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SKINFOLD THICKNESS IN MEN WITH VARIOUS FORMS OF ECZEMA

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The study analyzed the differences in the skinfold thickness between healthy and/or eczema patients depending on the severity of the disease. It was found that most indicators of skinfold thickness (except for folds on the side) in men with different forms and severity of eczema has significantly less value than in healthy men. Between patients with true and/or microbial eczema of varying severity, only isolated differences in the skinfold thickness were found. Identified differences in the skinfold thickness can be used to predict the phenotypic manifestation of eczema.

Keywords: eczema, skinfold thickness, men.

Аль-Омарі Ала'а Осам Ахмад, С.В. Дмитренко, В.Г. Чайка, Н.М. Ісакова, І.В. Гунас ОСОБЛИВОСТІ ТОВЩИНИ ШКІРНО-ЖИРОВИХ СКЛАДОК У ЧОЛОВІКІВ ХВОРИХ НА РІЗНІ ФОРМИ ЕКЗЕМИ

У ході дослідження проаналізовані відмінності товщини шкірно-жирових складок між здоровими та/або хворими на екзему в залежності від важкості перебігу захворювання. Встановлено, що більшість показників товщини шкірно-жирових складок (окрім складки на боці) у чоловіків із різними формами і тяжкістю екземи має достовірно менші значення, ніж у здорових чоловіків. Між хворими на істину та/або мікробну екзему різного перебігу важкості виявлені лише поодинокі відмінності товщини шкірно-жирових складок. Виявлені розбіжності товщини шкірно-жирових складок можна застосовувати для прогнозування фенотипового прояву екземи.

Ключові слова: екзема, товщина шкірно-жирових складок, чоловіки.

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Eczema is a common multifactorial skin disease that tends to become chronic and has different clinical forms depending on the location and nature of skin manifestations.

The epidemiology of this disease is very heterogeneous, taking into account both time intervals and geography. Thus, in Morocco, the prevalence of patients doubled in the period from 1995 to 2001 – from 9.9 % to 20.9 %, in South Africa in the same time periods increased from 10.2 % to 16.5 %. In Asian countries from 1995 to 2001, the prevalence of eczema changed as follows: Taiwan – 2.4 %–4.0 %, Korea 7.2 %–9.3 %, Japan 10.1 %–13.6 %, respectively. In Australia, the prevalence increased sharply from 22.6 % to 32.3 % in the same period [7].

The prevalence of eczema in Italy in 2014 was 8.1 %. In 60 % of patients, eczema occurred in adulthood. Statistical analysis found that eczema is more common in females, adults living in industrial centers in central and southern Italy [11].

In the United States, the prevalence of eczema in 2013 was 10.2 %. 3.2 % of citizens are persons with simultaneous eczema and bronchial asthma. A statistical study showed that eczema most often occurs in employed older women of Hispanic origin [12].

It should be noted that eczema is a financially burdensome disease that requires large financial costs, given its chronic course. Researchers have calculated the amount of funds that are spent by patients with eczema in Germany. Every year, on average, such a patient spends 8,799 euros on treatment. Of these, the direct cost of drugs is only 30 % of the funds [9].

These circumstances require scientists to find not only effective methods of treatment of this disease but also methods of preventing and predicting its occurrence.

One effective method of addressing the latter issue is the use of an anthropometric study method, which has already proven effective in many other studies on other skin diseases and, in addition, there are few positive and encouraging results in predicting eczema by patient weight [8].

The purpose of the study was to find the differences in skinfold thickness between healthy and/or eczema patients depending on the severity of the disease.

Materials and methods. Men aged 22 to 35 years, with a diagnosis of true (n=34, including 16 mild and 18 severe) and microbial (n=38, including 28 mild and 10 severe) eczema, measurement of skinfold thickness according to the scheme of Bunak V.V. [1].

The diagnosis of eczema was performed according to the nomenclature MKH-10.

