Features of skinfold thickness in men with benign nevi

Nabil Basim Yousif Haddad
National Pirogov Memorial Medical University, Vinnytsya, Ukraine

ARTICLE INFO
Received: 14 September 2021
Accepted: 12 October 2021

UDC: 616.5-003.829-037-084-07

CORRESPONDING AUTHOR
e-mail: nabil.basim@gmail.com
Nabil Basim Yousif Haddad

CONFLICT OF INTEREST
The authors have no conflicts of interest to declare.

FUNDING
Not applicable.

Introduction

Nevi, although benign neoplasms of the skin, but have a certain tendency to malignancy, which is influenced by various external and internal human factors. Predicting the risk of benign nevi against this background is an important topic for experimental research. The aim of the study was to establish the features of the skinfold thickness (SFT) in men of the first adult age with benign nevi. SFT was determined according to the Bunak scheme for men (aged 22-35 years) with melanocyte benign simple nevi (n=34), melanocyte benign dysplastic nevi (n=27), melanocyte benign congenital nevi (n=14) and non-melanocyte benign (n=17). The control group - SFT of 82 practically healthy men of the same age group was selected from the data bank of the Research Center of National Pirogov Memorial Medical University, Vinnytsya. Statistical processing of the results was performed in the license package "Statistica 5.5" using non-parametric evaluation methods. It was found that in practically healthy men higher than in patients - SFT on the anterior and posterior surfaces of the shoulder and thigh (in all groups of patients); SFT on the forearm, at the lower angle of the scapula, chest and shin (only in patients with melanocyte benign dysplastic nevi). Also in healthy men are found lower than in patients - SFT on the side (in all groups of patients); SFT in the abdomen (in patients with melanocyte benign simple and non-melanocyte benign nevi). When comparing SFT between patients with benign nevi, in most cases, lower values of SFT found in patients with melanocyte benign dysplastic nevi. The obtained results indicate the initial manifestations of abdominal (android) type of fat deposition in the body in patients with benign nevi (most pronounced in patients with melanocyte benign simple nevi).

Keywords: benign nevi, skinfold thickness, men.
The type of phototype (i.e., the presence of blonde hair and fair skin) [3]. Thus, it can be assumed that a constitutional approach can be promising for assessing the risk of nevi.

The aim of the study was to establish the features of skinfold thickness in men of the first adult age with benign nevi.

**Materials and methods**

Men aged 22 to 35 years with benign nevi (34 with melanocyte benign simple nevi, 27 with melanocyte benign dysplastic nevi, 14 with melanocyte benign congenital nevi and 17 with non-melanocyte benign nevi), laboratory tests and histopathological examinations were performed on the base of Military Medical Clinical Center of the Central Region and the Department of Dermatology and Venereal Diseases with a course of postgraduate education National Pirogov Memorial Medical University, Vinnytsya.

Committee on Bioethics of National Pirogov Memorial Medical University, Vinnytsya (protocol № 10 From 26.11.2020) 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 nevi was established according to a two-stage algorithm for the classification of pigmented tumors, which was adopted at the First World Congress of Dermatoscopy (Rome, 2001) [17].

All patients were determined skinfold thickness (SFT) according to the scheme of V.V. Bunak [4].

As a control from the database of the research center of the National Pirogov Memorial Medical University, Vinnytsya were selected SFT indicators of 82 healthy men of the same age group.

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 U-Mann-Whitney test.

**Results**

It was found that SFT on the posterior surface of the shoulder in healthy men was significantly (p<0.001) higher than in men with benign nevi; and in men with melanocyte benign congenital nevi - significantly greater (p<0.05) than in patients with melanocyte benign dysplastic nevi (Fig. 1).

SFT on the anterior surface of the shoulder in healthy men is significantly (p<0.01-0.001) higher than in men with benign nevi (Fig. 2).

SFT on the forearm in healthy men was significantly (p<0.001) higher than in men with melanocyte benign dysplastic nevi; and in men with melanocyte benign dysplastic nevi - significantly less (p<0.05) than in patients with melanocyte benign simple nevi and tends to lower values (p=0.065) than in patients with non-melanocyte benign nevi (Fig. 3).
SFT under lower angle of the scapula in healthy men is significantly (p<0.05) higher than in men with melanocyte benign dysplastic nevi; and in men with melanocyte benign dysplastic nevi - significantly less (p<0.01) than in patients with melanocyte benign simple nevi and has a slight tendency to lower values (p=0.085) than in patients with non-melanocyte benign nevi (Fig. 4).

