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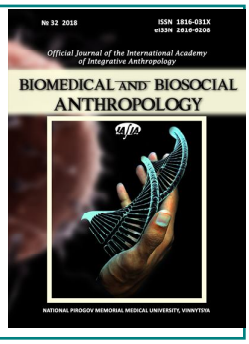

Features of correlations of cerebral circulation indicators with anthropo-somatotypological parameters of the body in practically healthy young men of mesomorphic somatotype

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The peculiarities of the relations of rheoencephalographic indices with anthropometric indices in the healthy domestic samples studied are an important diagnostic criterion and a marker of pathological states from the cerebral vessels in the studied somatotype. The purpose of the work is to determine the features of correlations of indicators of cerebral circulation with constitutional parameters of the body of practically healthy young men from Podillia with mesomorphic somatotype. On the base of the research center of the National Pirogov Memorial Medical University, Vinnytsya, conducted a comprehensive study of 62 practically healthy urban youths of mesomorphic somatotype, inhabitants of the Podillia region of Ukraine in the third generation. All of them have undergone a rheoencephalography using a computer diagnostic complex; anthropometric study according to the scheme of V. V. Bunak; craniometry; determination of components and type of somatotype by J. Carter and B. Heath and components of body mass index by J. Matiegka and American Institute of Nutrition. The correlation analysis was performed using the Pearson method in the statistical package "Statistica 6.1". In the practically healthy young men of the mesomorphic somatotype, the following multiple correlations of cerebral blood flow parameters with constitutional parameters of the body are established: direct of middle power (r = 0.36 to 0.38) correlations of the base impedance with indicators of the thickness of skin and fat folds on the lower extremity, the endomorphic component of the somatotype and the fat component of the body mass using the Matejko method; direct, predominantly average strength (r = 0.30 to 0.40), correlations of the rising part of the rheogram and time of rapid blood filling with all total and longitudinal body dimensions, distal epiphysis widths of the upper extremity, muscle mass component of the body by the Matiegka method, and the bone component of the body mass using the Matiegka method (only for the time of rapid blood filling), as well as the direct mean (r = 0.31 to 0.37) and weak strength (r = 0.26 in all cases), correlations of slow blood flow time with most longitudinal body sizes; inverse, mainly average strength (r = -0.30 to -0.44), correlations of the dicrotic index with all total, most of the longitudinal body sizes, most of the girth indices of the limbs, muscle and bone components of the mass of the body by the method of Matiegka and muscular by the method of the American Institute of Nutrition method, as well as direct, mostly average forces (r = from 0.30 to 0.47), correlations of indicators of tone of all arteries, tone of arteries of large caliber and tone of arteries of medium and small caliber with most longitudinal body sizes. Attention is drawn to the lack of reliable correlations of only the amplitude indicators with total body sizes. In the analysis of correlations of rheoencephalography indicators with constitutional parameters of the body in practically healthy young men of mesomorphic somatotype among all groups of indicators of cerebral circulation for time indicators, the largest number of reliable connections found, mostly with total body sizes (53.3%, here and thereafter from the total number of these indicators), longitudinal body dimensions (52.0%), body mass index components (20.0%), circumferential body dimensions (18.7%), width distal

epiphyses long limb bone (15.0%) and cephalometric indexes (14.3%). The highest percentage of correlations with body diameters (14.3%), components of somatotype (13.3%), cephalometric indices (11.4%) and components of body composition (10.0%) were established for amplitude parameters; and for derivative indicators - with longitudinal body dimensions (45.0%), body total dimensions (29.2%), body sizes (16.7%), body composition components (15.6%), width distal epiphyses of long limb bones (12.5%) and diameters of the body (10.7%).
Keywords: *correlation, rheoencephalography, anthropometry, mesomorphic somatotype, practically healthy young men.*

Introduction

Determination of functional criteria for initial manifestations of vascular pathology is one of the most pressing problems of modern medicine and is of great scientific and practical interest [32, 34]. The medical and social significance of this problem is that cerebrovascular disruption is the most common reason for limiting the physical and mental activity of patients under the age of 35-50 [8, 14, 16].

