the longitudinal body size, half the diameter of the trunk and muscular and skeletal components of body weight by the method Matejko).

Prospects for future research consists to study the characteristics of communications performance parameters of cerebral circulation with structure and size of the body healthy boys and girls others somatotypes that can be used as additional features in addition to the basic constitutional features, or to perform certain tasks most complete description of morphological-functional variations.
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КОРЕЛЯЦІЇ ПОКАЗНИКІВ МОЗКОВОГО КРОВООБІГУ З ПОКАЗНИКАМИ БУДОВИ І РОЗМІРІВ ТІЛА ПРАКТИЧНО ЗДОРОВИХ ДІВЧАТ МЕЗОМОРФНОГО СОМАТОТИПУ

Резюме. У практично здорових дівчат мезоморфного соматотипу встановлені множинні достовірні прямі зв’язки амплітуди систоличної хвилі і швидкого кровонаповнення з усіма тотальними, більшістю поздовжніх розмірів тіла, більшістю обхватів кінцівок і м’язовим компонентом маси тіла за методом Матейко; часу швидкого кровонаповнення з більшістю поздовжніх розмірів тіла, ектоморфним компонентом соматотипу і м’язовим компонентом маси тіла за методом Матейко; середньої швидкості швидкого і повільного кровонаповнення з більшістю обхватів кінцівок і м’язовим компонентом маси тіла за методом Матейко. Також встановлено множинні зворотні зв’язки дикротичного індексу з усіма тотальними, більшістю поздовжніх розмірів тіла, половиной діаметрів тулуба і м’язової та кісткової компонентами маси тіла за методом Матейко.

Ключові слова: реоенцефалографія, практично здорові дівчата, конституціональні параметри тіла, мезоморфний соматотип.

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