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FEATURES OF TOTAL, LONGITUDINAL AND TRANSVERSE BODY SIZES IN MEN OF THE GENERAL GROUP OF PATIENTS WITH MILD AND SEVERE PSORIASIS

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Annotation. The constitutional approach is a valuable tool in the hands of practicing dermatologists, which allows an individual approach to the diagnosis and treatment of patients with psoriasis. The aim of the study was to examine the differences in total, longitudinal and transverse body sizes between healthy and/or psoriatic men depending on the severity of the disease. Anthropometric examination according to Bunak was performed for 32 men of the first mature age in patients with mild and 68 men with severe psoriasis. The PASI index was used to clinically assess the severity and area of psoriatic lesions. As a control from the data bank of the research center of National Pirogov Memorial Medical University, Vinnytsya anthropometric data of 82 practically healthy men of the same age group were selected. Statistical data processing was performed in the license package "Statistica 5.5" using non-parametric methods of evaluation of the obtained results. In patients with mild and severe psoriasis compared with healthy men found: lower values - pubic height (by 3.2 % and 5.4 %) and trochanter (by 8.2 % and 7.0 %) anthropometric points, shoulder width (by 19.6 % and 19.0 %) and the width of the distal epiphysis of the shin (by 5.2 % and 4.8 %); greater values - body weight (by 20.1 % and 17.5 %), body length (by 1.7 % in mild course), body surface area (by 10.0 % and 7.8 %), height of suprasternal (by 3.0 % and 1.5 %), acromial (by 2.3 % and 1.0 %) and finger (by 6.1 % and 4.4 %) anthropometric points, width of the distal epiphysis of the shoulder (by 6.9 % and 5.7 %), forearm (by 3.3 % in mild course) and thigh (by 10.3 % and 7.1 %), mid-thoracic diameter (by 16.5 % and 16.3 %), transverse lower thoracic diameter (by 16.5 % and 15.7 %), anterior-posterior mid-thoracic diameter (by 17.7 % and 20.2 %), interspinous (by 12.2 % and 12.1 %), intercostal (by 13.4 % and 11.7 %) and intertrochanteric (by 11.3 % and 10.4 %) distances. Differences in the studied body size in patients with varying degrees of psoriasis found. Thus, in patients with mild psoriasis, compared with patients with severe psoriasis, higher values were found for: body length (by 1.6 %); heights of suprasternal (by 1.5 %), pubic (by 2.1 %) and finger (by 1.4 %) anthropometric points; width of the distal epiphysis of the forearm (by 2.3 %). Thus, pronounced differences in total, longitudinal and transverse dimensions between healthy and patients with mild and severe psoriasis were revealed by Ukrainian men of the first mature age. Between patients with varying degrees of severity of dermatosis, most differences are found only for longitudinal body size.

Keywords: psoriasis, total, longitudinal and transverse body sizes, men.

Introduction

Psoriasis is a chronic, mostly affecting the skin, immune-mediated systemic disease, the emergence and development of which is influenced by genetic and environmental factors [1, 8, 16]. The prevalence of psoriasis is heterogeneous and varies both in different countries and within different regions of the same country. The lowest incidence of psoriasis is observed in Samoa, where the incidence rate is 0 %, while the highest percentage is observed in Kazakhstan, where the figure is 11.8 %. In Brazil, 2.5 % of the population suffers from psoriasis [8].

A study conducted in the United States for 18 years showed that the incidence of psoriasis in children is 40.8 per 100,000 people; the most common form of psoriasis is the chronic form (observed in 73.7 % of people), and the most common localization is the limbs and scalp (59.9 % and 46.8 %, respectively) [23]. In total, 7.4 million US citizens suffered from psoriasis in 2013 [24].

A study by Vanderpuy-Orgle J. and co-authors [24] found that, on average, psoriasis costs for US citizen \$6422 per year, of which \$2284 is the cost of medicines, \$2203 is the loss due to reduced quality of life and \$1935 is due to reduced productivity. The total cost reaches \$35.2 billion annually for the country's economy.

