ISSN 1817-7883 eISSN 2522-9354

DOI: 10.31393/reports-vnmedical-2024-28(4)-03
UDC: 616.514-037:572.087+612-071

PECULIARITIES OF SOMATOTYPE COMPONENTS AND INDICATORS OF THE COMPONENT COMPOSITION OF BODY WEIGHT IN UKRAINIAN MEN AND WOMEN WITH VARIOUS FORMS OF URTICARIA

Aladwan A. M. A., Dmytrenko S. V., Bashynska O. I., Demyanenko L. P., Shpacova N. A., Gunas I. V.
National Pirogov Memorial Medical University, Vinnytsya (Pyrogov street, 56, Vinnytsya, Ukraine, 21018)

Responsible for correspondence:
e-mail: *amjad_aladwan@yahoo.com*

Received: August, 28, 2024; Accepted: September, 30, 2024

Annotation. *The study of the relationship between urticaria and somatotype is relevant, since the peculiarities of body structure can play an important role in the susceptibility to this disease and influence its course and severity of symptoms. The study of such correlations can help in the improvement of approaches to diagnosis and individualization of treatment, taking into account the anthropometric characteristics of patients. This can not only improve treatment outcomes, but also reduce recurrence rates and improve the quality of life of patients with urticaria. The purpose of the work is to establish the peculiarities and gender differences of the components of the somatotype, the frequency of the distribution of somatotypes according to the Heath-Carter method, and indicators of the component composition of body weight in Ukrainian men and women with acute and chronic urticaria of a mild and severe course. The components of the somatotype, the frequency of the distribution of somatotypes according to the Heath-Carter method, and indicators of the component composition of body weight were determined in 40 Ukrainian men and 40 young Ukrainian women with acute (AU) and chronic (CU) urticaria of mild (MU) and severe (SU) of the course. As a control group, the corresponding indicators of 82 practically healthy men and 101 practically healthy women of a similar age group were used, which were taken from the data bank of the research center of the National Pirogov Memorial Medical University, Vinnytsya. Statistical analysis was carried out in the license package "Statistica 6.0" using non-parametric estimation methods. When comparing somatotype components, the frequency of distribution of somatotypes according to the Heath-Carter method, and indicators of the component composition of body weight between patients with urticaria and practically healthy Ukrainian men or women, the following reliable or trends of differences were established: in all groups of sick men and women, higher values of muscle body weight component according to Matiegka (in men by 17.21-34.60 %, in women by 19.99-52.31 %) and the American Institute of Nutrition (in men by 20.33-31.86 %, in women by 23.81-75.20 %); only in sick men - higher values of the mesomorphic component of the somatotype (in patients with AU/SU and CU/MU by 15.70-27.96 %) and the bone component of body mass (in patients with AU/SU by 11.26 %), as well as lower values of the ectomorphic component somatotype (in patients with AU/MU, AU/SU and CU/MU by 31.25-41.80 %); only in female patients are higher values of the mesomorphic component of the somatotype (in patients with AU/MU and CU/MU by 56.00-58.34 %), the bone component of body mass (in patients with AU/MU by 8.80 %), the frequency of mesomorphic (in patients with AU/MU by 37.30 %) and the frequency of endo-mesomorphic somatotypes (in patients with CU/SU by 28.20 %), as well as lower values of the ectomorphic component of the somatotype (in patients with AU/MU, CU/MU and CU/SU by 39.88-46.90 %) and the fat component of body weight (in patients with AU/SU by 17.51 %). Only isolated differences were found when comparing these indicators between men and women with urticaria (more pronounced). The following manifestations of sexual dimorphism were established between the respective groups of male and female patients with urticaria: significantly higher values or a tendency towards higher values in male patients of the mesomorphic component of the somatotype (in patients with AU/SU by 26.57 %), the muscle component of body weight according to Matiegka and AIN (in patients with AU/SU CU/SU by 22.27-56.65 %), bone component of body weight (in milestone groups of patients by 18.98-59.65 %), fat component of body weight (in patients with AU/SU by 22.01 %), frequency of mesomorphic somatotype (50.00 % in patients with CU/SU); as well as trends towards higher values in women with CU/SU of the endo-mesomorphic frequency (by 40.00 %) and in AU/SU patients with the frequency of the average intermediate somatotype (by 30.00 %).*

Keywords: s*kin diseases, urticaria, Ukrainian men and women, components of somatotype, frequency of distribution of somatotypes, indicators of component composition of body weight, gender differences.*

Introduction

Urticaria is one of the most common skin diseases, which is manifested by itchy urticarial rashes. The disease is divided into acute and chronic forms, where the chronic form lasts more than six weeks and usually has an unknown etiology [9, 24]. The pathogenesis of chronic urticaria is complex and involves the activation of mast cells and basophils, which leads to the release of histamine and other inflammatory mediators, which cause itching and the formation of rashes [9].

The prevalence of urticaria varies by region. In a study from Saudi Arabia, the prevalence of urticaria was noted at the level of 22 % among the surveyed patients, and women had it much more often [5]. In Colombia, according to the results of a study in the city of Cartagena, the disease was detected in 20 % of cases among the general population [17]. In Korea, chronic urticaria occurs in 0.5 % of the population, with a higher frequency among women and middle-aged patients [13].

Urticaria has a significant negative impact on patients' quality of life, which includes limitations in daily activities, psychological stress, and emotional stress [3, 22]. Patients with chronic urticaria face a decrease in physical and

emotional quality of life due to constant itching and discomfort, which causes sleep disorders and depression [18]. Thus, a study among patients from Brazil showed that more than 60 % of respondents felt a significant emotional burden due to urticaria symptoms [3].

The economic costs of treating urticaria are substantial and include both direct costs of treatment and indirect losses due to reduced productivity. In the United States, the costs associated with urticaria include increased physician visits, medical examinations, and drug treatments, which together create a substantial burden on the health care system [22]. On average, patients with urticaria spend twice as much on treatment as people without this disease [18].