SFT on the breast in healthy men is significantly (p<0.05) higher than in men with melanocyte benign dysplastic nevi; and in men with melanocyte benign dysplastic nevi - tends to lower values (p=0.054 and p=0.075) than in patients with melanocyte benign congenital and non-melanocyte benign nevi (Fig. 5).

Abdominal SFT in healthy men is significantly (p<0.05) lower or has a slight tendency to lower values (p=0.086) than in patients with melanocyte benign simple and non-melanocyte benign nevi (Fig. 6).

SFT on the side in healthy men is significantly (p<0.01-0.001) lower than in men with benign nevi; and in men with melanocyte benign simple nevi - significantly (p<0.05) greater or tends to higher values (p=0.066) than in patients with melanocyte benign dysplastic and non-melanocyte benign nevi (Fig. 7).
Features of skinfold thickness in men with benign nevi

benign nevi (Fig. 7).

SFT on the thigh in healthy men is significantly (p<0.001) higher than in men with benign nevi; and in men with non-melanocyte benign nevi - tends to higher values (p=0.065) than in patients with melanocyte benign congenital nevi (Fig. 8).

SFT on the shin in healthy men was significantly (p<0.01) higher than in men with melanocyte benign dysplastic nevi; and in men with melanocyte benign dysplastic nevi - significantly (p<0.05) less or tends to lower values (p=0.054) than in patients with melanocyte benign simple and melanocyte benign congenital nevi (Fig. 9).

Discussion

In the analysis of SFT between healthy and benign nevi men found (Table 1):

SFT on the anterior and posterior surfaces of the shoulder and thigh in healthy men is significantly higher than in patients with melanocyte benign simple nevi (43.0 %, 34.2 % and 37.7 %, respectively), melanocyte benign dysplastic nevi (respectively). 49.0 %, 37.1 % and 41.3 %), melanocyte benign congenital nevi (respectively 35.4 %, 31.0 % and 43.1 %) and non-melanocyte benign nevi (respectively 45.3 %, 29.5 % and 36.6 %);

SFT on the forearm by 27.2 %, under lower angle of the shoulder blade by 10.8 %, on the chest by 15.0 % and on the shin by 22.5 % in healthy men is significantly higher than in patients with melanocyte benign dysplastic nevi;

SFT on the side in healthy men is significantly lower than in patients with melanocyte benign congenital nevi (22.7 %);

Abdominal SFT in healthy men is significantly lower or tends to lower values than in patients with melanocyte benign congenital nevi; 21.1 %);

the tendency to higher values in patients with melanocyte benign congenital nevi SFT on the side by 19.1 % than in patients with non-melanocyte benign nevi;

the tendency to higher values in patients with non-melanocyte benign nevi SFT on the thigh by 10.2 % than in patients with melanocyte benign congenital nevi.

The multifactorial nature of human skin cancer is a long-established scientific fact [15, 19], but anthropometric studies on the study of melanocyte skin tumors still remain few.

A review of 44 literature sources in the PubMed database revealed an association between indicators such as freckle density, eye color, hair color, family history, skin type, number of atypical and common nevi, and risk of melanoma [2].

The data of K.J. Buster and co-authors [5] suggest that the elderly, blacks, with low levels of education have a lower

Table 1. Differences in SFT between healthy and benign nevi patients, as well as between sick men.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Healthy</th>
<th>Sick</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFT on the back of the shoulder</td>
<td>MBN</td>
<td>MBN</td>
</tr>
<tr>
<td>SFT on the front surface of the shoulder</td>
<td>MBN</td>
<td>MBN</td>
</tr>
<tr>
<td>SFT on the forearm</td>
<td>MBN</td>
<td>MBN</td>
</tr>
<tr>
<td>SFT at the lower angle of the scapula</td>
<td>MBN</td>
<td>MBN</td>
</tr>
<tr>
<td>SFT on the chest</td>
<td>MBN</td>
<td>MBN</td>
</tr>
<tr>
<td>SFT on the abdomen</td>
<td>MBN</td>
<td>MBN</td>
</tr>
<tr>
<td>SFT on the side</td>
<td>MBN</td>
<td>MBN</td>
</tr>
<tr>
<td>SFT on the thigh</td>
<td>MBN</td>
<td>MBN</td>
</tr>
<tr>
<td>SFT on the shin</td>
<td>MBN</td>
<td>MBN</td>
</tr>
</tbody>
</table>

Notes: SFT - skinfold thickness; MBN - melanocyte benign common nevi; MBDN - melanocyte benign dysplastic nevi; MBCN - melanocyte benign congenital nevi; NMBN - non-melanocyte benign nevi; or - significant differences between healthy and sick men; or - significant differences in indicators between sick men; or - tendencies of differences of indicators between sick men.
risk of skin cancer. In general, in all groups of individuals studied, the criterion of low quality of education acted as a criterion for reducing the risk of skin cancer.

