CORRELATIONS BETWEEN THE VALUE OF THE DERMATOLOGICAL QUALITY OF LIFE INDEX AND CLINICAL AND ANAMNESTIC INDICATORS IN UKRAINIAN MEN AND WOMEN WITH URTICARIA

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Annotation. *The increasing prevalence of urticaria and its significant impact on the quality of life of patients is a real challenge and a difficult task to solve both for family doctors and for dermatovenerologists. The study of correlations between the dermatological quality of life index (DLQI) and clinical and anamnestic indicators allows a deeper understanding of how this disease affects various aspects of the patients' lives, in particular, taking into account the gender and age characteristics of Ukrainian patients. The obtained results may contribute to the development of more effective and personalized approaches to the treatment and support of patients with urticaria, which in turn will improve their general well-being and quality of life. The aim of the work is to establish the peculiarities of the relationship between the value of the dermatological quality of life index and clinical and anamnestic indicators in young Ukrainian men and women with acute or chronic urticaria of a mild and severe course. Ukrainian men (n=40) and women (n=40) of young age (25-44 years according to the age periodization of WHO, 2015), patients with acute and chronic urticaria of mild and severe course, underwent a clinical, anamnestic and dermatological examination. The degree of negative impact of urticaria on various aspects of patients' lives was determined using the dermatological quality of life index. All patients also underwent a questionnaire to determine the nature of work and various negative factors affecting the skin. The assessment of correlations between the value of the dermatological quality of life index and clinical and anamnestic indicators was carried out using non-parametric statistics of Spearman in the license package "Statistica 6.0". As a result of the conducted studies, multiple direct and inverse correlations, mainly of medium strength and unreliable, were established between the dermatoscopic quality of life index and clinical and anamnestic indicators (in men r= from 0.31 to 0.82 and r= from -0.31 to -0.73; in women r= from 0.30 to 0.71 and r= from -0.31 to -0.75), which have pronounced manifestations of sexual dimorphism both in the number and strength, and often in the direction of the obtained connections.*
Keywords: *skin diseases, acute and chronic urticaria, Ukrainian men and women, dermatological quality of life index, clinical and anamnestic indicators, correlations.*

Introduction

Urticaria is a common heterogeneous inflammatory skin disease that occurs as a result of the activation and degranulation of skin mast cells with the subsequent release of histamine and other mediators, which lead to the development of signs and symptoms that define the disease - the presence of itchy blisters and angioedema. Urticaria is classified based on duration into acute urticaria lasting up to 6 weeks and chronic urticaria lasting more than 6 weeks. Urticaria is also divided into inducible and spontaneous forms. In inducible urticaria, signs and symptoms are caused by a certain trigger, while in spontaneous urticaria, signs and symptoms appear suddenly, without triggers [10, 21].

As of 2017, the prevalence of urticaria in the world is recorded at the level of 86 million cases, and the annual morbidity is 160 million cases [10]. In general, there is a tendency to increase the prevalence of this pathology in the world. In Italy, the annual prevalence of chronic spontaneous urticaria increased from 0.02% in 2002 to 0.38% in 2013 [12]. At the same time, there are differences in the prevalence of this disease among different ethnic groups. An analysis of chronic urticaria prevalence studies involving more than 86 million participants found that Asian studies had a higher point prevalence of chronic urticaria (1.4%, 95% CI 0.5-2.9)

compared to Europe (0.5%, 0.2- 1.0) and North America (0.1%, 0.1-0.1). Women are slightly more prone to chronic urticaria than men [4].

The objective analysis of 556 cases of urticaria in children revealed that in 55.9% the cause could not be established (idiopathic), in 28.4% autoimmune etiology, in 15% influence of physical factors [20], 9% allergic unspecified etiology, 18% food additives, 3.8% food allergy, 2.3% after the use of drugs, 1.8% allergic reaction to inhaled drugs, 3.5% parasitic infections, 1% infectious diseases [1].

Autoimmune pathologies, especially from the thyroid gland, bacterial, fungal and viral infections, including COVID-19, Helicobacter pylori, and various types of stress disorders are among the most common concomitant pathologies that occur alongside urticaria [5, 21]. The connection of the latter with urticaria is sufficiently studied: a systematic review of 20 studies that analyzed the relationship between urticaria and anxiety and depression showed that the relative risk of anxiety was 3.99 (95% confidence interval: 3.24-4.91, P<0.001), and depression - 2.94 (95% CI: 2.42-3.58, P<0.001) [6]. The prevalence of lifelong, acute and chronic urticaria according to the survey of more than 4,000 children is 22.5%, 13.9% and 1.8%, respectively. Acute urticaria was significantly associated with allergic disease and parental

history of allergy (P<0.001), unlike chronic urticaria. At the same time, the latter was associated with living in a new place (aOR=2.38, 95% CI=1.02-5.54, P=0.044) and belonging to a family with a high income (aOR=4.24, 95% CI=1.24-14.56, P=0.022) [13].