Among the possible complications of urticaria are chronic inflammation of the skin, which can cause the development of secondary infections, as well as an increased risk of developing other allergic reactions, including anaphylaxis [20, 23]. The guidelines of the European Academy of Allergy and Clinical Immunology (EAACI) recommend a holistic treatment approach that includes antihistamines as well as biological therapy for severe cases refractory to conventional treatment [24].

In general, urticaria is a disease that significantly affects the quality of life of patients and creates significant economic costs, which emphasizes the need to improve methods of diagnosis, treatment and psychological support for patients with this pathology.

The *purpose* of the study - to establish the peculiarities and sex differences of the components of the somatotype, the frequency of the distribution of somatotypes according to the Heath-Carter method and indicators of the component composition of body weight in Ukrainian men and women with acute and chronic urticaria of a mild and severe course.

Materials and methods

On the basis of the Military Medical Clinical Center of the Central Region and the Department of Skin and Venereal Diseases with a postgraduate course at the National Pirogov Memorial Medical University, Vinnytsya, a clinical-laboratory and anthropo-somatotypological (according to the schemes of V. V. Bunak [10]) examination of 40 Ukrainian women was carried out and 40 young Ukrainian men (25-44 years according to the age periodization of WHO, 2015) patients with acute and chronic urticaria of mild and severe course. The study was conducted at the National Pirogov Memorial Medical University, Vinnytsya "The latest aspects of diagnosis, course, development and implementation in practice modern methods of chronic dermatoses and STDs complex treatment", state registration No. 0119U000712. Committee on Bioethics of National Pirogov Memorial Medical University, Vinnytsya (№ 11 From 23.12.2021) found that the studies do not contradict the basic bioethical standards of the Declaration of Helsinki, the Council of Europe Convention on Human Rights and Biomedicine (1977), the relevant WHO regulations and laws of Ukraine.

Assessment of somatotype was carried out according to the Heath-Carter scheme [4], according to which three primary components of the physique were determined: 1) endomorphic (denoted as FX), which reflects the degree of development of adipose tissue; 2) mesomorphic (denoted as MX), which characterizes the relative development of muscles and bone components of the body; 3) ectomorphic (denoted as LX), informs about the relative elongation of the human body and is a connecting bridge between endomorphic and mesomorphic body structure characteristics.

The absolute amount of fat, bone and muscle components of body weight was calculated according to the Matiegka formulas [15]. In addition, the absolute amount of muscle tissue was determined according to the American Institute of Nutrition (AIN) [8].

As a control group, indicators of components of somatotype, frequency of types of somatotype and indicators of component composition of body weight of 82 practically healthy Ukrainian men and 101 practically healthy young Ukrainian women were used, which were taken from the data bank of the research center of the National Pirogov Memorial Medical University, Vinnytsya.

Statistical analysis of components of somatotype, frequency of types of somatotype and indicators of component composition of body weight was carried out in the license package "Statistica 6.0" using non-parametric methods of assessment. For absolute quantitative indicators, averages for each feature and standard square deviations were determined, the reliability of the difference between values was determined using the Mann-Whitney U-test. The reliability of the difference in values between independent frequency indicators was determined by the formula of Weber E.:

$$t = \frac{P_1 - P_2}{\sqrt{\frac{N_1P_1 + N_2P_2}{N_1 + N_2} \times \left(100 - \frac{N_1P_1 + N_2P_2}{N_1 + N_2}\right) \times \frac{N_1 + N_2}{N_1N_2}}},$$

where, P_1 and P_2 - percentages with which this or that indicator met;

N_1 and N_2 - the number of indicators in the studied groups.

Results. Discussion

No significant differences or trends in the *value of the endomorphic component of the somatotype* were found between diseased and healthy men or women (Fig. 1A). Also, no reliable or trend differences in the value of this indicator were established between sick men or between sick women (see Fig. 1A). No significant differences or trends were found when comparing the value of the endomorphic component of the somatotype between the respective groups of male and female patients (see Fig. 1A).

The value of the mesomorphic component of the

somatotype is significantly higher or tends to higher values in men with AU/SU (5.425±1.556 points, p<0.05) and CU/MU (6.000±1.333 points, p=0.060) compared to healthy men (4.689±1.332 points) (Fig. 1B). The value of this indicator is significantly higher in women with AU/MU (5.955±2.297 points, p<0.01) and CU/MU (5.867±2.953 points, p<0.05) compared to healthy women (3.761±1.463 points) (see Fig. 1B). When comparing the value of the mesomorphic component of the somatotype between the corresponding groups of male and female patients, significantly higher values (p<0.05) were established in male patients with AU/SU (4.286±1.150 points in female patients, respectively) (see Fig. 1B).

The value of the ectomorphic component of the somatotype is significantly lower or tends to lower values in men with AU/MU (1.497±1.208 points, p<0.05), AU/SU (1.462±1.231 points, p<0.05) and CU/MU (1.727±1.112 points, p=0.079) compared to healthy men (2.512±1.253 points) (Fig. 1C). The value of this indicator is significantly lower in women with AU/MU (1.486±1.910 points, p<0.05), CU/MU (1.454±1.806 points, p<0.05) and CU/SU (1.646±1.168 points, p <0.05) compared to healthy women (2.738±1.374 points) (see Fig. 1C). No significant differences or trends were found when comparing the value of the ectomorphic component of the somatotype between the respective groups of male and female patients (see Fig. 1C).

The value of the muscle component of the body weight according to Matiegka is significantly higher in male patients with AU/MU (46.06±16.92 kg, p<0.05), AU/SU (42.58±6.97 kg, p<0.001), CU/MU (40.11±4.90 kg, p<0.01) and CU/SU (43.21±8.75 kg, p<0.01) compared to healthy men (34.22±5.88 kg) (Fig. 2A). The value of this indicator is significantly higher in women with AU/MU (41.90±7.17 kg, p<0.001), AU/SU (33.01±4.55 kg, p<0.001), CU/MU (40.92±8.83 kg, p<0.01) and CU/SU (35.34±6.88 kg, p<0.01) compared to healthy by women (27.51±4.49 kg) (see Fig. 2A). In addition, the value of the muscle component of body mass according to Matiegka is significantly greater (p<0.01) in women with AU/MU compared to women with AU/SU (see Fig. 2A). When comparing the value of the muscle component of body weight according to Matiegka between the respective groups of male and female patients, a significantly higher value was established in male patients with AU/SU (p<0.01) and a pronounced tendency towards higher values in male patients with CU/SU (p=0.059) (see Fig. 2A).