Given the above facts, it is undeniable that healthcare organizations and citizens themselves are interested in developments that would reduce the cost of treatment of this disease and improve the quality of life. One of the promising ways to solve this problem could be the early detection of persons at risk of psoriasis using a simple and cheap but reliable, scientifically sound method, namely - anthropometric method of examination. Currently, the scientific community already has successful examples of the use of anthropometric research methods to predict, for example, the occurrence of melanoma and acne [17]. Psoriasis is no exception [6, 10, 12, 13, 18].

Human skin is markedly responsive to changes in physique. Thus, a group of Japanese scientists [16] conducted a study to find out the properties of the skin in overweight people who were able to lose weight to normal. Interestingly, even after returning to normal weight, the thickness of the dermis in such individuals in the abdomen was reduced by 50 %, and the echogenicity of the dermis in the legs was reduced by 83.3 %.

However, we should not forget that if a person's physique can change significantly over time, the somatotype of the person, as a hereditary component, is a constant element.

In the work of Russian scientists it was found that more severe forms of psoriasis and more frequent cases of its exacerbation are observed in individuals of endomorphic somatotype [19].

An analysis of the PubMed and Embase databases found that an increase in body mass index was associated with an increased risk of developing psoriasis. The total relative risk with an increase in body mass index by 5 units was 1.19 (95 % CI 1.10-1.28, I²=83 %, n=7), while with an increase in body weight by 5 kg - 1.11 (95 % CI 1.07-1.16, I²=47 %, heterogeneity=0.15, n=3) [3].

Blake T. and others [4] in the analysis of research publications found that the risk of psoriasis is influenced not only by human body weight but also by such indicators as: average muscle index, body fat percentage, visceral fat index and product index accumulation of lipids.

It is established that to identify risk groups for psoriasis, it is advisable to use such statistically significant indicators as body weight without fat, muscle mass, body water content and bone mass of the human body [9].

A team of scientists led by A. S. Paller [21] examined 409 children diagnosed with psoriasis of varying severity in 42 healthy children (control group), followed by determination of body mass index to identify the relationship between the studied indicators. Statistical analysis of the data revealed that the odds rate of obesity (95 % CI) in children with psoriasis was 4.29 compared with the control group and was higher in severe than in mild disease (4.92 and 3.60, respectively).

Thus, there is a need to find relationships between physique and the risk of developing and predicting the severity of psoriasis for the Ukrainian population.

The aim of the study was to examine the differences in total, longitudinal and transverse body sizes between healthy and/or psoriatic men depending on the severity of the disease.

Materials and methods

Men of the first adult age (22-35 years) with psoriasis (n=100, including 32 with mild and 68 with severe), who were examined at the Military Medical Clinical Center of the Central Region and the Department of Dermatology and Venereal Diseases with postgraduate course of National Pirogov Memorial Medical University, Vinnytsya, conducted an anthropometric survey in accordance with the scheme of V. V. Bunak [5].

The PASI (Psoriasis Area and Severity Index) was used to clinically assess the severity and area of psoriatic lesions [11]. The intensity of the main symptoms - erythema, infiltration and peeling was determined by the scoring system: 0 points - no symptom, 1 - mild, 2 - moderate, 3 - severe, 4 - very severe. The PASI index for each body area was calculated by the formula: coefficient of anatomical area of the body (for the head - 0.1, upper extremities - 0.2, torso - 0.3, lower extremities - 0.4) x (severity of erythema + severity of infiltration + severity of peeling) x the area of skin

lesions of the corresponding anatomical region of the body. The total PASI index (the sum of the obtained indices for each area of the body) is used to assess the severity of psoriasis: mild severity - PASI value <10; moderate severity - PASI values from 10 to 20; severe - PASI value >20 [2].

As a control from the data bank of the research center of National Pirogov Memorial Medical University, Vinnytsya anthropometric data of 82 practically healthy men of the same age group were selected.

This study assessed body weight (kg), body length (cm), body surface area (m²), anthropometric point height (cm), torso and pelvis sizes (cm), and the width of the distal epiphyses of the long tubular bones of the limbs (cm).

Statistical data processing was performed in the license package "Statistica 5.5" using non-parametric methods of evaluation of the obtained results. The reliability of the difference between the values between the independent quantitative values was determined using the Mann-Whitney U-test.

