



Research Journal of Pharmaceutical, Biological and Chemical Sciences

Frailty Syndrome and Main Geriatric Syndromes in Surgical Clinical Picture.

Svetlana Girshevna Gorelik*, Lutsenko Vladimir Dmitrievich, Kirill Ivanovich Proshchaev, Dmitriy Viktorovich Volkov, and Sofia Viktorovna Bogat.

Federal State Autonomous Educational Institution of Higher Professional Education, Belgorod State National Research University, 85, Pobedy St., Belgorod, 308015, Russia.

ABSTRACT

The paper represents an original research dedicated to one of the topical issues of the modern geriatrics – frailty syndrome. The rate of the syndrome incidence among the patient of the elderly and old age of the surgical profile has been specified; the increase in prevalence and degree of the frailty syndrome severity in the patients after surgical treatment has been confirmed. The dedicated geriatric examination has been carried out with the use of the proprietary software computer program “Optimization of the care in pediatrics depending on the frailty degree”.

Keywords: frailty syndrome, comprehensive geriatric assessment, medical-social rehabilitation.

**Corresponding author*

INTRODUCTION

The modern geriatrics is focused on delivery of medical and social care to the elderly and old people that do not only suffer from chronic diseases but also the so-called common geriatric syndromes [1, 2]. The rate of incidence of the frailty syndrome varies from 6,9% to 73,4%, in Russia it is diagnosed in 84% of elderly and old people [3-5]. The peculiarity of the frailty syndrome course in patients of the surgical profile is worsening and appearance of the new geriatric syndromes as the result of the anesthesia undergone, surgical treatment and necessity of bed rest during the postoperative period. For this reason the study of the frailty syndrome in patients of surgical profile is a topical geriatrics issue and requires carrying out further studies in this area.

The objective of this research is the study of incidence of the frailty syndrome among the elderly and old people of surgical profile.

PROCEDURE

The study included 439 patients of the increased age with the most wide-spread surgical pathology of the abdominal cavity organs prior to surgical treatment, after the surgical treatment (1-2 days prior to discharge from the hospital), 1 year after the surgical treatment (Table 1). The sites for performance of the studies were: the surgeries of the multi-field hospitals Municipal Budgetary Healthcare Institution “Municipal clinical hospital №1” and Belgorod Municipal Hospital №2.

Table 1: Characteristic of patients included in the study (abs.)

Time schedule for study	Elderly (n=274)		Old (n=165)		Total
	m	f	m	f	
Prior to surgical treatment	10	24	19	14	67
After surgical treatment (1-2 prior to dismissal)	62	83	35	54	234
1 year after surgery	38	57	22	21	138
Total	110	164	76	89	439

In order to determine the frailty degree the dedicated geriatric examination has been carried out with the use of the proprietary software computer program “Optimization of the care in pediatrics depending on the frailty degree” (State registration certificate for the computer program №2013660311 d/d 30.10.2013) aimed at detection of the physical, functional and psychosocial peculiarities of the elderly and old people. The criteria for inclusion in the study were: patient age from 60 to 89 years, presence of an abdominal surgical pathology as a primary disease. On the basis of data provided by particular authors [2, 3, 6-8] by development of the program we have singled out a few syndromes that are the most relevant for implementation of the rehabilitation actions among the patients of the increased age.

The degree of the ability for mobility was assessed by the scale “Functional mobility assessment in elderly patients” [9] consisting of the two sections: defining the general stability and walking parameters. The use of this scale enables providing an objective assessment of motion behavior by means of the direct measurement of those motion parameters that are changed with aging the most, in particular, the general stability and change in the manner of walking. By detection of the degree of the eating disorder (multi-nutrition syndrome) the Mini nutritional assessment (MNA) questionnaire consisting of the two sections was used [10]. The first section allows getting the information about the physical features that are affected by the multi-nutrition syndrome or concurrent conditions; the second section allows estimating the regularity and quality of nutrition, the factors that may affect the eating behavior. The cognitive capabilities of the patients under study were evaluated with the use of the Mini-mental state examination [11, 12] questionnaire being a widely used technique for screening and estimation of the dementia severity. The assessment of the moral status was performed with the use of the “Philadelphia geriatric morale scale” [13, 14] questionnaire allowing determining in the elderly and old people the presence of self-satisfaction, the feeling that they have achieved something in this life. In order to evaluate the degree of the patient’s independence from physical assistance in everyday life we have used the Barthel scale [15].