An important role in the diagnosis of cerebral dyscirculatory disorders have numerous instrumental methods of research, which are usually combined into the general concept of "functional diagnosis." Wide introduction into the clinical practice rheoencephalography, as well as modern methods of mathematical analysis of data leads to a growing demand for integral indicators that objectively assess the relationship between levels of functional state of the cerebral circulation and the body as a whole [4, 21, 23, 24].

Cerebral hemodynamic disorders are caused by the interaction of a number of morphological and functional factors: violation of autoregulation and collateral circulation, state of flow through major arteries, microcirculatory disorders, architecture and vascular size [3, 7, 15, 16, 17, 19]. According to some studies, the increase in the frequency of these factors has not only age, but also constitutional features [2, 5, 6, 11, 26].

Until recently, there were works based on a systematic approach to the analysis of the interrelationships between morphological and functional indicators of cerebral vessels with anthropometric indices [27, 31]. Thus, a strong feedback correlation is established by Razmologova O. Yu. and Medvedev Yu. A. [27] between the parameters of the vessels of the elastic and muscular types and the length of the human body. Krejza J. and co-authors [19] determined the dependence of the diameter of the carotid artery on the parameters of the body and neck. Scientists at the National Pirogov Memorial Medical University, Vinnytsya [5, 6] found that in girls and boys of both sexes the most reliable correlations of anthropometric parameters with rheographic indexes were determined in ectomorphs, and the least in mesomorphs. Representatives of ectomorphic, mesomorphic and ecto-mesomorphic somatotypes, regardless of gender, have fixed inverse correlations [26]. In girls, most of the indicators of central hemodynamics have straight correlations with constitutional characteristics, but with the thickness of skin and fat folds and the endomorphic component of the somatotype - reverse correlations [28].

The use of regression analysis to detect the relationship between blood flow, bioelectric activity of the brain and constitutional indicators can expand the scope of computer technology in determining the direction and development of vascular pathology of the brain. This allows us to evaluate and compare functional changes in cerebral circulation with normal pathology, and to evaluate the effectiveness of treatment [25, 29, 35].

The *purpose* of the work is to determine the features of correlations of cerebral circulation indicators with constitutional parameters of the body of practically healthy young men from Podillia with mesomorphic somatotype.

Materials and methods

On the base of the research center of the National Pirogov Memorial Medical University, Vinnytsya conducted rheoencephalographic, anthropometric and somato-typological studies of 143 practically healthy urban youths aged 17-21, residents of the Podillia region of Ukraine in the third generation. The Bioethics Committee of the National Pirogov Memorial Medical University, Vinnytsya found that the research materials did not deny the basic bioethical norms of the Helsinki Declaration, the Council of Europe Convention on Human Rights and Biomedicine (1977), the relevant provisions of the WHO and the laws of Ukraine.

Using a computer diagnostic complex, a rheo-encephalographic study was conducted that automatically determined the characteristic points on the curve, the main parameters of the rheoencephalogram and gave a conclusion on the state of the circulatory system of the brain [36].

According to the scheme of V. V. Bunak [9], the anthropometric study included determination of total, longitudinal, circumferential body dimensions, body diameters (body size and pelvic size), width distal epiphyses of long limb bones (WDE) and indicators of thickness of skin and fat folds (TSFF). Cephalometry included determination of head girth, sagittal arc, greatest length and width of the head, smallest head width, face and mandible width [1]. The components of the somatotype and the type of somatotype were determined according to the method of J. Carter and B. Heath [10], and the components of the body mass in accordance with the method of J. Matiegka [22] and

the American Institute of Nutrition (AIN) [30].

The analysis of correlations of cerebral blood circulation with constitutional parameters of the male body of mesomorphic somatotype (n = 62) was performed using the Pearson method in the licensed statistical package "Statistica 6.1".

