

N. A. Khokhlacheva\*, O. D. Mikhaylova, A. V. Bystrova

Izhevsk State Medical Academy, Izhevsk, Russia

## EDUCATION OF PATIENTS WITH STAGE I CHOLELITHIASIS AT THE HEALTH SCHOOL

### Abstract

The education of patients at the health school with the **objective** to improve the effectiveness of treatment of cholelithiasis and to prevent the gallstone formation was organized. **Material and methods.** 210 patients with cholelithiasis, stage I, were examined: 123 patients (the follow up group) received therapy due to medical and economic standards and were educated in the health school; 87 patients (the comparison group) received only standard therapy. The examined groups of patients were balanced by gender and age. In verification of the diagnosis, in addition to general clinical data, the results of ultrasound examination of the gallbladder were used. The study of psycho-emotional status, health literacy and medical activity dynamics was performed during treatment. The criteria for evaluating the effectiveness of education at health school were the results of responses to tests and questionnaires. **Results.** All patients had abdominal pain and dyspeptic syndrome. The study of psycho-emotional status revealed significant increasing of state and trait anxiety and the level of depression. The inclusion of health education in the treatment regimen contributed to a distinct decrease of anxiety that indicates the normalization of the psycho-emotional status, and leads to the more significant positive dynamics of clinical signs. Gaining additional knowledge about cholelithiasis and its prevention contributed to the increase of patient's motivation to follow the recommended procedures, diet and rational physical activity. **Conclusion.** The use of the developed structured program of active education of patients with the cholelithiasis, stage I, as part of complex therapy contributes to the improvement of the therapeutic effect, i.e. the earlier decrease of pain and dyspeptic syndrome, and restoring of psycho-emotional balance. After educational classes, the increase of health literacy, medical activity, motivation to maintain health-preserving behavior was revealed, which lasted for 1 year. Thus, the therapeutic education of patients at the early stage of cholelithiasis in the health school is clinically confirmed and promising for the prevention of this disease.

**Key words:** *cholelithiasis, health school, psycho-emotional status, health literacy, medical activity*

**For citation:** Khokhlacheva N. A., Mikhaylova O. D., Bystrova A. V. EDUCATION OF PATIENTS WITH STAGE I CHOLELITHIASIS AT THE HEALTH SCHOOL. The Russian Archives of Internal Medicine. 2019; 9(3): 201-205. [In Russian]. DOI: 10.20514/2226-6704-2019-9-3-201-205

DOI: 10.20514/2226-6704-2019-9-3-201-205

CL — cholelithiasis, TA — trait anxiety, MA — medical activity, SA — state anxiety, HL — health literacy, US — ultrasound

### Introduction

Many risk factors for various diseases directly depend on the person [1, 2]. Low medical culture of a significant part of population is a significant obstacle for formation of active health promotion behavior [3, 4].

As it turned out, health education, which is passive perception of health information, is not an effective way to promote healthy lifestyles. The crucial

role here belongs to the active training of hygienic medical skills (training, role-playing) for their subsequent use in life [5-7]. This is the task facing health schools for patients, which are widely introduced, in recent years in the practice of health [8, 9]. This approach, which contributes to the improvement of the preventive direction with the use of resource-saving technologies, is also relevant in connection with the implementation of the national project titled "Health", launched on 01.10.2018.

\*Contacts. E-mail: stoxel@yandex.ru

The literature covers issues on the organization of health schools for patients with various pathologies [10, 11], but we have not found information about the organization of training for patients with cholelithiasis (CL). Meanwhile, this issue is extremely important and relevant today due to the ever wider and year-on-year increasing spread of this pathology [4, 2, 6].

The training of patients in the health school **in order to** improve the efficacy of therapy in CL and prevention of gallstone formation was carried out.

## Materials and methods

Two hundred and ten patients with cholelithiasis at the stage I (pre-stone) (classification of Central Research Institute on Gastroenterology, 2001) [12], who received at the time of the study inpatient treatment in the Department of Gastroenterology of City Clinical Hospital No. 8 for various biliary system diseases (biliary tract dysfunction, chronic non-calculous cholecystitis, non-alcoholic and alcoholic fatty liver disease) were examined.

The median age of patients was 48 (32–65) years, 96 of them were male and 114 — female. Inclusion criteria in the study: age of 20 to 65 years, the presence of biliary sludge based on ultrasound, the presence of a patient-signed informed voluntary consent (order No. 390n of Ministry of Health and Social Development of the Russian Federation dated 23.04.2012). Exclusion criteria in the study: age below 20 and above 65 years, serious condition, oncological disease, mental disorders. This study was approved by the Ethical Committee of IGMA.