Results. Discussion

In healthy men, compared with patients, lower values were found for:

body weight (73.68±10.40) compared with men with mild psoriasis (92.23±16.37, p<0.001) and severe (89.27±15.56, p<0.001) course;

body length (177.2±6.5) compared with men with psoriasis of mild course (180.0±5.2, p<0.05) course;

body surface area (1.903±0.148) compared with men with mild psoriasis (2.115±0.179, p<0.001) and severe (2.063±0.177, p<0.001) course;

height of the suprasternal anthropometric point (143.8±6.1) compared with men with psoriasis of mild (148.2±4.9, p<0.001) and severe (146.0±5.2, p<0.05) course;

height of the acromial anthropometric point (146.9±7.1) compared with men with mild psoriasis (150.3±5.1, p<0.01) and severe (148.2±5.1, p=0.099) course;

height of the finger anthropometric point (65.85±4.95) compared with men with mild psoriasis (70.11±3.04, p<0.001) and severe (68.89±3.35, p<0.001) course;

width of the distal epiphysis of the shoulder (6.899±0.438) compared with men with mild psoriasis (7.413±0.541, p<0.001) and severe (7.319±0.511, p<0.001) course;

width of the distal epiphysis of the forearm (5.724±0.327) compared with men with mild psoriasis (5.916±0.271, p<0.01) course;

width of the distal epiphysis of the thigh (8.917±0.437) compared with men with psoriasis of mild (9.941±0.667, p<0.05) and severe (9.594±0.842, p<0.001) course;

mid-sternal diameter (28.35±2.19) compared with men with psoriasis of mild (33.97±2.97, p<0.001) and severe (33.88±3.46, p<0.001) course;

transverse lower sternal diameter (25.30±2.26) compared with men with psoriasis of mild (30.31±2.81,

$p < 0.001$) and severe (30.00 ± 3.18 , $p < 0.001$) course;

anterior-posterior mid-thoracic diameter (19.93 ± 2.12) compared with men with psoriasis of mild (24.22 ± 3.29 , $p < 0.01$) and severe (24.96 ± 3.18 , $p < 0.001$) course;

interspinous distance (26.33 ± 1.98) compared with men with psoriasis of mild (30.00 ± 2.48 , $p < 0.01$) and severe (29.94 ± 2.14 , $p < 0.001$) course;

intercristal distance (29.38 ± 2.02) compared with men with psoriasis of mild (33.91 ± 2.35 , $p < 0.01$) and severe (33.28 ± 2.04 , $p < 0.001$) course;

intertrochanteric distance (32.96 ± 2.10) compared with men with psoriasis of mild (37.16 ± 2.14 , $p < 0.01$) and severe (36.78 ± 1.93 , $p < 0.001$) course.

In healthy men, compared with patients, greater values were found:

height of the pubic anthropometric point (90.57 ± 5.04) compared with men with mild psoriasis (87.79 ± 3.73 , $p < 0.01$) and severe (85.95 ± 5.34 , $p < 0.001$) course;

height of the trochanteric anthropometric point (94.04 ± 5.40) compared with men with psoriasis of mild (86.91 ± 10.73 , $p < 0.001$) and severe (87.86 ± 5.87 , $p < 0.001$) course;

shoulder width (42.02 ± 2.64) compared with men with psoriasis of mild (35.13 ± 2.65 , $p < 0.001$) and severe (35.32 ± 2.62 , $p < 0.001$) course;

width of the distal epiphysis of the shin (7.277 ± 0.469) compared with men with psoriasis of mild (6.916 ± 0.585 , $p < 0.01$) and severe (6.947 ± 0.501 , $p < 0.001$) course.

In patients with mild course psoriasis in men compared with patients with severe psoriasis, higher values were found: body length (180.0 ± 5.2 and 177.2 ± 5.8 , $p < 0.01$, respectively); the height of the supra-sternal (respectively 148.2 ± 4.9 and 146.0 ± 5.2 , $p < 0.05$), pubic (respectively 87.79 ± 3.73 and 85.95 ± 5.34 , $p = 0.091$) and finger (respectively 150.3 ± 5.1 and 148.2 ± 5.1 , $p < 0.05$) anthropometric points; width of the distal epiphysis of the forearm (respectively 5.916 ± 0.271 and 5.782 ± 0.360 , $p = 0.058$).