The value of the muscle component of body weight according to the American Institute of Nutrition (AIN) is significantly higher in male patients with AU/MU (47.73±14.39 kg, p<0.05), AU/SU (50.99±12.01 kg, p<0.001), CU/MU (46.53±7.77 kg, p<0.01) and CU/SU (48.80±14.19 kg, p<0.05) compared to healthy men (38.67±7.20 kg) (Fig. 2B). The value of this indicator is significantly higher in women with AU/MU (46.06±11.94 kg, p<0.001), AU/SU (32.55±5.80 kg, p<0.01), CU/MU

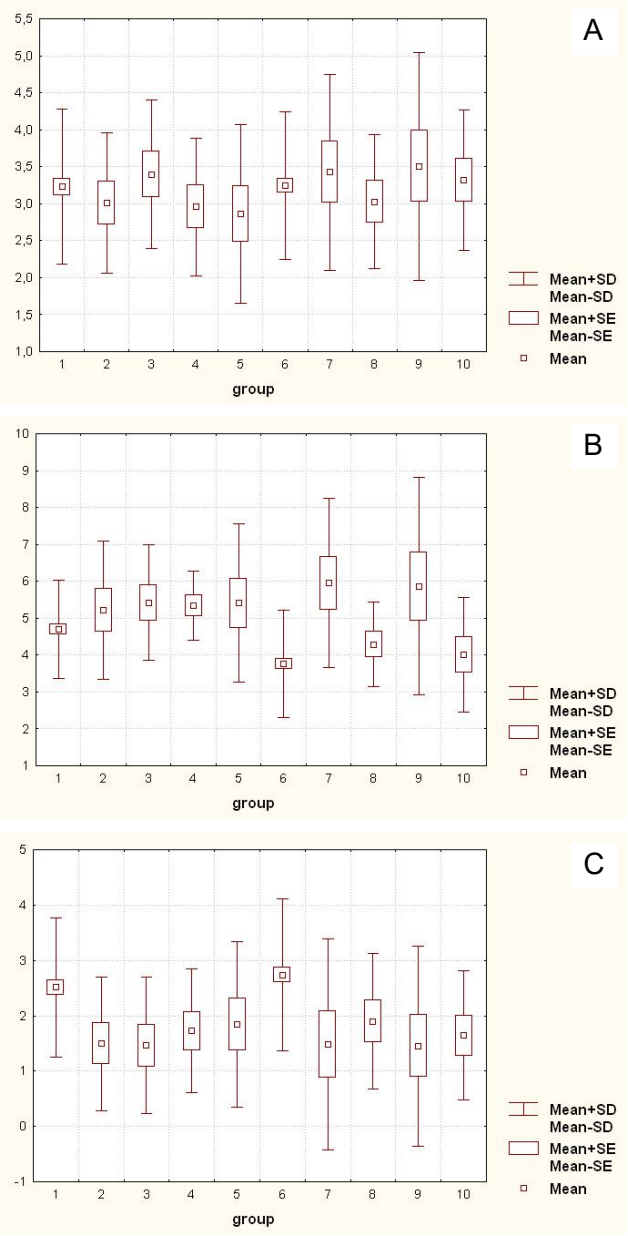

Fig. 1. Features of the components of the somatotype in healthy men and women with urticaria (points). A - the value of the endomorphic component of the somatotype; B - the value of the mesomorphic component of the somatotype; C - the value of the ectomorphic component of the somatotype. Notes: in this and the next figure, 1 - healthy men; 2 - men with AU/MU; 3 - men with AU/SU; 4 - men with CU/MU; 5 - men with CU/SU; 6 - healthy women; 7 - women with AU/MU; 8 - women with AU/SU; 9 - women with CU/MU; 10 - women with CU/SU; group - corresponding groups of examined men and women; Mean - average value; Mean±SE - mean value ± error of the mean; Mean±SD - average value ± standard deviation.

(43.66±11.27 kg, p<0.001) and CU/SU (34.97±7.24 kg, p<0.001) compared to healthy women (26.29±5.75 kg) (see Fig. 2B). In addition, the value of the muscle component of body weight according to AIN is significantly greater (p<0.01)