It is also worth taking into account the high cost of treatment of this pathology - annual costs for the treatment of urticaria are about 2048 US dollars per year, of which direct costs for drugs are 1280 US dollars [15].

Examination data of more than 70,000 healthy individuals and patients with urticaria show a strong connection between the risk of this pathology and high body mass index [18], which is especially important to take into account, given the growing prevalence of obesity among the population.

Considering such a significant spread and multifactorial nature, urticaria is a serious challenge for dermatovenerologists, and requires the development of new mechanisms in order to improve the diagnosis, prognosis and as a result of the treatment of this pathology, taking into account the quality of life of patients.

The aim of the work is to establish the peculiarities of the relationship between the value of the dermatological quality of life index and clinical and anamnestic indicators in young Ukrainian men and women with acute or chronic urticaria of a mild and severe course.

Materials and methods

40 Ukrainian men and 40 Ukrainian women of young age (25-44 years old according to the age periodization of WHO, 2015) with acute and chronic urticaria of a mild and severe course were subjected to a clinical, anamnestic and dermatological examination. 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.

The diagnosis of urticaria was made in accordance with the EAACI/GA[2]LEN/EuroGuiDerm/APAAACI international guidelines for the definition, classification, diagnosis and treatment of urticaria (https://pubmed.ncbi.nlm.nih.gov/29336054/).

All patients with urticaria underwent a questionnaire to determine the nature of work, negative factors affecting the skin, bad habits and burdened heredity, as well as determining the dermatological status of patients. Namely: HAR-PR - nature of work (physical - 1, mental - 2, mixed - 3); AL-RE - allergic reaction (absent - 1, present - 2); F-V-SHK1 - stress factor on the skin (absent - 1, present - 2); F-V-SHK2 - temperature effect factor on the skin (absent - 1, present - 2); F-V-SHK3 - seasonality effect factor on the skin (absent - 1, present - 2); F-V-SHK4 - factor of influence of humidity on the skin (absent - 1, present - 2); F-V-SHK5 - air exposure factor on the skin (absent - 1, present - 2); F-V-SHK6 - factor of influence of a chemical substance or cosmetics on the

skin (absent - 1, present - 2); F-V-SHK7 - factor of insolation effect on the skin (absent - 1, present - 2); F-V-SHK8 - a factor influencing hormonal changes on the skin only in women (absent - 1, present - 2); F-V-SHK9 - the factor of the effect of drugs on the skin (absent - 1, present - 2); F-V-SHK10 - food impact factor on the skin (absent - 1, present - 2); SCH-Z - bad habits (no - 1, smoking - 2, alcohol - 3); SPAD - heredity (unencumbered - 1, encumbered - 2); SVERB - itching (absent - 1, present - 2); PECHIN - burning (absent - 1, present - 2); BIL - pain (absent - 1, present - 2); LOK-VCG - localization on the top of the head (absent - 1, present - 2); LOK-OBL - localization on the face (absent - 1, present - 2); LOK-SL - localization on mucous membranes (absent - 1, present - 2); LOK-TUL - localization on the trunk (absent - 1, present - 2); LOK-KIN - localization on the limbs (absent - 1, present - 2); UR-PL - urticarial spots (absent - 1, present - 2); ANG-SHK - angioedema of the skin (absent - 1, present - 2); DERMOG - red persistent dermographism (absent - 1, present - 2);

To assess the degree of negative impact of urticaria on his quality of life, the Dermatology Life Quality Index (DLQI) [3] was determined: from 0 to 1 point - the skin disease does not affect the patient's life; from 2 to 5 points - slightly affected; from 6 to 10 points - moderately affected; from 11 to 20 points - very strong influence; from 21 to 30 points - extremely strong influence.

The assessment of correlations between the value of the dermatological quality of life index and clinical and anamnestic indicators was carried out in the license package "Statistica 6.0" using non-parametric statistics of Spearman. Since when dividing male and female patients into groups of acute or chronic urticaria of a mild or severe course, the number of observations in each of them was 10 patients, we analyzed not only reliable, but also the average strength of unreliable connections.

Results. Discussion

The results of the obtained relationships between the value of the dermatological quality of life index and clinical and anamnestic indicators in young Ukrainian men and women with acute or chronic urticaria of a mild or severe course are shown in Table 1.