Results

In the practically healthy young men of the mesomorphic somatotype, the following reliable correlations of cerebral circulation with anthropometric and somatotypological parameters of the body are established:

basic impedance - middle direct force (r = 0.33 to 0.38) correlations with interspinous pelvic size, with TSFF on the side, thigh, shin, with endomorphic component of the somatotype by Carter-Heath, fat component of body weight by Matiegka; weak direct (r = 0.28) correlations with interspinous pelvic size; weak reverse (r = -0.26) relationship with neck girth;

the duration of the heart cycle - only middle force straight (r = 0.30) correlations with the head girth; weak direct (r = 0.26) correlations with the greatest length of the head;

the duration of the ascending part - the average force straight (r = from 0.30 to 0.40) correlations with the total body size, with the height of the pubic and finger points, with the girth of the hand brush and thorax in all phases of breathing; weak straight correlations (r = 0.24 to 0.29) with the greatest head width, with supra-sternum height, shoulder and trochanteric points, WDE of forearm, with a girth of thigh and neck, waist, hips, with the embrace of the chest on the exhalation and in calm condition, with a transverse lower-sternum size, with an intertrochanteric pelvis size, with a muscular mass component of the body by Matiegka;

the length of the downstream part - only a weak straight (r = 0.25) correlations with the head girth;

the duration of the phase of rapid blood filling - average direct force (r = from 0.30 to 0.37) correlations with the largest head width, with total body size, with supra-sternum height, pubic, finger and trochanteric points, with WDE of forearm, with neck girth, foot, with bone component of body weight by Matiegka and muscle component of body weight by AIN; weak straight correlations (r = 0.26 to 0.28) with shoulder point height, with WDE of shoulder, with hand brush girth, with muscular component of body weight by Matiegka; weak reverse (r = -0.27) relationship with TSFF on the back of the shoulder;

the duration of the phase of slow blood filling - average force straight (r = from 0.30 to 0.41) correlations with body length, height of pubic and finger points, with the girth of the hand brush, thorax in all phases of breathing; weak direct (r = 0.25 and r = 0.26) correlations with the area of the body surface, shoulder height, shin circumference in the lower third; weak reverse (r = -0.25) correlations with the mesomorphic component of the somatotype by Carter-Heath;

the amplitude of the systolic wave - only middle force straight (r = 0.34) correlations with the height of the finger point; weak direct (r = 0.26) correlations with the height of the supra-sternum point; weak reverse (r = -0.27) correlations with the mesomorph component of the somatotype by Carter-Heath;

the amplitude of incision - middle reciprocal force (r = -0.34 and r = -0.33); correlations with forearm girth in the lower third, interspinous size of the pelvis; weak reverse (r = -0.25 to -0.28) correlations with the smallest head width, face width, with intertrochanteric pelvic size and bone mass component of the body by Matiegka;

the amplitude of the diastolic wave - only weak reverse (r = -0.26 to -0.28) correlations with the smallest head width, face width and with an interspinous size of the pelvis;

the amplitude of the fast blood flow phase - only a weak direct (r = 0.26) correlations with the TSFF on the thigh; weak reverse (r = -0.26) relationship with WDE of forearm;

the dicrotic index - average reciprocal force (r = -0.30 to -0.44) correlations with total body size, with the height of the supra-sternum, pubic, shoulder and finger points, with the girth of the forearm in the lower third, with the girth of the hips, with muscular mass component of the body weight by Matiegka and the formula of AIN; weak back (r = from -0.25 to -0.29) correlations with WDE of the thigh, with shoulder girth in the tense state, forearms in the upper third, shin in upper and lower parts, with intertrochanteric pelvis size, bone component of body weight by Matiegka;

the diastolic index - mean reciprocal force (r = -0.32 and r = -0.33) correlations with girth of the lower third of forearm and hips; weak inverse (r = from -0.26 to -0.27) correlations with the height of the finger point, with the foot girth, with the muscular component of the body weight by AIN;