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

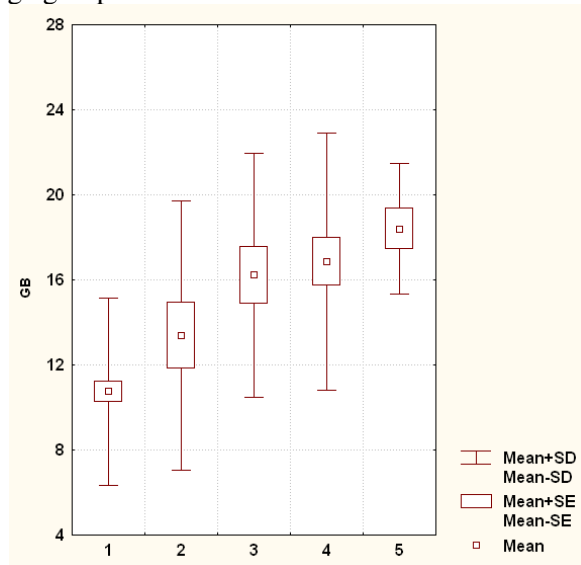


Fig. 1. Skinfold thickness on the side (GB) in healthy and patients on various forms of eczema in men (mm). Here and in the following graphs: 1 – healthy men; 2 – men suffering from the truth mild eczema; 3 – men suffering from the truth severe eczema; 4 – men with microbial eczema of mild course; 5 – men with severe microbial eczema; Mean – average value; Mean±SE – average value ± mean error; Mean±SD – mean ± standard deviation.

– skinfold thickness on the anterior surface of the shoulder (5.592±2.132) mm compared with men with true eczema of mild (2.938±1.124, p<0.001) mm and severe (2.944±1.259, p<0.001) mm, as well as microbial eczema of the mild (3.250±1.351, p<0.001) mm and severe (2.700±1.567, p<0.001) mm course (fig. 2 b);

– skinfold thickness on the forearm (4.173±1.621) mm compared with men with true eczema of mild (2.875±0.806, p<0.001) mm and severe (3.056±0.998, p<0.01) mm course, as well as microbial eczema of the mild (3.214±0.917, p<0.01) mm and severe (2.800±0.919, p<0.01) mm course (fig. 3 a);

– skinfold thickness on the chest (4.924±1.729) mm compared with men with true eczema of mild (3.125±1.088, p<0.001) mm and severe (3.944±1.434, p<0.05) mm course, as well as microbial eczema of the mild (3.357±1.254, p<0.001) mm and severe (3.600±1.776, p<0.01) mm course (fig. 3 b);

– skinfold thickness on the thigh (12.80±3.85) mm compared with men suffering from true eczema of mild (7.188±1.834, p<0.001) mm and severe (7.222±2.045, p<0.001) mm course, as well as microbial eczema of the mild (8.679±3.044, p<0.001) mm and severe (8.300±2.263, p<0.001) mm course (fig. 4 a);

– skinfold thickness on the crus (8.982±2.691) mm compared with men with true eczema of mild (7.688±2.152, p=0.078) mm and severe (7.667±1.495, p=0.093) mm course (fig. 4 b).

Skinfold thickness on the posterior surface of the shoulder, on the side and on the thigh in sick men with true eczema of mild course (respectively 2.938±1.389 mm, 13.38±6.33 mm and 7.188±1.834 mm) is lower compared with sick men with microbial eczema of mild course (respectively 3.893±2.025 mm, p=0.079; 16.86±6.04 mm, p=0.069; 8.679±3.044 mm, p=0.085) (see figs. 1, 2 a, 4 a). In addition, skinfold thickness on the side in sick men with true eczema of mild course is lower compared with sick men with microbial eczema of severe course (respectively 13.38±6.33 mm and 18.40±3.06 mm, p<0.05); and skinfold thickness on the thigh in patients with true eczema of severe course is less compared with patients with microbial eczema of mild course (respectively 7.222±2.045 mm and 8.679±3.044 mm, p=0.087).

We have not established reliable or tendencies of differences in skinfold thickness at the lower angle of the shoulder blade and on the abdomen, both between healthy and sick men, and between men with various forms of eczema.

In the study of the problem of predisposition to eczema, one of the most promising is the constitutional approach, which involves the study of private subsystems of the general constitution of the patient and allows to determine internal connections between private constitutions and structural and functional states of the body, including eczema.

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

Results of the study and their discussion. In practically healthy men compared with patients found lower values of skinfold thickness on the side (10.75±4.41) mm compared with men with true eczema of severe course (16.22±5.76, p<0.001) mm, as well as microbial eczema of the mild (16.86±6.04, p<0.001) mm and severe (18.40±3.06, p<0.001) mm course (Fig. 1).