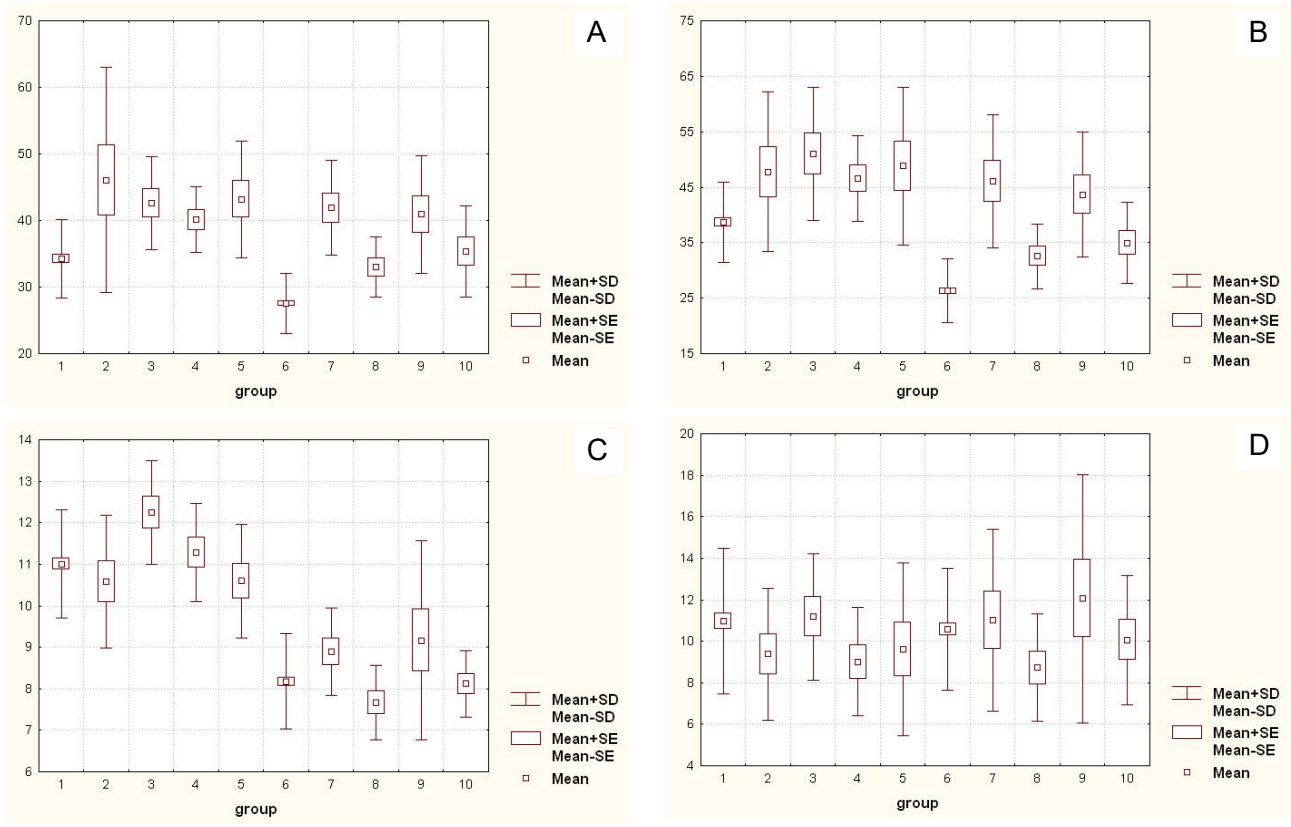

Fig. 2. Features of indicators of the component composition of body weight in healthy men and women with urticaria (kg). A - the value of the muscle component of body weight according to Matiegka; B - the value of the muscle component of body weight according to the American Institute of Nutrition; C - the value of the bone component of body mass according to Matiegka; D - the value of the fat component of body weight according to Matiegka.

in women with AU/MU compared to women with AU/SU (see Fig. 2B). When comparing the value of the muscle component of body weight according to AIN between the respective groups of male and female patients, significantly higher values were established in male patients with AU/SU ($p<0.01$) and CU/SU ($p<0.05$) (see Fig. 2B).

The value of the bone component of body mass according to Matiegka is significantly greater only in men with AU/SU (12.25±1.25 kg, $p<0.01$) compared to healthy men (11.01±1.30 kg) (Fig. 2C). The value of this indicator is significantly higher only in women with AU/MU (8.892±1.047 kg, $p<0.05$) compared to healthy women (8.173±1.151 kg) (Fig. 2C). In addition, the value of the bone component of body mass according to Matiegka is significantly higher ($p<0.05$ in all cases) in men with AU/SU compared to men with AU/MU (10.58±1.61 kg), in men with AU/SU compared with men suffering from CU/SU (10.60±1.37 kg), as well as in women suffering from AU/MU compared to women suffering from AU/SU (7.673±0.899 kg) (see Fig. 2C). When comparing the value of the bone component of body mass according to Matiegka between the respective groups of male and female patients, significantly higher values were established in male patients with AU/MU ($p<0.01$), AU/SU ($p<0.001$), CU/MU (11.28±1.18 kg, respectively in women 9.166±2.409 kg, $p<0.01$) and CU/SU (respectively in women 8.117±0.796 kg, $p<0.001$) (see Fig. 2C).

The value of the fat component of body weight according to Matiegka only in women with AU/SU (8.719±2.588 kg) has a tendency to lower values ($p=0.061$) compared to healthy women (10.57±2.94 kg) (Fig. 2D). When comparing the value of the fat component of body weight according to Matiegka between the respective groups of male and female patients, only a pronounced tendency to higher values ($p=0.059$) was established in male patients with AU/SU (11.18±3.05 kg) (see Fig. 2D).

When comparing the *frequency of distribution of somatotypes* between patients with urticaria and healthy men, as well as between patients with different forms and different courses of urticaria, no reliable differences or tendencies were established (Fig. 3). When comparing the frequency of the distribution of somatotypes between patients with urticaria and healthy women, significantly higher values ($p<0.05$ in both cases) of the frequency of the mesomorphic somatotype in patients with AU/MU (respectively 70.0 % in patients and 32.7 % in healthy women) and the frequency of endo - mesomorphic somatotype in patients with CU/SU (respectively, 50.0 % in patients and 21.8 % in healthy people) (see Fig. 3). When

comparing the frequency of the distribution of somatotypes between patients with different forms and different courses of urticaria in women, significantly higher values (p<0.05) of the frequency of the mesomorphic somatotype were established in patients with CU/MU (60.0 %) compared to patients with CU/SU (10.0 %), as well as trends towards higher values (p=0.077 and p=0.067) of the frequency of endo-mesomophic somatotype in patients with AU/SU (30.0 %) compared to patients with AU/MU (0 %) and in patients with CU/SU (50.0 %) compared to patients with CU/MU (10.0 %) (see Fig. 3). When comparing the frequency of the distribution of somatotypes between the respective groups of male and female patients, significantly higher values (p<0.05) of the frequency of the mesomorphic somatotype were established in men with CU/SU (60.0 %) compared to women with CU/SU (10.0 %), as well as trends towards higher values (p=0.067 and p=0.077) of the frequency of the endo-mesomorphic somatotype in patients with CU/SU women (50.0 %) compared to CU/SU men (10.0 %) and the frequency of the intermediate somatotype in AU/SU women (30.0 %) compared to AU/SU men (0 %) (see Fig. 3).