When conducting a *quantitative analysis* of reliable and average strength of unreliable correlations in Ukrainian men and women with acute or chronic urticaria of various courses between the dermatoscopic index of quality of life and clinical and anamnestic indicators, the following was established:

in *men* with acute urticaria of a mild course - 11 correlations out of 25 possible (44.0%), among which 4.0% of strong direct reliable (r=0.82), 24.0% of medium strong direct unreliable (r= from 0.31 to 0.54) and 16.0 % of the average strength of the reverse unreliable (r= from -0.31 to -0.58);

in *women* with acute urticaria of a mild course - 6 correlations out of 25 possible (24.0%), among which

12.0% of the average strength of direct unreliable (r= from 0.46 to 0.61), 4.0% of strong inverse reliable (r= -0.75) and 8.0% of the average strength of inverse non-reliable (r= -0.35 and -0.47);

in *men* with acute urticaria of a severe course - 6 correlations out of 25 possible (24.0%), among which 8.0% of the average power of direct unreliable (r= 0.32 and 0.53) and 16.0% of the average power of inverse unreliable (r= from -0.35 to -0.49);

in *women* with acute urticaria of a severe course - 6 correlations out of 25 possible (24.0%), among which 8.0% of the average power of direct unreliable (r= 0.36 and 0.60) and 16.0% of the average power of inverse unreliable (r=

from -0.31 to -0.57);

in *men* with mild chronic urticaria - 7 correlations out of 25 possible (28.0%), including 4.0% of strong direct reliable (r=0.74), 16.0% of medium strong direct unreliable (r= from 0.33 to 0.48) and 8.0 % of the average strength of the reverse unreliable (r= -0.37 and -0.56);

in *women* with mild chronic urticaria - 9 correlations out of 25 possible (36.0%), among which 4.0% strong directly reliable (r=0.71), 16.0% medium strong direct unreliable (r= from 0.32 to 0.55) and 16.0 % of the average strength of the reverse unreliable (r= from -0.31 to -0.42);

in *men* with severe chronic urticaria - 10 correlations out of 25 possible (40.0%), among which 24.0% of the

Table 1. Correlations between the value of the dermatological quality of life index and clinical and anamnestic indicators in Ukrainian men and women with mild or severe acute or chronic urticaria.

Groups / Indicators	Men				Women			
	AU-MC (n=10)	AU-SC (n=10)	CU-MC (n=10)	CU-SC (n=10)	AU-MC (n=10)	AU-SC (n=10)	CU-MC (n=10)	CU-SC (n=10)
HAR-PR	0.12	0.14	-0.15	*0.44*	*0.62*	*0.60*	0.24	0.25
AL-RE	*0.42*		-0.06	**-0.73**		0.15	-0.05	*0.43*
F-V-SHK1	-0.15	-0.22	*0.48*	*0.52*	-0.22	*-0.57*	**0.71**	*0.47*
F-V-SHK2	*0.36*	-0.23	**0.74**	*0.41*	0.46	0.22	-0.05	
F-V-SHK3		*-0.35*	0.12	0.08			-0.04	*-0.40*
F-V-SHK4	0.20	0.14	0.06	*-0.34*	*0.61*	*-0.31*	-0.12	*0.43*
F-V-SHK5		*-0.35*						
F-V-SHK6	0.27	*-0.35*	-0.20	0.25	*-0.35*	0.00	*0.32*	*-0.39*
F-V-SHK7	*0.42*	0.00	-0.12	*0.31*	-0.12		0.00	*-0.31*
F-V-SHK8					0.23	0.09	*-0.31*	-0.13
F-V-SHK9	0.04			*-0.44*		*0.36*		*0.30*
F-V-SHK10	*0.45*	*-0.49*	*0.33*	*-0.45*	0.04	*-0.57*	*-0.31*	-0.11
SCH-Z	**0.82**	0.22	*-0.37*	0.17	-0.29	-0.13		*0.30*
SPAD							-0.12	
SVERB								
PECHIN	*-0.58*	0.00	-0.04	*0.35*	0.18	0.22	*-0.31*	
BIL		0.11	*0.43*	0.15		0.19		-0.07
LOK-VCG	-0.06		*0.43*	*0.39*		0.14	*-0.42*	0.22
LOC-OBL	*-0.36*	*0.32*	-0.11	-0.21	0.04	-0.18	*0.55*	*-0.54*
LOC-SL		0.11	-0.06	-0.18		-0.04	-0.12	*-0.40*
LOK-TUL	*0.31*	0.26	*-0.56*		**-0.75**	-0.23	*0.43*	0.13
LOK-KIN	*0.54*	*0.53*	0.08		-0.18	*-0.36*	0.24	-0.27
U-PL							0.12	
ANG-SHK	*-0.31*		0.00	-0.17	*-0.47*	-0.23	*0.32*	
DERMOG	*-0.42*							