FINDINGS OF THE STUDY

The most frequent surgical pathology of the abdominal cavity organs in patients of the both groups was the acute appendicitis - 14,7±0,4 %. The rate of the cholelithiasis incidence made 13,7±0,4 %, acute pancreatitis was diagnosed in 11,2±0,2 % patients, hernias of various localization – in 9,1±0,9 %, peptic ulcer with hemorrhage, perforation, stenosis – in 3,8±0,4 %, acute ileus – in 2,6±0,5 %.

The rate of the frailty incidence among the elderly patients prior to the surgical treatment made 26,5±0,2% per 100 patients, among the old patients - 65,6±0,1% (p<0,05). After the surgical treatment there was detected the definite increase in the frailty prevalence among the elderly patients from 26,5±0,2% to 51,0±0,8% (p<0,05), the definite increase in the frailty syndrome 1 year after the surgical treatment was not detected (52,9±0,6%). Among the old patients prior to the surgical treatment there was detected the definite increase in the frailty prevalence from 65,6±0,1% (before surgery) to 79,8±0,9% after the surgical treatment and up to 84,6±0,9% 1 year after the surgical treatment (p<0,05).

In the course of the study the functionality was investigated in respect of the comparative aspect (Table 2).

Table 2: Total score of the indicators under study

Parameters	Elderly age			Old age		
	before surgery	after surgery	1 year after	before surgery	after surgery	1 year after
Stability parameters	26,85±0,6	26,01±0,5	20,89±0,4 *,**	23,92±0,5*	21,83±0,6 **,#	13,11±0,5 ***,#,##
Walking parameters	19,63±0,5	17,49±0,4 *	17,40±0,4*	14,21±0,4*	13,20±0,6 **,#	10,64±0,5 ***,#,##
Multi-nutrition syndrome	20,5±0,7	15,9±0,4*	15,3±0,6*	15,8±0,6*	14,4±0,5 **,#	13,9±0,6 ***,#,##
Cognitive impairment	29,3±0,7	26,0±0,5 *	26,7±0,5 *	25,0±0,7 *	21,1±0,6 **,#	22,0±0,6 ***,#
Moral status	37,1±0,8	34,1±0,5 *	40,6±0,5 *,**	47,4±0,8 *	39,5±0,7 **,#	40,8±0,8 #
Independence in everyday life	90,5±0,5	88,3±0,5 *	83,3±0,4 *,**	86,2±0,5 *	84,4±0,6 **,#	62,5±0,6 ***,#,##

*p<0,05 as compared with the elderly people before surgery, ** p<0,05 as compared with the elderly people after surgery, *** p<0,05 as compared with the elderly people 1 year after surgery, #p<0,05 as compared with the old people before surgery, ##p<0,05 as compared with the old people after surgery.

Our study has proved that the parameters of stability, walking in patients of old age are significantly lower than those in the elderly patients both prior to the surgery and during the early post-operational period and 1 year after the surgery. The parameters of stability, walking in patients of the elderly and old age 1 year after the surgery were lower than the stability parameters of the same patients prior to and after the surgery.

The old patients prior to the surgical treatment as well as during the early post-operational period and 1 year after the surgery definitely demonstrated the increased risk of development of the multi-nutrition syndrome. It was noted that patients of both the elderly and old age showed the definite degradation of the cognitive performance and moral status after the surgery and a slight improvement of these indicators 1 year after the surgery. The old-age patients after the surgical treatment definitely required more physical assistance in everyday life. 1 year after the surgery the everyday-life dependence of the old-age people increased even more which most probably indicates that these patients require not only medical but the social assistance as well, therefore, they require a closer attention.