the average speed of the phase of rapid blood filling - only the mean reciprocal strength (r = -0.33) correlations with WDE forearm; weak direct (r = 0.26) correlations with TSFF on the back of the shoulder; weak reverse (r = -0.25 and r = -0.26) correlations with the smallest head width and interspinous size of the pelvis;

the average speed of the phase of slow blood filling - only the mean reciprocal strength (r = -0.34 and r = -0.32) correlations with WDE forearm and interspinous size of the pelvis; weak inverse (r = -0.25 in both cases) correlations with the smallest head width and transverse lower-sternum size;

the indicator of the total arterial tone - the average force straight (r = 0.30 to 0.39) correlations with the length of the body, with the height of the pubic, shoulder and finger points, with the forearm girth in the lower third, with the girth of the hips and the hand brush; weak straight (r = 0.28 and r = 0.26) correlations with the height of the supra-sternum point and with the girth of foot;

the indicator of the tone of the arteries of large diameter - the average force straight (r = from 0.30 to 0.32) correlations with the length of the body, with the height of the supra-sternum, shoulder and finger points, with the girth of the forearm in the lower third, with the girth of hips, with muscle

body mass component by AIN; weak direct (r = 0.29) correlations with the height of the pubic point;

the index of tone of the arteries of medium and small diameter - average strength of the straight correlations (r = from 0.30 to 0.40) with the length of the body, with the height of the supra-sternum, pubic, shoulder and dots, with the girth of the hand brush and hips; weak straight correlations (r = 0.25 to 0.29) with body surface area, trochanteric point height, with WDE shoulder, with girth of lower part of forearm, with interspinous and trochanteric pelvic sizes, with ectomorphic component of the somatotype by Carter-Heath;

the ratio of tone of arteries of different diameters - only the mean reciprocal force (r = -0.32) correlations with the tibia girth in the lower third; weak reverse (r = -0.28) relationship with the embrace of the chest on the inspiration.

Discussion

At present, the indicators of rheoencephalography are more often used in constitutional anthropology. Regardless of their age and gender characteristics, stable variations of the rheoencephalographic pattern and cerebral hemodynamics, which are interrelated with physical development indicators, can be distinguished within the population. Scientific evidence suggests that this dependence really exists [2, 5, 6, 11, 26] and is due to the action of the laws of growth and development of the organism and the general tendencies of formulation for cerebral vessels [18, 20, 33].

The evaluation of the features of the relationships of rheoencephalographic indices with the anthropo-somatotypological parameters of the body in the studied mesomorphic somatotype is interesting from the positions that they have compared with other somatotypes the lowered level of the ET-1 vasoconstrictor [12], the high level of the calculated index of vascular resistance [11], a greater gap of both carotid arteries [19], which will undoubtedly have a constitutional specificity of their qualitative and quantitative characteristics.

In analyzing the peculiarities of reliable correlations of cerebral circulation with anthropometric and somatotypological parameters of the body of practically healthy young men from Podillia with mesomorphic somatotype, we established the following *multiple correlations*: the direct mean power (r = 0.36 to 0.38) correlations of the basal impedance relations with the TSFF indices for lower extremity, endomorphic component of somatotype and fat component of body weight by Matiegka method; direct, mostly average strength (r = 0.30 to 0.40), correlations of the rising part of the rheogram and time of rapid blood filling with all total and longitudinal body sizes, WDE indexes of the upper extremity, muscular mass component of the body by the Matiegka method and bone component mass of the body using the Matiegka method (only for fast blood transfusion time), and also the direct mean (r = 0.31 to 0.37) and weak strength (r = 0.26 in all cases) correlations of the time of slow blood filling with most longitudinal body sizes; reverse, mostly average strength (r = -0.30 to -0.44), correlations of the dicrotic index with all total, most of the longitudinal body dimensions, most of the girth indices of the limbs, muscle and bone components of the body mass using the Matiegka and muscular by the AIN method, as well as direct, mostly average strength (r = 0.30 to 0.47) correlations of tone indices of all arteries, tone of arteries of large caliber and tone of arteries of medium and small caliber with most longitudinal body sizes. Attention is drawn to the lack of reliable correlations of only the amplitude indicators with total body sizes.