In practically healthy men compared to patients found greater values:

– skinfold thickness on the posterior surface of the shoulder (7.848±2.914) mm compared with men with true eczema of mild (2.938±1.389, p<0.001) mm and severe (3.667±2.449, p<0.001) mm, as well as microbial eczema of the mild (3.893±2.025, p<0.001) mm and severe (4.100±2.424, p<0.001) mm course (fig. 2 a);

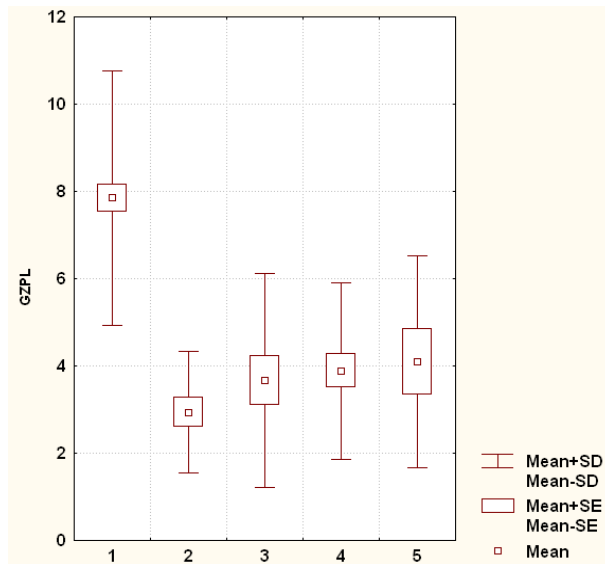


Fig. 2 a. Skinfold thickness on the posterior (GZPL) surface of the shoulder in healthy and patients with various forms of eczema in men (mm).

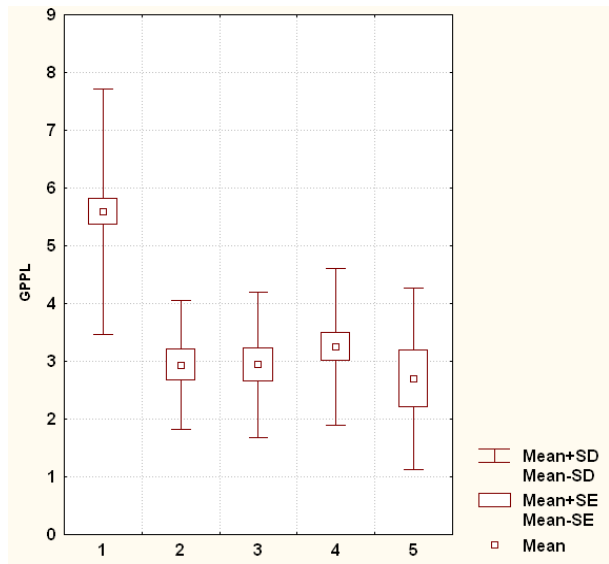


Fig. 2 b. Skinfold thickness on the anterior (GPPL) surface of the shoulder in healthy and patients with various forms of eczema in men (mm).

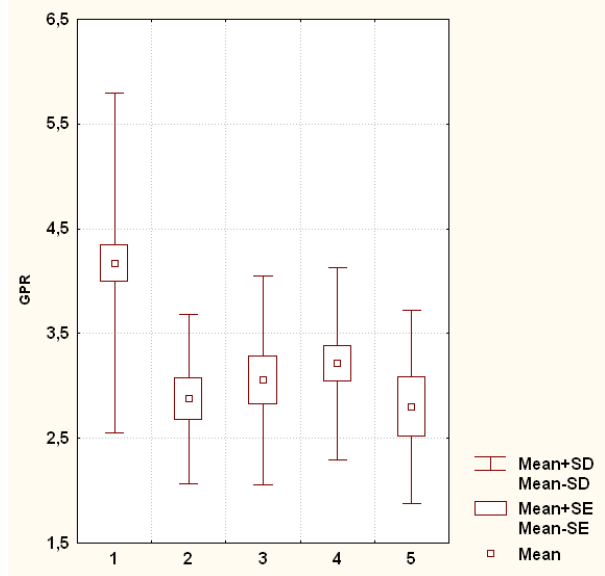


Fig. 3 a. Skinfold thickness on the forearm (GPR) in healthy and patients with various forms of eczema in men (mm).