SUMMARY

The frailty syndrome being an interdisciplinary phenomenon may serve as a predictive factor in respect of the outcome of the surgical treatment of patients and a clinical issue that can be considered as the

criterion for assessment of degree of loss of the self-care and patients' demand not only for medical but for the social assistance, therefore, it requires a closer attention to be paid.

Increase in the prevalence of the frailty syndrome and variability of the frailty severity degree in the patients of the elderly and especially old age after the surgical treatment is most probably related to the functional changes in the organs and tissues as the result of the surgical pathology, multimorbidity and surgical treatment undergone. The slight improvement in the frailty severity degree in the elderly patients and worsening of the frailty severity in the old-aged patients 1 year after the surgery may serve as indicator of adequacy and sufficiency of the rehabilitation treatment after dismissal from the hospital.

The use by the development of the rehabilitation programs of the methods of assessment of status of the elderly and old-aged patients with evaluation of the frailty severity degree will allow improving the medical-and-social outcome of the surgical treatment of patients and individualize and personalize the medical-social rehabilitation programs.

REFERENCES

- [1] Il'nitsky, A. N., 2012. Specialized geriatric examination. A. N. Il'nitsky, K. I. Proshchayev. V: V. F. Kuprevich gerontological journal, 4-5: 66–84.
- [2] Kalvach, Z., 2008. Geriatricke syndromy a geriatricky pacient. Z. Kalvach, Z. Zadak, R. Jirak et al. – Praga: Grada, pp:336.
- [3] Il'nitsky, A. N., 2013. Frailty as a concept of the modern gerontology. A. N. Il'nitsky, K. I. Proshchayev. V: Gerontology, 1(1): 408–412.
- [4] Dunrsmá, S. A., 2003. Geriatric medicine in the European Union: future scenarios. S. A. Dunrsmá, P. W. Overstall. In: Z. Gerontol. und Geriatr, 3: 204–215.
- [5] Akner, G., 2004. Geriatric medicine in Sweden: a study of the organization, staffing and care production in 2000-2001. G. Akner. In: Age and Ageing, 3(4): 338–341.
- [6] Bandeen-Roche, K., 2006. Phenotype of frailty: characterization in the women's health and aging studies. K. Bandeen-Roche, Q. L. Xue, L. Ferrucci et al. In: J. of Gerontology. Ser. A-Biological Sciences and Medical Sciences, 61: 262–266.
- [7] Fedarko, N., 2011. The biology of aging and frailty. N. Fedarko: Clin. Geriatr. Med., 27(1): 27–37.
- [8] Rockwood, K., 2011. Frailty defined by deficit accumulation and geriatric medicine defined by frailty. K. Rockwood. In: Clin. Geriatr. Med., 27(1): 7–26.
- [9] Tinetti, M., 1988. Identifying mobility dysfunctions in elderly patients. M. Tinetti, S. Ginter. In: JAMA, 259: 1058.
- [10] Guigoz, Y., 2006. The Mini-Nutritional Assessment (MNA): review of the Literature. Y. Guigoz. In: J. Nutr. Health Aging, 10: 466–487.
- [11] Zakharov, V. V., 2005. Cognitive disorders in the elderly and old age: (guidance manual for doctors) V. V. Zakharov, N. N. Yakhno, Moscow, pp. 71.
- [12] Folstein, M. F., 1975. "Mini-mental state". A practical method for grading the cognitive state of patients for the clinician. M. F. Folstein, S. E. Folstein, P. R. McHugh. In: J. of psychiatric research, 12(3): 189–98.
- [13] Lawton, M. P., 1975. The Philadelphia Geriatric Center Morale Scale: a revision. M. P. Lawton. In: J. of Gerontol., 30: 85–89.
- [14] Lawton, M. P., 1992. Dimensions of affective experience in three age groups. M. P. Lawton, M. H. Kleban, D. Rajagopal, J. Dean. In: Psychology and Aging, 7: 171–184.
- [15] Machoney, F., 1965. Functional evaluation: the Barthel Index. F. Machoney, D. Barthel. In: Md. State Med. J., 14: 61–65.