A quantitative analysis of correlations of cerebral circulation with anthropometric and somatotypological parameters of the body of practically healthy young men of Podillia of the mesomorphic somatotype revealed the following distribution among the correlations of the *amplitude, time and derivative indices of the rheoencephalogram*: 22 out of 285 possible (7.7%) with *amplitude indices* (of which, 2.5% direct average strength, 1.1% direct weak strength, 0.6% reverse average strength, 3.5% reverse weak strength); 51 out of 285 possible (17.9%) with *time indicators* (of which, 10.5% of direct average strength, 6.8% of direct weak strength, 0.6% of inverse weaknesses); 64 of the 456 possible (14.0%) with *derivatives indicators* (of which 4.6% of direct mean strength, 2.4% of direct weak strength, 3.7% of reciprocal average strength, 3.3% of reversible weak power).

Quantitative analysis of the correlations of cerebral blood flow with anthropometric and somatotypological parameters of the body of practically healthy young men of Podillia of the mesomorphic somatotype revealed the following distribution among the *anthropo-somatotypological parameters*: with amplitude data - *cephalometric indices* (4 - 11.4% of the total number of these indicators; all inverse weak strengths); *longitudinal body dimensions* (2 - 8.0% of the total number of these indicators; of which 4.0% direct average strength; 4.0% direct weak strength); *WDE* (1 - 5.0% of the total number of indicators; all inverse weak force); the *diameters of the body* (5 - 14.3% of these indicators; of which, 2.9% of direct medium strength; 2.9% weaker direct force; 2.9% reversible medium strength; 5.7% reverse weak force); *circumferential body dimensions* (2 - 2.7% of the total number of these indicators; of which, 1.3% of reciprocal average strength; 1.3% of reverse weak strength); *TSFF* (4 - 8.9% of the total number of indicators; of which 6.7% of direct average strength; 2.2% of direct weak strength); *components of somatotype* (2 - 13.3% of the total number of these indicators; of which 6.7% of direct average strength; 6.7% of inverse weak strength); *indicators of the component composition of the body mass* (2 - 10.0% of the total number of these indicators; of which 5.0% of direct average strength; 5.0% of inverse weak strength). With time indicators - *cephalometric indices* (5 - 14.3% of the total

number of indicators; of which 5.7% of direct average strength; 8.6% of direct weak strength); *total body sizes* (8 - 53.3% of the total number of these indicators; of which 46.7% of direct average strength; 6.7% of direct weak strength); *longitudinal body dimensions* (13 - 52.0% of the total number of these indicators; of which 32.0% of direct average strength; 20.0% of direct weak strength); *WDE* (3 - 15.0% of the total number of indicators; of which 5.0% of direct average strength; 10.0% of direct weak strength); *body diameters* (2 - 5.7% of the total number of indicators; all direct weak strengths); *girth sizes of the body* (14 - 18.7% of the total number of these indicators; of which 13.4% of direct average strength; 5.3% of direct weak strength); *TSFF* (1 - 2.2% of the total number of indicators; all reverse weak strengths); *components of the somatotype* (1 - 6.7% of the total number of these indicators; all reverse weak strengths); *indicators of the body composition component* (4 - 20.0% of the total number of indicators; of which 10.0% of direct average strength; 10.0% of direct weak strength). With derivative indicators - *cephalometric indices* (2 - 4.2% of the total number of these indicators; all reverse weak strengths); *total body sizes* (7 - 29.2% of the total number of these indicators; of which 12.5% of direct average strength; 4.2% of direct weak strength; 12.5% of reciprocal average strength); *longitudinal body sizes* (18 - 45.0% of these indicators; of which, 25.0% of direct medium strength;7.5% weak direct power; 10.0% reversible medium strength; 2.5% reverse weak force); *WDE* (4 - 12.5% of the total number of indicators; of which 3.1% of direct weak strength; 6.3% of reciprocal average strength; 3.1% of reciprocal weak strength); *body diameters* (6 - 10.7% of the total number of these indicators; of which 3.6% of direct weak strength; 1.8% of reciprocal average strength; 5.4% of inverse weak force); *girth body sizes* (20 - 16.7% of these indicators; of which, 5.8% of direct medium strength; 1.7% weak direct force; 4.2% reversible medium strength; 5.0% reverse weak force); *TSFF* (1 - 1.4% of the total number of indicators; all direct weak strengths); components of the somatotype (1 - 4.2% of the total number of indicators; all direct weak strengths); *components of body mass index* (5 - 15.6% of the total number of these indicators; of which 3.1% of direct average strength; 6.3% of reciprocal average strength; 6.3% of reciprocal weak strength).