Notes: AU-MC - acute urticaria, mild course; AU-SC - acute urticaria severe course; CU-MC - chronic urticaria mild course; CU-SC - chronic urticaria severe course; direct strong reliable connections are highlighted with an orange background; the yellow background highlights straight lines of medium strength, unreliable connections; inverse strong reliable connections are highlighted with a blue background; the inverse of the mean strength unreliable connections are highlighted with a green background.

average strength of direct unreliable (r= from 0.31 to 0.52), 4.0% of strong inverse reliable (r=-0.73) and 12.0% of the average strength of the reverse unreliable (r= from -0.34 to -0.45);

in *women* with severe chronic urticaria - 10 correlations out of 25 possible (40.0%), among which 20.0% of the average power of direct unreliable (r= from 0.30 to 0.47) and 20.0% of the average power of inverse unreliable (r= from -0.31 to -0.54).

There are many questionnaires to assess the quality of life of patients. Among them, general questionnaires such as the World Health Organization QoL Assessment-Brief, Medical Outcomes Survey Short Form-36 (SF-36), Medical Outcomes Survey Short Form-12 (SF-12), Nottingham Health Profile (NHP) are noteworthy. Satisfaction Profile (SAT-P), Euro-QoL, Work Productivity and Activity Inventory (WPAI-AS), dermatological VQ-Dermato, Dermatology Quality of Life Index (DQLI), Children's Dermatology Life Quality Index (CDLQI), Dermatology Quality Of Life Scales (DQOLS), Dermatology-Specific Quality of Life (DSQL), Skindex-29, Skindex-16, and specific for urticaria Chronic urticarial-quality of life questionnaire, Urticaria Severity Score [8, 15, 23].

All of the above questionnaires have been widely used in assessing the quality of life of patients with urticaria and allow assessing the impact of various aspects on the patient's condition. Thus, the study on the scale of Chronic urticarial-quality of life questionnaire showed 1.04±1.61 points on a scale from 0 to 6, and CU=Q2oL showed 36 points out of 100 in people with chronic urticaria. Aspects related to sleep, mental state and nutrition had the greatest impact on quality of life. The highest average scores were obtained for the items of nervousness and shame due to rashes, and the lowest - for swelling of the lips and limitations in sports activities [2].

When evaluating 1,443 patients with urticaria, residents of Japan, the researchers found that according to the DLQI, the average score was 4.8. A strong correlation was found between the Urticaria Control Test (UCT) and the DLQI with a Spearman correlation coefficient of -0.7158 [7].

According to data from a survey of 110 people with chronic urticaria using the CU-Q2oL questionnaire, it was found that disease activity was the only predictor of deterioration in quality of life, however, it was only moderately correlated with the total CU-Q2oL score (r = 0.40, p<0.0001) [11]. That is, it is worth paying attention to other additional factors, in addition to the activity of the disease, which also affect the quality of life of patients.

500 Korean patients with chronic spontaneous urticaria were examined using CU-QoL, DLQI and EQ-5D-5L. Average results were obtained at the level of 57.5±29.7, 10.2±7.6, and 0.8±0.2, respectively. During 6 months of treatment, negative correlations were found between UAS7 and CU-QoL, EQ-5D-5L, EQ-5D-5L, and a positive correlation with the DLQI indicator (p<0.001) [22].

Age and gender differences in quality of life indicators are important when interpreting the obtained results. 149 Nepalese with chronic urticaria were screened using the DLQI. The average score was 8.30?±?6.73, it was significantly higher in men than in women (p<0.02) and negatively correlated with age (p<0.01) [16].

New questionnaires are being created. The team of authors led by Ruft J. developed and validated on 88 patients a tool for assessing the quality of life of patients with cholinergic urticaria, which they called the Cholinergic Urticaria Quality-of-Life Questionnaire (CholU-QoL). The final version of the questionnaire contained 28 items and the domains of symptoms, functional life, social interaction, therapy, and emotions [17].

Quality of life questionnaires are also an important element for evaluating the effectiveness of medical treatments. Thus, the DLQI was used to evaluate the effect of omalizumab on the treatment of chronic urticaria and showed statistically significant differences at week 12 compared to the early follow-up periods (p<0.0001) [9]. A study of the Scandinavian population with H1-antihistamine-resistant chronic urticaria revealed a moderate impairment of the quality of life of individuals of this continent who had an average DLQI score of 7.7, against the background of a high level of use of medical drugs, which indicates the ineffectiveness of pharmacological treatment [19].