The diagnosis was verified via ultrasound examination (US) of the gallbladder. In addition to the general clinical study (medical history, physical examination), the study of psycho-emotional status of patients was performed. Using the State-Trait Anxiety Inventory (STAI), levels of anxiety were investigated: state (SA), as a state on the current moment, and trait (TA), as the persistent patient's feature. The level of depression was studied using the V. Zung scale of depression for self-assessment. The examined patients were divided into two groups. The follow-up group (123 patients), which received therapy which was conducted in

accordance with medical and economic standards (MES), was trained at the school of health. The comparison group (87 patients) received only MES therapy. The groups were balanced according to gender and age. The results were compared with the data of the control group, which included 50 healthy volunteers aged 30 to 60 years.

The organization of the health school was guided by the Order of the Ministry of Health of the Russian Federation No. 455 dated 23.09.2003 "On the improvement of activity of health authorities and institutions for disease prevention in the Russian Federation" and the Order of the Ministry of Health of UR No. 449 dated 13.09.2011 "On the organization of schools of health on issues of healthy lifestyle formation". The duration of the training cycle was 10 classes of 50–60 minutes. Classes were conducted by the active learning method. The distribution of time was as follows: 30 % — information lecture, 30 % — discussion, 30 % — practical work (case-method, role-playing games), 10 % — individual consultations.

The effectiveness of health school education was assessed by the levels of health literacy (HL) and medical activity (MA) determined before and after the cycle of classes. The criteria for assessing the levels of HL and MA were the results of responses to tests and questionnaires developed according to the conceptual model of health literacy proposed in the European survey of health literacy (2012). They included questions on risk factors for CL and on the ability to apply the information in practice.

The calculation of the required number of observations was based on the calculation of the sample size with the level of statistical power of the study  $\rho = 0.80$  and was performed using statistical software packages Statistica 6.1 (Stat Soft), allowing to estimate the sample population as corresponding to the normal distribution. Randomization of patients was carried out at the stage of group formation using the method of simple randomization using random number tables. To determine the relationship between the analyzed qualitative characteristics,  $\chi^2$ -test was used. The data in the table are presented as mean values (M) with the determination of their errors ( $\pm m$ ). The reliability was evaluated by the Student's test, the difference is considered reliable at  $\rho < 0.05$ .

## Results and discussion

During US, biliary sludge (suspension of hyper-echogenic particles, putty bile, microlithiasis) was found in 100 % of patients in the cavity of the gallbladder, which was the inclusion criterion in the study. When collecting medical history, abdominal pain syndrome was revealed. As a rule, the pain was localized in the right hypochondrium, was dull, oppressive, intensified after eating, less often the pain was acute, colic-like. Among the symptoms of biliary dyspepsia belching, vomiting, bitter taste in the mouth, unstable stool with alternation of diarrhea and constipation prevailed.

The examined patients had significantly increased both state anxiety (SA) (external and internal stimuli) and trait anxiety (TA), which characterizes the tendency of a large circle of situations to be threatening, the level of depression was also elevated, as the form the manifestation of psycho-emotional maladjustment (Table 1). The results obtained are consistent with the data previously given in the literature on high anxiety in patients with pathology of the biliary system [13].

To develop a structured training program for the cycle among the patients of follow-up group, a survey was conducted, which revealed that 74 patients (60.16 %) preferred a conversation with a doctor to all other sources of information about their health. Eighty-nine patients (72.35 %), 64 patients (52.03 %), 47 patients (38.21 %) wanted detailed information about proper nutrition in CL, about the harmful effects of smoking and alcohol on health. The main source of medical information for the majority of respondents was the media (TV and radio programs, newspapers, websites). Seventy-five patients (60.97 %) smoked and (or) took alcohol.

The level of medical activity (MA) of patients (negligent attitude to their health, failure to comply with medical recommendations) was insufficient. Thus, when complaints appeared, only 47 patients (38.21 %) consulted with the doctor in a timely manner, the rest — only when self-treatment was ineffective. Only 54 patients (43.90 %) followed the doctor's recommendations exactly. Taking into account the results of the interview, a training program of the cycle was developed, which aimed to improve the prevention of gallstone formation. Classes at the school of health were held in a group consisting of 8–12 people. The group was a closed group, i. e. no new patients joined during the training. The programme of the cycle included the following topics: anatomy and physiology of the gallbladder, the concept of the CL and its complications, diet and rational work and rest, necessary for the prevention of gallstone formation, non-drug therapy of the CL, the negative role of alcohol and smoking in the development of the CL. Two classes were conducted in conjunction with a psychotherapist to increase adherence to treatment. Students were encouraged to express their views on the issues discussed, to discuss, to share life experiences (positive or negative), and so patients received psychological support. At the end of the classes, the results were summed up together, where the key points of the topic were once again emphasized, and the doctor and the fellow group members noted the successes of each.