Despite advances in the development of diagnostic technologies, the problems of predicting the course of psoriasis and the results of its treatment are insufficiently studied. The lack of adequate, based on scientifically proven data algorithms for probabilistic assessment of the set of symptoms and signs of this pathology makes preclinical diagnosis impossible and complicates the medical assessment of signs of predisposition to frequent recurrence. This in turn causes excessive subjectivity in the interpretation of research results and the complexity and variety of mechanisms of pathogenesis of psoriasis can hinder the correct decision [15, 26].

In order to provide timely treatment and prevention in medicine, screening methods are used, aimed at early diagnosis and detection of predisposition to disease. Promising is the medical technology of population screening based on the anthropometric method. Even in the absence of patient complaints about the state of health,

the method allows to predict the occurrence of dermatosis on constitutional grounds, which contributes to the timely appointment of preventive measures to prevent the development of its complications [14, 20, 25].

In determining the risk of psoriasis, a comparative study of constitutional indicators in healthy and sick subjects is important. In patients with mild and severe psoriasis men compared with healthy men, we found: lower values - the height of the pubic anthropometric point by 3.2 % and 5.4 %; heights of the trochanteric anthropometric point by 8.2 % and 7.0 %; shoulder widths by 19.6 % and 19.0 %; the width of the distal epiphysis of the shin by 5.2 % and 4.8 %; and higher values - body weight by 20.1 % and 17.5 %; body length by 1.7 % (only in patients with mild course); body surface area by 10.0 % and 7.8 %; heights of the suprasternal anthropometric point by 3.0 % and 1.5 %; heights of acromial anthropometric point by 2.3 % and 1.0 %; heights of the finger anthropometric point by 6.1 % and 4.4 %; width of the distal epiphysis of the shoulder by 6.9 % and 5.7 %; width of the distal epiphysis of the forearm by 3.3 % (only in patients with mild course); the width of the distal femoral epiphysis by 10.3 % and 7.1 %; mid-sternal diameter by 16.5 % and 16.3 %; transverse lower sternal diameter by 16.5 % and 15.7 %; anterior-posterior mid-sternal diameter by 17.7 % and 20.2 %; interspinous distance by 12.2 % and 12.1 %; intercristal distance by 13.4 % and 11.7 %; intertrochanteric distance by 11.3 % and 10.4 % compared with men with psoriasis of mild and severe psoriasis.

Comparing the data obtained by us with the results obtained by S. V. Dmitrenko [7] in the examined patients with limited and widespread psoriasis men and women of Podillya in 2005-2006, it is necessary to point out significant differences. Thus, in sick men, compared with healthy, there were smaller values of weight, length, body surface area, longitudinal body size (more pronounced in limited psoriasis) and transverse size of the chest (in common psoriasis); and, conversely, greater values (in common psoriasis) of the width of the distal epiphyses of the extremities, anterior-posterior mid-thoracic diameter and most pelvic sizes. The differences in the results can be due to many factors: from the effects of migration processes that have intensified in recent decades [22] to the manifestations of gene mutations.

We found differences in the studied body size in patients with varying degrees of psoriasis. Thus, in patients with mild psoriasis in men compared with patients with severe psoriasis, higher values were found: body length by 1.6 %; heights of anthropometric points: suprasternal by 1.5 %, pubic by 2.1%, finger by 1.4 %; width of the distal epiphysis of the forearm by 2.3 %.

Summarizing the above, we can say that the constitutional approach is a valuable tool in the hands of practicing dermatologists, which allows an individual approach to the diagnosis and treatment of patients with psoriasis. Having a full line of anthropometric features in

patients with varying degrees of dermatosis, the doctor will be able to make a more informed choice of therapy based on the individual clinical picture, which in turn will improve treatment efficiency and quality of life.

Conclusions and prospects for further development

1. In men with mild and severe psoriasis, all total and most longitudinal (except for the height of the pubic and trochanteric points) and transverse body size (except for

the width of the shoulders and the width of the distal epiphysis of the shin) are larger than in healthy individuals.

