

UDC 618.19-089.87

BRISKIN Y.¹, ODYNETS T.²¹Lviv State University of Physical Culture²Zaporizhzhya National University

Functional state of the cardiorespiratory system of women with postmastectomy syndrome with different types of attitude to the disease

Abstract. Purpose: to determine the peculiarities of the functional state of cardiorespiratory system in women with postmastectomy syndrome with different types of attitude to the disease. **Material and methods:** analysis of the literature and empirical data; rheography, spirometry, the definition of the type of attitude to the disease of personality questionnaires of Institute of Behtereva; methods of mathematical statistics. 115 women with postmastectomy syndrome on clinical stage of rehabilitation were involved in this study. **Results:** in women with intra- and interpsychic types of attitude to the disease decreased reserve capacity of the cardiovascular and respiratory systems respectively. **Conclusions:** It was proved that women with a rational type of attitude to disease show significantly better results of the cardiovascular system compared to interpsychic and intrapsychic.

Keywords: type of attitude to the disease, cardiorespiratory system, women, postmastectomy syndrome.

Introduction. Leading literary sources [8, 9] indicate that breast cancer takes a leading place among the female population. The most common consequence of breast cancer is postmastectomy syndrome (PMES), which includes the manifestation of symptoms such as upper limb lymphostasis, limiting range of motion in the shoulder joint, sensory disturbances, cardiovascular and respiratory systems, quality of life, negative psycho-emotional effects, etc. [4, 5, 7, 9].

One of the features of cancer are psychiatric changes that occur in the most patients because and deeply affect not only mental but also on somatic components [1]. These changes influence on the healing process, further forecast of disease and quality of life of patients [3, 6].

Research the majority of scientists [3, 4, 6, 9] prove conclusively that all of the patients who had undergone radical treatment of breast cancer and having signs of postmastectomy syndrome, both in dire need of physical and psychological rehabilitation, conduct which would contribute to a marked improvement physical condition of the patient. Traumatic factors are the identification of malignancy, the presence of social representations about its lack of curability, a high percentage of deaths, future surgery, radiation and chemotherapy, which is closely linked with somatic discomfort [1, 3].

Given the wide polymorphism of PMES, individually-typological characteristics of a woman and relationship to disease, it is an urgent need to study the peculiarities of functional disorders on the part of the cardiorespiratory system in patients with postmastectomy syndrome with different types of attitude to the disease.

Relationship with the academic programs, plans, themes. The selected research direction corresponds to the research topic of Zaporizhzhya National University "The development, experimental testing and implementation in practice the measures of physical rehabilitation to improve the health status of different categories of people" (state registration 0114U002653).

Objective: to determine the peculiarities of the functional state of cardiorespiratory system in women with postmastectomy syndrome with different types of attitude to the disease.

Material and methods: analysis of the literature and empirical data; rheography, spirometry, the definition of the type of attitude to the disease of personality questionnaires of Institute of Behtereva; methods of mathematical statistics. The study was conducted at the Zaporozhye Regional Oncology Center and Sports Complex "Spartac" in Zaporizhzhya. The experiment involved 115 women with postmastectomy syndrome, the average age of the studied was 60,27±0,79 years. The functional state of the cardiovascular system was investigated using chest reography on software and hardware complex REOCOM (Scientific and technical center of electronic medical devices and technologies "XAI-MEDICA", Kharkiv).

The functional state of the respiratory system was assessed by computer spirometry on Spirographs SMF-21/01-"P-D" (Scientific Production Enterprise "Monitor").

Method of determining of the types of attitude to the disease of women based on information about its relation to a number of the most important life problems and situations directly or indirectly associated with the disease. To determine the types of attitude to the disease used a questionnaire developed in the Institute of Behtereva [2]. It allows to define 12 types of relationships to disease: harmonic, ergopathic, anozognoxic, anxious, hypochondriac, neurotic, melancholic, apathetic, sensitive, egocentric, paranoidic, dysphoric.

In generalizing the results, all types of attitude to the disease have been combined into three blocks. The first block (rational attitude) included harmonic, ergopathic, anozognoxic types of relationship, indicating the most favorable response of the patient to the disease; second block (intrapsychic relationship) – anxious, hypochondriac, neurotic, melancholic, apathetic, indicating intrapsychic orientation of the personal response to the disease in violation of social adaptation of patients; third block (interpsychic relationship) – sensitive, egocentric, paranoidic, dysphoric indicating interpsychic orientation of response.

Results of the research and their discussion. During studies of the functional condition of the cardiovascular system of women according chest rheography depending on the types of attitude to the disease (Table 1) it was found that in patients with rational type parameters of stroke volume, stroke index and left ventricular output was significantly higher compared with intrapsychic on 3,99 ml (p<0,05), 2,24 ml/m² (p<0,05) and 0,22 W (p<0,05) respectively, that indicating the best possible of cardiovascular system. Among other types of attitude to the disease were not observed any differences in the likely performance of the cardiovascular system.