In our previous studies in practically healthy girls, of mesomorphic somatotype [13] found that among the amplitude indices, the largest number, mostly direct, correlations were established between the amplitude of the systolic wave and rapid blood filling with all total, most of the longitudinal body dimensions, with most girth of limbs and muscular body mass component by Matiegka method; among the time - between the time of rapid blood filling and most of the longitudinal dimensions of the body, the ectomorphic component of the somatotype and the muscular component of the body mass using the Matiegka method; and among the derivatives of the rheoencephalogram - mainly direct relationships between the average speed of fast and slow blood flow and the majority of the limbs girth and the muscular component of the body mass using the Matiegka method, as well as, most of the reciprocal links, between the dicrotic index and all total, most longitudinal body dimensions, half the trunk diameters and muscle and bone mass components of the body using the Matiegka method.

Thus, the peculiarities of the relationships between rheoencephalographic indices and anthropometric indices in healthy domestic samples are an important diagnostic criterion and a marker of pathological states from the cerebral vessels in the studied somatotype. This allows us to establish not only the diagnosis of developed circulatory changes, but also to identify the early and subclinical manifestations of them in a tangent to each constitutional type.

Conclusions

1. In practically healthy young men of mesomorphic somatotype, among all groups of indicators of cerebral circulation, the greatest number of reliable correlations with anthropometric and somatotypological indicators were established for temporal indices - with total (53.3%), longitudinal body dimensions (52.0%), indicators of the component composition of body mass (20.0%), circumflex body size (18.7%), distal epiphysis widths of long limb bones (15.0%), and cephalometric indices (14.3%).

2. For the amplitude parameters, the greatest number of reliable correlations was established with body diameters (14.3%), somatotype components (13.3%), cephalometric indices (11.4%), and components of body composition (10.0%); and for derivative indicators - with longitudinal body dimensions (45.0%), body total dimensions (29.2%), body sizes (16.7%), body composition components (15.6%), width distal epiphyses of long limb bones (12.5%) and diameters of the body (10.7%).

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ОСОБЛИВОСТІ ЗВ'ЯЗКІВ ПОКАЗНИКІВ ЦЕРЕБРАЛЬНОГО КРОВООБІГУ З АНТРОПО-СОМАТОТИПОЛОГІЧНИМИ ПАРАМЕТРАМИ ТІЛА ПРАКТИЧНО ЗДОРОВИХ ЮНАКІВ МЕЗОМОРФНОГО СОМАТОТИПУ

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Особливості зв'язків реоенцефалографічних показників з антропометричними показниками у здорових досліджуваних