The purpose of the analysis of scientific research in the period from 1985 to 2011 revealed that obesity is a factor in the increased risk of many cancers of the human body, in particular, melanoma (RR=1.26) [6].

J.C. Dusingize, and co-authors [8] conducted an interesting study to find a relationship between genetically predicted constitutional characteristics of the human body and the risk of melanoma. No relationship was found with BMI, but with human growth such a relationship was found (OR 1.08, 95% CI: 1.02-1.13, 1 SD (9.27 cm) increase in height).

Data on the association between the risk of melanoma and human growth are confirmed in another study, as well as the usefulness of using the number of nevi. In addition, it is indicated that the prevalence of melanoma is almost the same among men and women [13].

Waist circumference can be used as a marker of melanoma of the skin - as evidenced by the purpose of the analysis conducted by Korean scientists [14].

Analysis of the results of 9 publications (total number of study participants 971,795 healthy individuals and 50,561 patients with non-melanocyte skin cancer) allowed to establish nonlinear feedback between body mass index and the risk of non-melanocyte skin cancer (RR=0.88, 95% CI: 0.85-0.91, I2=71.2 %, p<0.001). The strongest association was observed between body mass index and squamous cell carcinoma and basal cell carcinoma of the skin. Manifestations of sexual dimorphism were practically not detected, except for the reverse weak association in men [22].

A preliminary review of the literature did not reveal any publications in the available scientometric databases in the last 10 years regarding the use of anthropometric indicators to predict the occurrence of benign nevi. Thus, the results of this study are unique not only for the domestic but also for the international scientific community.

**Conclusion**

1. Numerous differences in SFT (higher values in healthy men, except for folds on the side and abdomen) have been found between healthy and men with benign nevi, which reflect the initial manifestations of abdominal (android) type of fat deposition in the body.

2. Differences between men with different forms of benign nevi mainly concern lower values of the majority of SFT in patients with melanocyte benign dysplastic nevi.

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Особливості товщини шкірно-жирових складок у чоловіків з добрякісними невусами

Набіль Басім Юсіф Хаддад

Невуси, хоч і є добрякісними новоутвореннями шкіри, проте мають певну схильність до малігнізації, на що впливають різні як зовнішні, так і внутрішні фактори людини. Передбачення ризику виникнення добрякісних невусів на даному фоні є актуальною темою для проведення експериментальних досліджень. Мета дослідження - встановити особливості товщини шкірно-жирових складок (ТШЖС) у чоловіків першого зрілого віку, хворих на добрякісні невуси. Проведено визначення ТШЖС за схемою Бунака чоловікам (віком 22-35 років), хворим на меланоцитарні добрякісні прості невуси (n=34), меланоцитарні добрякісні диспластичні невуси (n=27), меланоцитарні вродженні невуси (n=14) та немеланоцитарні добрякісні невуси (n=17). Контрольна група - ТШЖС практично здорових чоловіків аналогічної вікової групи відбрана з банку даних науково-дослідного центру Вінницького національного медичного університету імені М.І. Пирогова. Статистичну обробку результатів проведено в ліцензійному пакеті "Statistica 5.5" з використанням непараметричних методів оцінки. Встановлено, що у практично здорових чоловіків більші, ніж у хворих - ТШЖС на передній та задній поверхнях плеча і на стегні (в усіх групах хворих); ТШЖС на передпліччі, під нижнім кутом лопатки, на грудях і на гомілці (лише у хворих на меланоцитарні добрякісні диспластичні невуси). Також у здорових чоловіків встановлені менші, ніж у хворих - ТШЖС на животі (у хворих на меланоцитарні добрякісні прості та немеланоцитарні добрякісні невуси). При порівнянні ТШЖС між хворими на добрякісні невуси чоловіками, в більшості випадків, встановлені менші значення ТШЖС у хворих на меланоцитарні добрякісні диспластичні невуси. Отримані результати вказують на початкові прояви абдомінального (андроїдного) типу відкладення жиру в організмі у хворих на добрякісні невуси (найбільш виражені у хворих на меланоцитарні добрякісні прості невуси).

Ключові слова: добрякісні невуси, товщина шкірно-жирових складок, чоловіки.

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