Thus, when comparing the components of the somatotype, the frequency of the distribution of somatotypes according to the Heath-Carter method, and indicators of the component composition of body weight *between men with urticaria or women with urticaria with practically healthy men or women*, it was established: both in sick men and in sick women, the value of the muscle component of body weight according to Matiegka is significantly higher (p<0.05-0.001) (according to in patients with AU/MU by 34.60 % and 52.31 %, in patients with AU/SU by 24.43 % and 19.99 %, in patients with CU/MU by 17.21 % and 48.75 %, in patients with CU/SU by 26.27 % and 28.46 %) and AIN (respectively in patients with AU/MU by 23.43 % and 75.20 %, in patients with AU/SU by 31.86 % and 23.81 %, in patients with CU/MU by 20.33 % and 66.07 %, in patients with CU/SU by 26.20 % and 33.02 %); in sick men, the values of the mesomorphic component of the somatotype are significantly higher (p<0.05-0.01) or have a tendency towards higher values (p=0.060) (respectively, in patients with AU/SU by 15.70 %, in patients with CU/MU by 27.96 %) and values of the bone component of body mass according to Matiegka (only in patients with AU/SU by 11.26 %), as well as significantly smaller (p<0.05) or a tendency towards smaller values (p=0.079) of the value of the ectomorphic component of the somatotype (respectively, in patients with AU/MU by 40.41 %, in patients with AU/SU by 41.80 %, in patients with CU/MU by 31.25 %); in female patients, the value of the mesomorphic component of the somatotype was significantly higher (p<0.05-0.01) (respectively, in patients with AU/MU by 58.34 %, in patients with CU/MU by 56.00 %), the value of the bone component of body mass according to Matiegka (only in patients with AU/MU by 8.80 %), the frequency of mesomorphic somatotype (in patients with AU/MU by 37.30 %), the frequencies of the endo-mesomorphic somatotype (in patients with CU/SU by 28.20 %), as well as significantly smaller (p<0.05) or a tendency towards smaller values (p=0.061) values of the ectomorphic component of the somatotype (respectively in patients with AU/MU by 45.73 %, in patients with CU/MU by 46.90 %, in patients on CU/SU by 39.88 %) and the value of the fat component of body weight according to Matiegka (only in patients with AU/SU by 17.51 %).

When comparing components of the somatotype, frequency of distribution of somatotypes according to the Heath-Carter method, and indicators of the component composition of body weight between men suffering from urticaria or women suffering from urticaria, only isolated reliable or trends of differences were established: *between men* - in patients with AU/SU the value of the bone component of body mass according to Matiegka is 15.78 % and 15.57 % higher (p<0.05, in both cases) than in patients with AU/MU and CU/SU; *among women* - in patients with AU/MU, the value of the muscle component of body weight according to Matiegka and AIN is 21.22 % and 41.51 % higher (p<0.01) than in patients with AU/SU, in patients with AU/MU the value of the bone component body weight according to Matiegka is 15.89 % higher (p<0.05) than in patients with AU/SU, in patients with CU/MU the

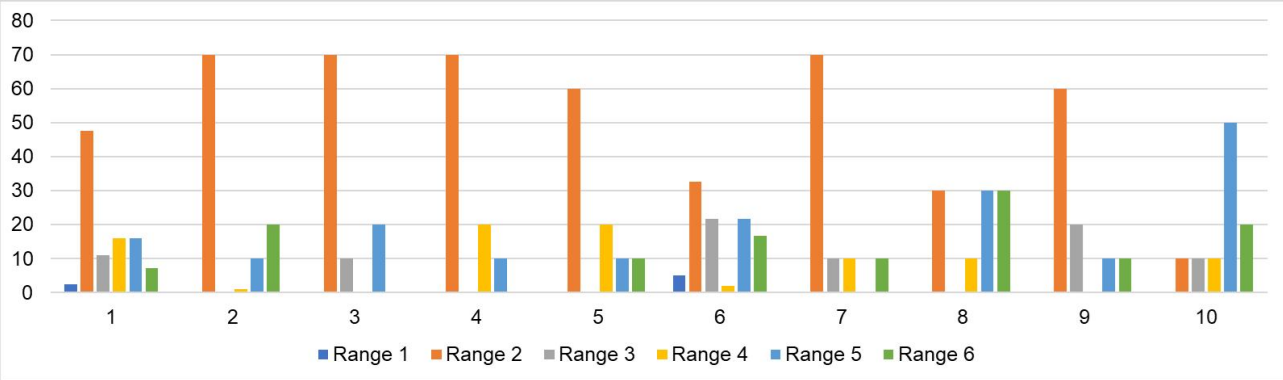

Fig. 3. Distribution of somatotypes in healthy and patients with different forms and different course of urticaria in men and women (%). In this figure: Range 1 - endomorphic somatotype; Range 2 - mesomorphic somatotype; Range 3 - ectomorphic somatotype; Range 4 - ecto-mesomorphic somatotype; Range 5 - endo-mesomorphic somatotype; Range 6 -average intermediate somatotype.

ISSN 1817-7883
eISSN 2522-9354
"Вісник Вінницького національного медичного університету", *2024, Т. 28, №4*

frequency of mesomorphic somatotype is 50.00 % higher ($p<0.05$) than in patients with CU/SU, in patients with AU/SU the frequency of endo-mesomophic somatotype is 30.00 % higher ($p=0.077$) than in patients with AU/MU, and in in patients with CU/SU is 40.00 % higher ($p=0.067$) than in patients with CU/MU.