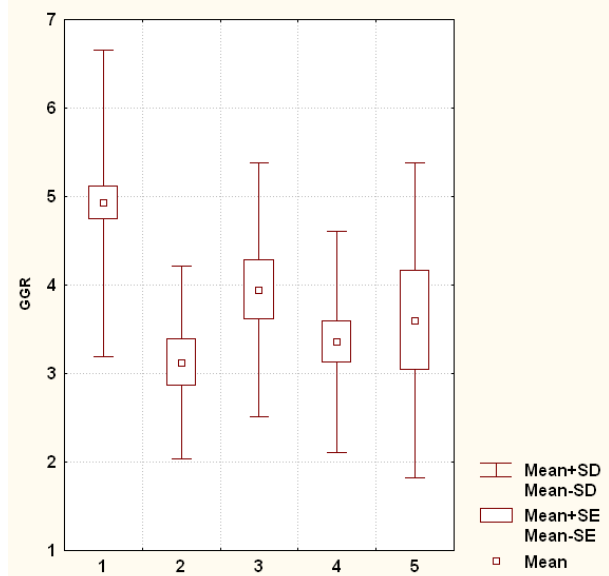


Fig. 3 b. Skinfold thickness on the chest (GGR) in healthy and patients with various forms of eczema patients (mm).

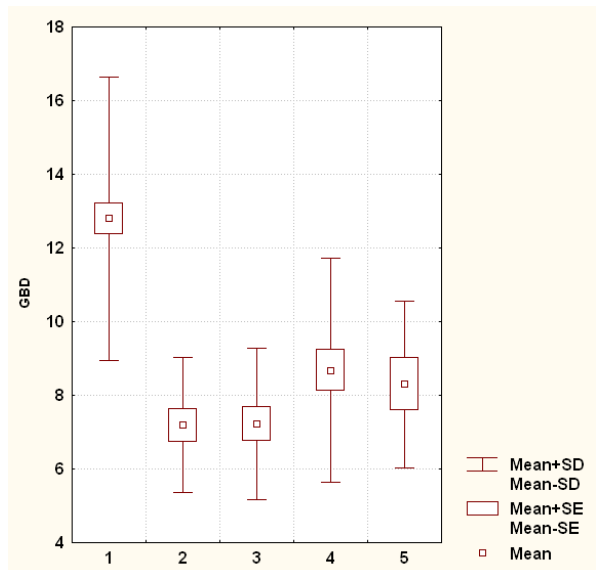


Fig. 4 a. Skinfold thickness on the thigh (GBD) in healthy and sick men with various forms of eczema (mm).

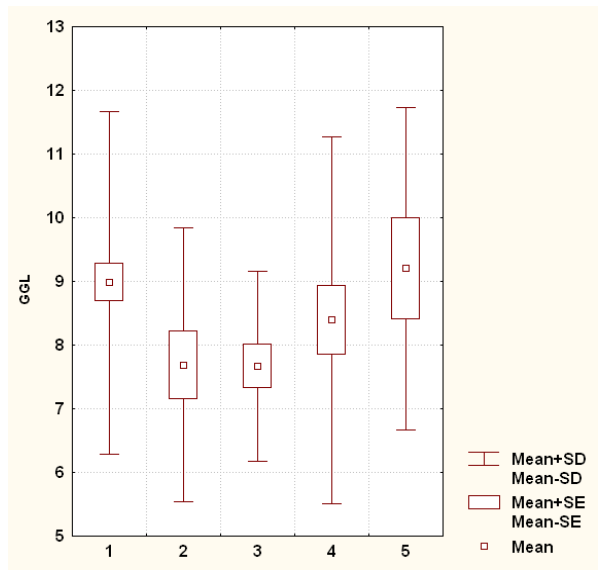


Fig. 4 b. Skinfold thickness on the crus (GGL) in healthy and patients with various forms of eczema in men (mm).

In healthy men compared with patients found higher values: skinfold thickness on the posterior surface of the shoulder by 62.6 %, 53.3 %, 50.4 % and 47.8 %, skinfold thickness on the anterior surface of the shoulder by 47.5 %, 47.4 %, 41.9 % and 51.7 %, skinfold thickness on the forearm by 31.1 %, 26.8 %, 23.0 % and 32.9 %, skinfold thickness on the chest by 36.5 %, 19.9 %, 31.8 % and 26.9 %, skinfold thickness on the thigh by 43.8 %, 43.6 %, 32.2 % and 35.2 %, compared with patients with true eczema of mild and severe course and microbial eczema of mild and severe course, as well as skinfold thickness on the crus by 14.4 % and 14.6 %, compared with patients with true eczema of mild and severe course; and lower values of skinfold thickness on the side by 33.7 %, 36.2 % and 41.6 %, compared with men with true eczema of mild course and microbial eczema of mild and severe course.