2. In patients with mild psoriasis in men, compared with severe psoriasis, higher values of suprasternal, pubic and finger anthropometric points, as well as body length and width of the distal epiphysis of the forearm.

Further research will establish the features of other anthropometric and somatotypological indicators, which will expand the individual approach to the diagnosis and treatment of psoriasis.

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ОСОБЛИВОСТІ ТОТАЛЬНИХ, ПОЗДОВЖНИХ І ПОПЕРЕЧНИХ РОЗМІРІВ ТІЛА У ЧОЛОВІКІВ ЗАГАЛЬНОЇ ГРУПИ ХВОРИХ НА ПСОРИАЗ ЛЕГКОГО ТА ТЯЖКОГО ПЕРЕБІГУ

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Анотація. Конституціональний підхід - цінний інструмент в руках практикуючих дерматологів, який дозволяє індивідуально підійти до діагностики та лікування хворих із псоріазом. Мета дослідження - вивчити відмінності тотальних, поздовжніх і поперечних розмірів тіла між здоровими та/або хворими на псоріаз чоловіками в залежності від тяжкості перебігу захворювання. 32 чоловікам першого зрілого віку, хворим із легким перебігом і 68 із тяжким перебігом псоріазу проведено антропометричне обстеження за Бунаком. Для клінічної оцінки важкості перебігу та площі псоріатичних уражень використали індекс PASI. В якості контролю з банку даних науково-дослідного центру Вінницького національного медичного університету ім. М. І. Пирогова були відібрані антропометричні дані 82 практично здорових чоловіків аналогічної вікової групи. Статистичну обробку даних проведено в ліцензійному пакеті "Statistica 5.5" із використанням непараметричних методів оцінки отриманих результатів. У хворих на псоріаз легкого і тяжкого перебігу чоловіків порівняно зі здоровими чоловіками встановлено: менші значення - висоти лобкової (на 3,2 % і 5,4 %) та вертлюгової (на 8,2 % і 7,0 %) антропометричних точок, ширини плечей (на 19,6 % і 19,0 %) та ширини дистального епіфіза гомілки (на 5,2 % і 4,8 %); більші значення - маси тіла (на 20,1 % і 17,5 %), довжини тіла (на 1,7 % при легкому перебігу), площі поверхні тіла (на 10,0 % і 7,8 %), висоти надгрудниної (на 3,0 % і 1,5 %), акроміальної (на 2,3 % і 1,0 %) та пальцевої (на 6,1 % і 4,4 %) антропометричних точок, ширини дистального епіфіза плеча (на 6,9 % і 5,7 %), передпліччя (на 3,3 % при легкому перебігу) та стегна (на 10,3 % і 7,1 %), середньогрудниного діаметра (на 16,5 % і 16,3 %), поперечного нижньогрудниного діаметра (на 16,5 % і 15,7 %), передньо-заднього середньогрудниного діаметра (на 17,7 % і 20,2 %), міжкостьової (на 12,2 % і 12,1 %), міжребеневої (на 13,4 % і 11,7 %) та міжвертлюгової (на 11,3 % і 10,4 %) відстаней. Встановлені відмінності досліджуваних розмірів тіла у хворих з різними ступенями тяжкості псоріазу. Так, у хворих з легким перебігом псоріазу чоловіків порівняно з хворими з тяжким перебігом встановлено більші значення: довжини тіла (на 1,6 %); висоти надгрудниної (на 1,5 %), лобкової (на 2,1 %) та пальцевої (на 1,4 %) антропометричних точок; ширини дистального епіфіза передпліччя (на 2,3 %). Таким чином, виявлені виражені відмінності тотальних, поздовжніх і поперечних розмірів між здоровими і хворими на псоріаз легкого та тяжкого перебігу українськими чоловіками першого зрілого віку. Між хворими з різними ступенями важкості дерматозу більшість відмінностей встановлена лише для поздовжніх розмірів тіла.

Ключові слова: псоріаз, тотальні, поздовжні та поперечні розміри тіла, чоловіки.