When comparing somatotype components, the frequency of distribution of somatotypes according to the Heath-Carter method, and indicators of the component composition of body weight between the corresponding groups of male and female patients, significantly higher ($p<0.05$-0.001) or trends to higher values ($p=0.059$ in both cases) were established in *male patients*, the values of the mesomorphic component of the somatotype (by 26.57 % in patients with AU/SU), the values of the muscle component of body weight according to Matiegka and AIN (respectively by 22.48 % and 56.65 % in patients with AU/SU, by 22.27 % and 39.55 % in patients with CU/SU), the values of the bone component of body weight according to Matiegka (by 18.98 % in patients with AU/MU, by 59.65 % in patients with AU/SU, by 23.06 % in patients on CU/MU, by 30.59 % in patients with CU/SU), the value of the fat component of body weight according to Matiegka (by 22.01 % in patients with AU/SU), the frequency of mesomorphic somatotype (by 50.00 % in patients with CU/SU); as well as trends towards higher values ($p=0.067$ and $p=0.077$) of the frequency of the endo-mesomorphic somatotype (by 40.00 % in patients with CU/SU) and the frequency of the intermediate somatotype (by 30.00 % in patients with AU/SU) in *female patients*.

In modern research, the relationship between anthropometric indicators, somatotype and the risk of developing skin diseases is actively studied. In particular, A. Q. O. B. Abdel-Rahman et al. (2021) provide a thorough analysis of the possibility of predicting the risk of developing psoriasis in men of different somatotypes, based on discriminant models built taking into account anthropo-somatotypological characteristics [1]. They found that certain somatotypological indicators are significantly correlated with the probability of occurrence and course of psoriasis ($p<0.05$), which indicates the significant importance of physiological differences in the progression of this disease.

O. B. A. R. Al-Qaraleh (2020) also studied the difference in the thickness of skin-fatty folds in men with psoriasis of different degrees of severity, taking into account the somatotype [2]. His research showed that patients with more severe forms of psoriasis, as a rule, have a greater thickness of skin-fatty folds, and this indicator varies depending on the somatotype, which emphasizes the importance of anthropometric indicators in the development of this dermatosis.

In addition to psoriasis, the relationship between somatotype and acne in boys and girls was investigated by I. Gunas et al. (2016) [6]. They showed that patients with acne have peculiarities in the composition of body weight, which depend on the somatotype. This confirms the presence of individual anatomical and physiological features that may influence the occurrence and course of acne.

N. Y. Haddad and colleagues (2023) conducted a study based on correlations of dermatoscopic indices with anthropometric and somatotypological parameters of men with benign nevi [7]. It was found that certain anthropometric indicators, such as the body mass index, have a significant correlation with the parameters of nevi ($p<0.05$), which can be useful in predicting the risks of the development of skin formations.

Regarding seborrheic dermatitis, A. R. Khasawneh et al. (2020) examined the relationship between the severity of seborrheic dermatitis and anthropometric parameters in both men and women [11]. They found significant correlations between the severity of seborrheic dermatitis and the emotional impact of seborrhea with anthropo-somatotypological characteristics such as body mass index. In a further study, the same authors [12] showed that the body circumference of patients with different severity of seborrheic dermatitis varies significantly depending on the somatotype, which indicates a certain dependence of the severity of symptoms on the physiological characteristics of the body.

L. R. Mateshuk-Vatseba and I. O. Chaplyk-Chyzho (2018) analyzed constitutional differences between healthy men and women with pyoderma [14]. Their studies revealed marked constitutional differences between these groups, emphasizing that certain somatotypes may increase susceptibility to pyoderma.

Meanwhile, studies of the relationship between somatotype and hidradenitis have attracted interest among researchers such as I. M. Miller et al. (2016) [16] and J. Romani et al. (2017) [19]. In particular, a Danish study revealed an increased body mass index in patients with hidradenitis, which may be a risk factor for the development of this disease. Another study showed that high levels of body fat are more common among patients with hidradenitis, highlighting the link between body fat and the development of the disease.

In addition, Shakatira M. A. M. (2023) analyzed the relationship between alopecia and anthropometric indicators and found that certain anthropometric parameters may be important for the development of this disease [21]. This study highlights the importance of anthropometric characteristics in predicting the likelihood of alopecia.

Thus, these studies emphasize the significant influence of somatotype and anthropometric indicators on the risk of developing various skin diseases, which indicates the need to take these parameters into account in the diagnosis and forecasting of the course of skin pathologies.

Conclusion and prospects for further developments

1. When comparing components of the somatotype, frequency of distribution of somatotypes according to the Heath-Carter method, and indicators of the component

composition of body weight between patients with urticaria and practically healthy men or women, the following reliable or trends of differences were established: in all groups of sick men and women - higher values muscle components of body weight; only male patients have higher values of the mesomorphic component of the somatotype (in patients with AU/SU and CU/MU) and the bone component of body mass (in patients with AU/SU), as well as lower values of the ectomorphic component of the somatotype (in patients with AU/MU , AU/SU and CU/MU); only in sick women - higher values of the mesomorphic component of the somatotype (in patients with AU/MU and CU/MU), the bone component of body mass (in patients with AU/MU), the frequency of mesomorphic (in patients with AU/MU) and endo-mesomorphic somatotypes (in patients with CU/SU), as well as smaller values of the ectomorphic component of the somatotype (in patients with AU/MU, CU/MU and CU/SU) and the fat component of body weight (in patients with AU/SU).

2. Only a few reliable or trends of differences were established when comparing somatotype components, the frequency of distribution of somatotypes according to the Heath-Carter method, and indicators of the component composition of body weight between men with urticaria (higher values of the bone component of body weight in patients with AU/SU than in patients with AU/MU and CU/SU) or women (higher values of the muscle component of body mass in patients with AU/MU than in patients with AU/SU; of the bone component of body mass in patients with AU/MU than in patients with AU/SU; frequencies of mesomorphic somatotype in patients with CU/MU; frequencies of endo-mesomorphic somatotype in patients with AU/MU and in patients with CU/ SU than in CU/MU patients).

3. The following manifestations of sexual dimorphism of components of the somatotype, the frequency of distribution of somatotypes according to the Heath-Carter method and indicators of the component composition of body weight were established between the corresponding groups of male and female patients with urticaria: significantly higher or trends towards higher values in male patients of the mesomorphic component of the somatotype (in patients with AU/SU), muscle components of body weight (in patients with AU/SU and CU/SU), fat component of body weight (in patients with AU/SU) and frequency of mesomorphic somatotype (in patients with CU/SU); as well as trends towards higher values of the frequency of the endo-mesomorphic somatotype (in patients with CU/SU) and the frequency of the average intermediate somatotype (in patients with AU/SU) in female patients.