When comparing skinfold thickness between sick men, we found only some differences between patients with different forms and degrees of severity of eczema. Thus, skinfold thickness on the posterior surface of the shoulder, on the side and on the thigh in men with true eczema is 24.5 %, 20.6 % and 17.2 % lower, respectively, compared with men with microbial eczema. In men with true eczema, skinfold thickness on the side is 27.3 % less than in men with severe microbial eczema; and in patients of men with true eczema of severe course, the thickness of the skin and fat folds on the thigh is 16.8 % less than in patients of men with microbial eczema of mild course.

An analysis of the literature without limitation by prescription showed that so far no research has been conducted to study skinfold thickness in people suffering from eczema in Ukraine or abroad. In general, work on the study of skinfold thickness in people with skin diseases is also small and mostly belongs to Ukrainian scientists.

Al-Qaraleh O. B. [6] found that in people with mild and severe psoriasis (excluding somatotype and in mesomorphs men) compared to healthy men skinfold thickness is much higher on the abdomen, side and lower corner of the shoulder blade and much lower on the back, chest, thighs and front of the shoulder.

A similar study was conducted on acne in 2015. The results of statistical analysis of the obtained data showed that in healthy people compared to patients with acne skinfold thickness on the chest, abdomen, lower shoulder blade, forearm, front shoulder and lower limb are significantly higher [3].

Regarding other anthropometric indicators, there are also a few studies, the results of which allow us to confidently say that this method can be used in clinical medicine in general and in dermatology in particular. Thus, Abdel-Rahman A. Q. and co-authors [5] studied the features of circumferential size in individuals with different forms of psoriasis. In persons with a mild course in comparison with healthy individuals, higher rates of chest girth were found at rest, on exhalation, on inhalation, waist circumference, neck, crus in the upper and lower parts, thigh, thighs, hands, forearms in the lower and upper parts and shoulder in the unstressed and unstressed state (10.0 %, 10.6 %, 7.8 %, 17.1 %, 6.9 %, 10.2 %, 8.7 %, 11.4 %, 8.7 %, 4.2 %, 8.0 %, 14.2 % and 8.9 %, respectively); in persons with severe disease, according to these zones, the indicators were 9.6 %, 10.3 %, 7.2 %, 18.2 %, 7.8 %, 7.9 %, 5.9 %, 9.3 %, 6.5 %, 7.1 %, 4.5 %, 12.3 % and 6.8 % respectively.

With regard to acne, differences in anthropometric parameters for transverse body size for boys and girls (particularly for girls of pelvic size), both with and without taking into account somatotype, were found. Peculiarities of sexual differences of the studied parameters in relation to healthy and sick boys and girls with and without taking into account somatotype were revealed [4].

Anthropometric examination of patients' men with pyoderma revealed that healthy individuals compared to patients with lower values of skinfold thickness, the value of endo- and mesomorphic components of the somatotype, the fat component of body weight. At that time, patients with pyoderma women compared with healthy found smaller values of most transverse, circumferential and overall body size [10].

Dmytrenko S. V. and co-authors [2] based on anthropometric indicators constructed discriminant models that predict the possibility of acne in girls of the Podillia region of Ukraine both with and without taking into account its severity (correctness in 94.2 % of cases; statistics Wilkes lambda = 0.276 and correctness in 95.3 % – 98.0 % of cases, Wilkes lambda statistics = 0.297 – 0.322, respectively, $p < 0.001$). Most often, such models include indicators of transverse body size and skinfold thickness (50.0 % and 29.2 %, respectively). The latter is quite encouraging and indicates the prospects for further research in our direction. Also, this group of authors identified the prevalence of acne, taking into account the somatotype of the person. Among patients there is a higher percentage of persons of mesomorphic and

meso-endomorphic somatotype and a smaller percentage of persons of ectomorphomorphic somatotype in boys and a higher percentage of persons of mesomorphic and a smaller percentage of persons of endomorphic somatotype in girls. At the same time – according to the severity, any significant dependence of the authors of the work was not found.

Conclusions

1. In men with various forms and severity of eczema, most indicators of skinfold thickness (on the back and front of the shoulder, forearm, chest, thigh and crus) has less value than in practically healthy men. Only skinfold thickness on the side in patients with true severe eczema and microbial eczema of mild and severe eczema is greater than in practically healthy men.

2. Among men with true eczema and/or microbial eczema of varying severity, only a few, mostly tendencies of differences in skinfold thickness on the back of the shoulder, on the side and on the thigh were found.

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