Table 1

Comparison of the cardiovascular system ($\bar{X} \pm m$) in women with postmastectomy syndrome on clinical stage of rehabilitation with the different types of attitude to disease

Indicator		Rational	Intrapsychic	Interpsychic
stroke volume, ml	fact.	47,99±1,42	44,00±1,27*	46,61±1,60
	% of the fact.	73,98±1,80	71,26±2,08	73,05±2,81
stroke index, ml/m ²		27,10±0,80	24,86±0,71*	25,64±0,85
cardiac index, l/min·ml		1,96±0,04	1,87±0,05	1,89±0,06
left ventricular stroke work, kg·m	fact.	4,26±0,11	4,02±0,11	4,09±0,12
	% of the fact.	77,36±1,85	73,23±2,01	73,88±2,09
left ventricle power, W	fact.	2,22±0,07	2,00±0,07*	2,05±0,10
	% of the fact.	81,54±2,25	75,92±2,48	76,50±3,93

Notes: * – $p < 0,05$ comparing patients with rational and intrapsychological types of attitude to disease

Among the indicators of lung function (Table 2) significant differences are observed only expiratory reserve volume, which was higher by 0,19 l ($p < 0,05$) in women with the rational type of attitude to disease compared with interpsychic.

Table 2

Comparison of the respiratory system ($\bar{X} \pm m$) in women with postmastectomy syndrome on clinical stage of rehabilitation with the different types of attitude to disease

Indicator	Rational	Intrapsychic	Interpsychic
Vital capacity, l	2,47±0,03	2,45±0,04	2,38±0,05
Forced vital capacity, l	2,35±0,03	2,37±0,03	2,38±0,04
Forced expiratory volume 1 sec, l	1,99±0,04	2,09±0,04	2,05±0,06
Peak volume rate, l/s	3,16±0,14	3,35±0,14	3,01±0,14
Maximal expiratory flow 25 % FVC, l/s	2,77±0,12	3,03±0,12	2,76±0,14
Maximal expiratory flow 50 % FVC, l/s	2,79±0,12	2,94±0,11	2,66±0,12
Inspiratory reserve volume, l	1,06±0,05	1,15±0,05	1,22±0,07
Maximal voluntary ventilation, l/min	57,56±1,72	60,69±3,37	64,04±4,84
Expiratory reserve volume, l	0,75±0,05	0,71±0,05	0,56±0,07
Stange, s	45,05±0,75	46,40±0,85	47,38±1,05
Genchi, s	22,65±0,40	22,83±0,49	22,11±0,77

Notes: * – $p < 0,05$ comparing patients with rational and interpsychic types of attitude to disease

Thus, we can predict that those women who have intrapsychic and interpsychic types of attitude to the disease will be reduced accordingly spare capacity of the cardiovascular and respiratory systems without additional application reography and spirometry.

Conclusions. Results of the study indicate that women with the rational type of attitude to the disease show significantly better results compared to intrapsychic stroke volume of blood flow – 3,99 ml ($p < 0,05$), stroke index - on 2,24 ml/m² ($p < 0,05$), left ventricle power – 0,22 W ($p < 0,05$). In patients with the interpsychic type of attitude compared with the rational marked the worst performance in the expiratory reserve volume of 0,19 l ($p < 0,05$). According to other indicators of cardiorespiratory system significant differences could not fix.

Prospects for further research include determining the characteristics of quality of life of woman with postmastectomy syndrome with different types of treatment to disease.

References:

1. Kasimova L. N., Ilyukhina T. V. *Psikhicheskiye rasstroystva v obshchey meditsine [Mental disorders in general medicine]*, 2007, vol. 3, p. 21–25. (rus)
2. Vasserman L. I., Iovlev B. V., Karpova E. B. *Metodika dlya psikhologicheskoy diagnostiki tipov otnosheniya k bolezni [Methods for psychological diagnosis type attitude to the disease: guidelines]*, Sankt-Peterburg, 2001, 33 p. (rus)
3. Petrolyuk Z. B. *Meditsinskaya psikhologiya [Medical psychology]*, 2007, vol. 4, p. 108–112. (ukr)

4. Peshkova O. V., Knyazeva A. A., Avramenko O. N. *Slobozans'kij nauk.-sport. visn. [Slobozhanskyi science and sport bulletin]*, Kharkiv, vol. 3, 2012, p. 101–107. (rus)
5. Peshkova O. V. *Slobozans'kij nauk.-sport. visn. [Slobozhanskyi science and sport bulletin]*, Kharkiv, vol. 5, 2013, p. 187–191. (ukr)
6. Magomedov M. M., Khalitov I. A., Mikhaylova B. I. *Fundamentalnyye issledovaniya [fundamental research]*, 2009, vol. 9, p. 52–53. (rus)
7. Strazhev S. V., Seryakov A. P. *Voyenno-meditsinskiy zhurnal [Military Medical Journal]*, 2012, vol. 2, p. 61–64. (rus)
8. *Global cancer statistics, 2012* / Torre L. A., Bray F, Siegel R. L. [et al.] // *CA Cancer J Clin.* – 2015. – Vol. 65 (2). – P. 87–108.
9. Smoot B. *Breast Cancer Treatments and Complications: Implications for Rehabilitation* / B. Smoot, M. Wampler, K. Topp // *Rehabilitation Oncology.* – 2009. – Vol. 27 (3). – P. 16.

Received: 12.07.2015.

Published: 30.08.2015.

Yuriy Briskin: PhD (*Physical Education and Sport*), Professor, Lviv State University of Physical Culture: Kostushko str. 11, Lviv, 79000, Ukraine.

ORCID.ORG/0000-0001-6375-9872

E-mail: y.briskin@ukr.net

Tatiana Odynets: PhD (*Physical Education and Sport*), Associate Professor; Zaporizhzhya National University: Zhukovsky str. 64, Zaporizhzhya, 69000, Ukraine.

ORCID.ORG/0000-0001-8613-8470

E-mail: puch1ik@mail.ru