Further studies of the Ukrainian population of other age groups will allow to expand the individual approach to the diagnosis and prevention of urticaria.

References

[1] Abdel-Rahman, A. Q. O. B., Dmytrenko, S. V., Kyrychenko, V. I., Datsenko, G. V., & Gunas, V. I. (2021). Discriminant models of the possibility of occurrence and course of psoriasis in men of the general group and different somatotypes depending on the characteristics of anthropo-somatotypological indicators. *Reports of Morphology,* 27(3), 67-72. doi: 10.31393/morphology-journal-2021-27(3)-10

[2] Al-Qaraleh, O. B. A. R. (2020). Skinfold thickness in men with mild and severe psoriasis without and taking into account the somatotype. *Biomedical and Biosocial Anthropology,* (40), 48-53. doi: 10.31393/bba40-2020-08

[3] Balp, M. M., Lopes da Silva, N., Vietri, J., Tian, H., & Ensina, L. F. (2017). The burden of chronic urticaria from Brazilian patients' perspective. *Dermatology and therapy,* (7), 535-545. doi: 10.1007/s13555-017-0191-4

[4] Carter, J. L., & Heath B. H. (1990). Somatotyping - development and applications. Cambridge University Press.

[5] Fatani, M. I., Bahashwan, E., Alfif, K. A., Khan, A. S., Cheikh, M. M., & Kalo, B. B. (2015). The prevalence of urticaria and its clinical patterns in Makkah, Saudi Arabia. *J Health Sci,* 5(3A), 6-9. doi: 10.5923/s.health.201501.03

[6] Gunas, I., Majewski, O., & Makarchuk, I. (2016). Features of somatotype and body weight component composition in patients with acne: boys and girls of Podillya region of Ukraine. *Current Issues in Pharmacy and Medical Sciences,* 29(2), 97-100. doi: 10.1515/cipms-2016-0020

[7] Haddad, N. Y., Chaika, H. V., Kyrychenko, I. M., Shapoval, O. M., & Dronenko, V. G. (2023). Correlations of the dermatoscopic index with anthropometric and somatotypological parameters of men with benign nevi. *Reports of Morphology,* 29(3), 5-11. doi: 10.31393/morphology-journal-2023-29(3)-01

[8] Heymsfield, S. B. (1982). Anthropometric measurement of muscle mass: revised eyuatiens for calculating bone-free arm muscle area. *Am J Clin Nutz,* 36(4), 680-690. doi: 10.1093/ajcn/36.4.680

[9] Jain, S. (2014). Pathogenesis of chronic urticaria: an overview. *Dermatology research and practice,* 2014(1), 674709. doi: 10.1155/2014/674709

[10] Kalmin, O. V., & Galkina, T. N. (2020). Медицинская антропология [Medical anthropology]. Высшее образование: Специалитет - Higher education: Specialty.

[11] Khasawneh, A. R., Dmytrenko, S. V., Kizina, I. E., Kyrychenko, Y. V., & Prokopenko, S. V. (2020). Correlations between the severity of oily skin and the emotional impact of oily skin with anthropo-somatotypological parameters of men and women with seborrheic dermatitis. *Biomedical and Biosocial Anthropology,* (41), 60-66. doi: 10.31393/bba41-2020-10

[12] Khasawneh, A. R., Serheta, I. V., Belik, N. V., Dovhan, A. O., & Zhuchenko, I. I. (2021). Girth body dimensions in men and women with seborrheic dermatitis of varying severity. *Reports of Morphology*, 27(4), 22-27. doi: 10.31393/morphology-journal-2021-27(4)-03

[13] Kim, B. R., Yang, S., Choi, J. W., Choi, C. W., & Youn, S. W. (2018). Epidemiology and comorbidities of patients with chronic urticaria in Korea: a nationwide population-based study. *The Journal of dermatology*, 45(1), 10-16. doi: 10.1111/1346-8138.14075

[14] Mateshuk-Vatseba, L. R., & Chaplyk-Chyzho, I. O. (2018). The most pronounced constitutional differences between healthy and sick with pyoderma in men or women in the western region of Ukraine. *Biomedical and Biosocial Anthropology,* (30), 20-26. doi: 10.31393/bba30-2018-03

[15] Matiegka, J. (1921). The testing of physical effeciecy. Amer J Phys Antropol, 2(3), 25-38. doi: 10.1002/ajpa.1330040302

[16] Miller, I. M., Rytgaard, H., Mogensen, U. B., Miller, E., Ring, H. C., Ellervik, C., & Jemec, G. B. (2016). Body composition and basal metabolic rate in hidradenitis suppurativa: a Danish population-based and hospital-based cross-sectional study.

Journal of the European Academy of Dermatology and Venereology, 30(6), 980-988. doi: 10.1111/jdv.13522
[17] Miranda-Machado, P. A., & Hoyos-Sanchez, B. D. L. C. (2017). Prevalence of urticaria in Cartagena, Colombia. *Revista alergia Mexico*, 64(2), 163-170. doi: 10.29262/ram.v64i2.245
[18] O'Donnell, B. F. (2014). Urticaria: impact on quality of life and economic cost. *Immunology and Allergy Clinics,* 34(1), 89-104. doi: 10.1016/j.iac.2013.09.011
[19] Romani, J., Agut-Busquet, E., Corbacho, M., Herrerias-Moreno, J., & Luelmo, J. (2017). Body fat composition in hidradenitis suppurativa: a hospital-based cross-sectional study. *International Journal of Dermatology,* 56(3), 62. doi: 10.1111/ijd.13450
[20] Sanchez-Borges, M., Capriles-Hulett, A., & Caballero-Fonseca, F. (2015). Demographic and clinical profiles in patients with acute urticaria. *Allergologia et immunopathologia,* 43(4), 409-415. doi: 10.1016/j.aller.2014.04.010
[21] Shakatira, M. A. M. (2023). Is there a relationship between alopecia and anthropometric indicators? Modern scientific view. *Reports of Vinnytsia National Medical University,* 27(2), 336-340. doi: 10.31393/reports-vnmedical-2023-27(2)-27
[22] Vietri, J., Turner, S. J., Tian, H., Isherwood, G., Balp, M. M., & Gabriel, S. (2015). Effect of chronic urticaria on US patients: analysis of the National Health and Wellness Survey. *Annals of Allergy, Asthma & Immunology,* 115(4), 306-311. doi: 10.1016/j.anai.2015.06.030
[23] Wedi, B., Wieczorek, D., Raap, U., & Kapp, A. (2014). Urticaria. *JDDG: Journal der Deutschen Dermatologischen Gesellschaft,* 12(11), 997-1009. doi: 10.1111/ddg.12441
[24] Zuberbier, T., Aberer, W., Asero, R., Abdul Latiff, A. H., Baker, D., Ballmer-Weber, B., ... & Maurer, M. (2018). The EAACI/GA²LEN/EDF/WAO guideline for the definition, classification, diagnosis and management of urticaria. *Allergy,* 73(7), 1393-1414. doi: 10.1111/all.13397