The need to take into account both physical and psychological aspects is necessary to improve the quality of life of patients with chronic spontaneous urticaria. Evaluation of the CSU, UCT, and UAS testing methods shows that these diagnostic tools not only help to assess the severity and control of urticaria symptoms, but also reflect the impact of the disease on the quality of life of patients, in particular, the UCT has a strong correlation with quality of life indicators [14].

Thus, the correlations established by us in Ukrainian men and women with acute or chronic urticaria of various courses between the value of the dermatoscopic index of quality of life and clinical and anamnestic indicators expand the current ideas regarding the risk of occurrence and features of the course of this disease.

Conclusion and prospects for further developments

1. In patients with acute or chronic urticaria of a mild or severe course in Ukrainian men and women, multiple direct and inverse correlations, mostly of medium strength, were found to be unreliable (respectively, in men, r= from 0.31 to 0.54 and r= from -0.31 to -0.58; respectively in women, r= from 0.30 to 0.61 and r= from -0.31 to -0.57), correlations between the dermatoscopic quality of life index and clinical and anamnestic indicators.

2. Pronounced manifestations of sexual dimorphism of reliable and medium strength of unreliable correlations between the dermatoscopic index of quality of life and clinical and anamnestic indicators were established in

patients with acute or chronic urticaria of different course in men and women, both by the number and strength, as well as by the frequency and direction of the received connections

In further research, it is planned to study the peculiarities of anthropometric and somatotypological indicators in Ukrainian men and women with urticaria.

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ОСОБЛИВОСТІ КОРЕЛЯЦІЙ МІЖ ВЕЛИЧИНОЮ ДЕРМАТОЛОГІЧНОГО ІНДЕКСУ ЯКОСТІ ЖИТТЯ ТА КЛІНІКО-АНАМНЕСТИЧНИМИ ПОКАЗНИКАМИ В УКРАЇНСЬКИХ ЧОЛОВІКІВ І ЖІНОК, ХВОРИХ НА КРОПИВ'ЯНКУ
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Анотація. *Зростання поширеності кропив'янки та її значний вплив на якість життя пацієнтів є справжнім викликом і складною задачею для вирішення як для сімейних лікарів, так і для дерматовенерологів. Вивчення кореляцій між дерматологічним індексом якості життя (DLQI) та клініко-анамнестичними показниками дозволяє глибше зрозуміти, як ця хвороба впливає на різні аспекти життя хворих, зокрема з урахуванням статевих і вікових особливостей українських пацієнтів. Отримані результати можуть сприяти розробці більш ефективних і персоналізованих підходів до лікування та підтримки*

пацієнтів з кропив'янкою, що, в свою чергу, покращить їхнє загальне самопочуття та якість життя. Мета роботи - в українських чоловіків і жінок молодого віку, хворих на гостру або хронічну кропив'янку легкого та тяжкого перебігу, встановити особливості зв'язків між величиною дерматологічного індексу якості життя та клініко-анамнестичними показниками. Українським чоловікам (n=40) і жінкам (n=40) молодого віку (25-44 роки згідно вікової періодизації ВООЗ, 2015), хворих на гостру та хронічну кропив'янку легкого й тяжкого перебігу, проведено клініко-анамнестичне та дерматологічне обстеження. Ступінь негативного впливу кропив'янки на різні аспекти життя пацієнтів визначали за допомогою дерматологічного індексу якості життя. Усім хворим також проведено анкетування для визначення характеру праці та різноманітних негативних факторів впливу на шкіру. Оцінку кореляцій між величиною дерматологічного індексу якості життя та клініко-анамнестичними показниками проведено за допомогою непараметричної статистики Спірмена у ліцензійному пакеті "Statistica 6.0". У результаті проведених досліджень встановлені множинні прямі та зворотні, переважно середньої сили, недостовірні кореляції між дерматологічним індексом якості життя та клініко-анамнестичними показниками (у чоловіків r= від 0,31 до 0,82 та r= від -0,31 до -0,73; у жінок r= від 0,30 до 0,71 та r= від -0,31 до -0,75), які мають виражені прояви статевого диморфізму як за кількістю і силою, так часто і за напрямком отриманих зв'язків.
Ключові слова: захворювання шкіри, гостра та хронічна кропив'янка, українські чоловіки та жінки, дерматологічний індекс якості життя, клініко-анамнестичні показники, кореляції.