вітчизняної вибірки є важливим діагностичним критерієм та маркером патологічних станів з боку мозкових судин у досліджуваних певного соматотипу. Мета роботи - встановити особливості кореляцій показників церебрального кровообігу з конституціональними параметрами тіла практично здорових юнаків Поділля мезоморфного соматотипу. На базі науково-дослідного центру Вінницького національного медичного університету ім. М. І. Пирогова проведені комплексні дослідження 62 практично здорових міських юнаків мезоморфного соматотипу, у третьому поколінні мешканців Подільського регіону України. Усім їм проведено реоенцефалографію за допомогою комп'ютерного діагностичного комплексу; антропометричне дослідження за схемою В. В. Бунака; краніометрію; визначення компонентів і типу соматотипу за методикою J. Carter і B. Heath та показників компонентного складу маси тіла за методикою J. Matiegka та Американського інституту харчування. Аналіз кореляцій проводили з використанням методу Пірсона в ліцензійному статистичному пакеті "Statistica 6.1". У практично здорових юнаків мезоморфного соматотипу встановлені наступні множинні зв'язки показників церебрального кровообігу з конституціональними параметрами тіла: прямі середньої сили (r= від 0,36 до 0,38) зв'язки базового імпедансу з показниками товщини шкірно-жирових складок на нижній кінцівці, ендоморфним компонентом соматотипу та жировим компонентом маси тіла за методом Матейко; прямі, переважно середньої сили (r= від 0,30 до 0,40), зв'язки часу висхідної частини реограми та часу швидкого кровонаповнення з усіма тотальними й поздовжніми розмірами тіла, показниками ширини дистальних епіфізів верхньої кінцівки, м'язовим компонентом маси тіла за методом Матейко та кістковим компонентом маси тіла за методом Матейко (лише для часу швидкого кровонаповнення), а також прямі середньої (r= від 0,31 до 0,37) й слабкої сили (r= 0,26 в усіх випадках) зв'язки часу повільного кровонаповнення з більшістю поздовжніх розмірів тіла; зворотні, переважно середньої сили (r= від -0,30 до -0,44), зв'язки дикротичного індексу з усіма тотальними, більшістю поздовжніх розмірів тіла, більшістю показників обхватів кінцівок, м'язовим і кістковим компонентами маси тіла за методом Матейко й м'язовим за методом за методом Американського інституту харчування, а також прямі, переважно середньої сили (r= від 0,30 до 0,47), зв'язки показників тонусу всіх артерій, тонусу артерій великого діаметру й тонусу артерій середнього та мілкого діаметру з більшістю поздовжніх розмірів тіла. Привертає увагу відсутність достовірних кореляцій лише амплітудних показників із тотальними розмірами тіла. При аналізі кореляцій показників реоенцефалогами з конституціональними параметрами тіла у практично здорових юнаків мезоморфного соматотипу серед усіх груп показників церебрального кровообігу для часових показників встановлено найбільшу кількість достовірних зв'язків, переважно з тотальними розмірами тіла (53,3 %, тут і в подальшому від загальної кількості даних показників), поздовжніми розмірами тіла (52,0 %), показниками компонентного складу маси тіла (20,0 %), обхватними розмірами тіла (18,7 %), показниками ширини дистальних епіфізів довгих трубчастих кісток кінцівок (15,0 %) та кефалометричними показниками (14,3 %). Для амплітудних показників встановлено найбільший відсоток зв'язків із діаметрами тіла (14,3 %), компонентами соматотипу (13,3 %), кефалометричними показниками (11,4 %) та показниками компонентного складу маси тіла (10,0 %); а для похідних показників - із поздовжніми розмірами тіла (45,0 %), тотальними розмірами тіла (29,2 %), обхватними розмірами тіла (16,7 %), показниками компонентного складу маси тіла (15,6 %), показниками ширини дистальних епіфізів довгих трубчастих кісток кінцівок (12,5 %) і діаметрами тіла (10,7 %).

Ключові слова: *кореляції, реоенцефалографія, антропометрія, мезоморфний соматотип, практично здорові юнаки.*

ОСОБЕННОСТИ СВЯЗЕЙ ПОКАЗАТЕЛЕЙ МОЗГОВОГО КРОВООБРАЩЕНИЯ С АНТРОПО-СОМАТОТИПОЛОГИЧЕСКИМИ ПАРАМЕТРАМИ ТЕЛА ПРАКТИЧЕСКИ ЗДОРОВЫХ ЮНОШЕЙ МЕЗОМОРФНОГО СОМАТОТИПА

Даценко Г. В., Шаюк А. В., Дзевульская И. В., Киселёва Т.М., Кириченко В. И.