ОСОБЛИВОСТІ КОМПОНЕНТІВ СОМАТОТИПУ ТА ПОКАЗНИКІВ КОМПОНЕНТНОГО СКЛАДУ МАСИ ТІЛА В УКРАЇНСЬКИХ ЧОЛОВІКІВ І ЖІНОК, ХВОРИХ НА РІЗНІ ФОРМИ КРОПИВ'ЯНКИ

Аладван А. М. А., Дмитренко С. В., Башинська О. І., Демяненко Л. П., Шпакова Н.А., Гунас І. В.

Анотація. *Дослідження взаємозв'язку між кропив'янкою і соматотипом є актуальним, оскільки особливості будови тіла можуть відігравати важливу роль у сприйнятливості до цього захворювання та впливати на його перебіг і вираженість симптомів. Вивчення таких кореляцій може допомогти у вдосконаленні підходів до діагностики та індивідуалізації лікування, враховуючи антропометричні особливості пацієнтів. Це може не лише покращити результати лікування, але й знизити частоту рецидивів і підвищити якість життя пацієнтів з кропив'янкою. Мета роботи - встановити особливості та статеві розбіжності компонентів соматотипу, частоти розподілу соматотипів за методикою Хіт-Картер і показників компонентного складу маси тіла в українських чоловіків і жінок, хворих на гостру та хронічну кропив'янку легкого й тяжкого перебігу. Проведено визначення компонентів соматотипу, частоти розподілу соматотипів за методикою Хіт-Картер і показників компонентного складу маси тіла у 40 українських чоловіків і 40 українських жінок молодого віку, хворих на гостру (ГК) та хронічну (ХК) кропив'янку легкого (ЛП) і тяжкого (ТП) перебігу. В якості контрольної групи використані відповідні показники 82 практично здорових чоловіків і 101 практично здорової жінки аналогічної вікової групи, які були взяті з банку даних науково-дослідного центру Вінницького національного медичного університету ім. М. І. Пирогова. Статистичний аналіз проведений у ліцензійному пакеті "Statistica 6.0" з використанням непараметричних методів оцінки. При порівнянні компонентів соматотипу, частоти розподілу соматотипів за методикою Хіт-Картер і показників компонентного складу маси тіла між хворими на кропив'янку та практично здоровими українськими чоловіками або жінками встановлені наступні достовірні або тенденції відмінностей: в усіх групах хворих чоловіків і жінок - більші значення м'язового компоненту маси тіла за Матейко (у чоловіків на 17,21-34,60 %, у жінок на 19,99-52,31 %) та Американським інститутом харчування (у чоловіків на 20,33-31,86 %, у жінок на 23,81-75,20 %); лише у хворих чоловіків - більші значення мезоморфного компоненту соматотипу (у хворих на ГК/ТП і ХК/ЛП на 15,70-27,96 %) та кісткового компоненту маси тіла (у хворих на ГК/ТП на 11,26 %), а також менші значення ектоморфного компоненту соматотипу (у хворих на ГК/ЛП, ГК/ТП і ХК/ЛП на 31,25-41,80 %); лише у хворих жінок - більші значення мезоморфного компоненту соматотипу (у хворих на ГК/ЛП і ХК/ЛП на 56,00-58,34 %), кісткового компоненту маси тіла (у хворих на ГК/ЛП на 8,80 %), частоти мезоморфного (у хворих на ГК/ЛП на 37,30 %) та частоти ендо-мезоморфного соматотипів (у хворих на ХК/ТП на 28,20 %), а також менші значення ектоморфного компоненту соматотипу (у хворих на ГК/ЛП, ХК/ЛП і ХК/ТП на 39,88-46,90 %) та жирового компоненту маси тіла (у хворих на ГК/ТП на 17,51 %). Встановлені лише поодинокі відмінності при порівнянні даних показників між хворими на кропив'янку чоловіками або жінками (більш виражено). Між відповідними групами хворих на кропив'янку чоловіків і жінок встановлені наступні прояви статевого диморфізму: достовірно більші або тенденція до більших значень у хворих чоловіків мезоморфного компоненту соматотипу (у хворих на ГК/ТП на 26.57 %), м'язового компоненту маси тіла за Матейко та AIX (у хворих на ГК/ТП ХК/ТП на 22,27-56,65 %), кісткового компоненту маси тіла (у віх групах хворих на 18,98-59,65 %), жирового компоненту маси тіла (у хворих на ГК/ТП на 22,01 %), частоти мезоморфного соматотипу (у хворих на ХК/ТП на 50,00 %); а також тенденції до більших значень у хворих на ХК/ТП жінок частоти ендо-мезоморфного (на 40,00 %) та у хворих на ГК/ТП частоти середнього проміжного соматотипу (на 30,00 %).*

Ключові слова: *шкірні захворювання, кропив'янка, українські чоловіки та жінки, компоненти соматотипу, частота розподілу соматотипів, показники компонентного складу маси тіла, статеві розбіжності.*