Особенности связей реоэнцефалографических показателей с антропометрическими показателями у здоровых испытуемых отечественной выборки является важным диагностическим критерием и маркером патологических состояний со стороны мозговых сосудов у исследуемых определенного соматотипа. Цель работы - установить особенности коррелляций показателей мозгового кровообращения с конституциональными параметрами тела практически здоровых юношей Подолья мезоморфного соматотипа. На базе научно-исследовательского центра Винницкого национального медицинского университета им. Н. И. Пирогова проведены комплексные исследования 62 практически здоровых городских юношей мезоморфного соматотипа, в третьем поколении жителей Подольского региона Украины. Всем им проведено реоэнцефалографию с помощью компьютерного диагностического комплекса; антропометрическое исследования по схеме В. В. Бунака; краниометрию; определения компонентов и типа соматотипа по методике J. Carter и B. Heath и показателей компонентного состава массы тела по методике J. Matiegka и Американского института питания. Анализ корреляций проводили с использованием метода Пирсона в лицензионном статистическом пакете "Statistica 6.1". У практически здоровых юношей мезоморфного соматотипа установлены следующие множественные связи показателей мозгового кровообращения с конституциональными параметрами тела: прямые средней силы (r = от 0,36 до 0,38) связи базового импеданса с показателями толщины кожно-жировых складок на нижней конечности, эндоморфным компонентом соматотипа и жировым компонентом массы тела по методу Матейко; прямые, преимущественно средней силы (r = от 0,30 до 0,40), связи времени восходящей части реограммы и времени быстрого кровенаполнения со всеми тотальными и продольными размерами тела, показателями ширины дистальных эпифизов верхней конечности, мышечным компонентом массы тела по методу Матейко и костным компонентом массы тела по методу Матейко (только для времени быстрого кровенаполнения), а также прямые средней (r = от 0,31 до 0,37) и слабой силы (r = 0,26 во всех случаях) связи времени медленного кровенаполнения с большинством продольных размеров тела; обратные, преимущественно средней силы (r = от -0,30 до -0,44), связи дикротического индекса со всеми тотальными, большинством продольных размеров тела, большинством показателей обхватов конечностей, мышечным и костным компонентами массы тела по методу Матейко и мышечным по методу по методу Американского института питания, а также и прямые, преимущественно средней силы (r = от 0,30 до 0,47), связи показателей тонуса всех артерий, тонуса крупных артерий и тонуса артерий среднего и мелкого калибра с большинством продольных размеров тела. Привлекает внимание отсутствие достоверных корреляций только

амплитудных показателей с тотальными размерами тела. При анализе корреляций показателей реоэнцефалограммы с конституциональными параметрами тела у практически здоровых юношей мезоморфного соматотипа всех групп показателей мозгового кровообращения для временных показателей установлено наибольшее количество достоверных связей, преимущественно с тотальными размерами тела (53,3%, здесь и в дальнейшем от общего количества данных показателей), продольными размерами тела (52,0%), показателями компонентного состава массы тела (20,0%), обхватными размерами тела (18,7%), показателями ширины дистальных эпифизов длинных трубчатых костей конечностей (15,0%) и кефалометрическими показателям (14,3%). Для амплитудных показателей установлен самый большой процент связей с диаметрами тела (14,3%), компонентами соматотипа (13,3%), кефалометрическими показателям (11,4%) и показателями компонентного состава массы тела (10,0%); а для производных показателей - с продольными размерами тела (45,0%), тотальными размерами тела (29,2%), обхватными размерами тела (16,7%), показателями компонентного состава массы тела (15,6%), показателями ширины дистальных эпифизов длинных трубчатых костей конечностей (12,5%) и диаметрами тела (10,7%).

Ключевые слова: *корреляции, реоэнцефалография, антропометрия, мезоморфный соматотип, практически здоровые юноши.*