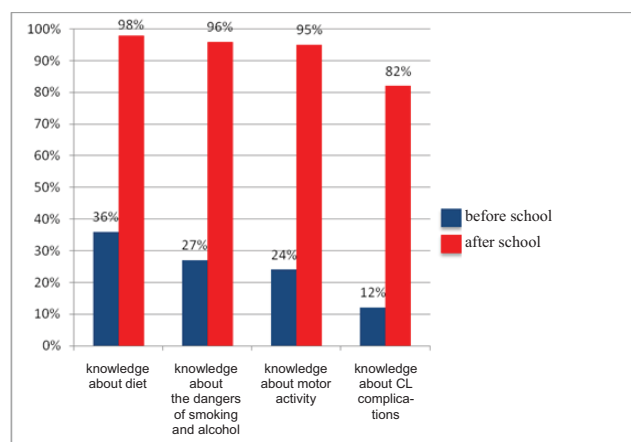
Indicators of the psycho-emotional status of patients were studied during treatment (Table 1). The inclusion of therapeutic training in the treatment regimen (follow-up group) contributed to a distinct decrease in D, TA and SA, which indicated the normalization of the psycho-emotional

**Table 1.** The dynamics of psycho-emotional status in the learning process at the health school

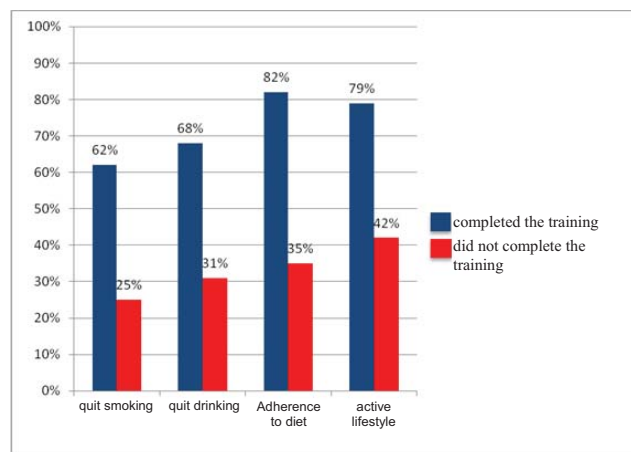
Parameter	Examined groups				
	Control (n=50)	Follow up group (n=123)		Comparison group (n=87)	
		Before treatment	After treatment	Before treatment	After treatment
Trait anxiety (unit)	34.6±1.14	57.47±1.15*	49.41±1.14**	58.61±0.65*	58.54±0.36
State anxiety (unit)	26.4±2.15	56.35±2.24*	31.56±1.33**	58.92±0.64*	58.10±0.40
Depression (unit)	36.7±1.18	58.75±1.31*	39.91±2.23**	59.77±0.36*	59.10±0.52

**Note:** n — number of cases; \* — reliability with respect to the control level; \*\* — reliability with respect to the level before treatment

background. It is noteworthy that in the process of training, the level of SA decreased to a greater extent than TA, which probably indicated the normalization of the patient's situational response to stressful situations such as illness and fear, due to a lack of necessary and adequate medical information. The level of TA, which remained above control values, noted by us in earlier studies [14, 15], may have been associated with the increasing responsibility of the patient for their health in obtaining reliable knowledge about CL and methods of preventing gallstone formation. In the comparison group, no changes in indicators of the psycho-emotional status over time were noted.



**Figure 1.** Patient awareness of some aspects of the disease



**Figure 2.** Patient compliance with a healthy lifestyle in the remote period

Normalization of psycho-emotional background contributed to more pronounced changes in clinical symptoms. Thus, abdominal pain and biliary symptoms in the follow-up group were relieved by the 3rd — 5th day after treatment, and in the comparison group — by 7–10th day. In the course of training, patients improved their knowledge on the problem of CL (health literacy), as evidenced by improved test results (Fig. 1).

Those who studied at the school of health began to better navigate in matters of nutrition — by 62 % ( $\chi^2 = 19.35$ ,  $p = 0.01$ ), the negative impact of smoking and alcohol on the biliary tract — by 69 % ( $\chi^2 = 20.98$ ,  $p = 0.01$ ), the benefits of motor activity — by 71 % ( $\chi^2 = 34.9$ ,  $p = 0.001$ ), possible complications of the CL — 70 % ( $\chi^2 = 5.4$ ,  $p = 0.04$ ). Obtaining knowledge about the CL and preventive measures of gallstone formation contributed to the increase of MA, which was expressed in the willingness to apply the knowledge in practice. As the results of the survey showed, classes at the school of health led to an increase in the motivation of patients to perform the recommended health procedures, to adhere the correct diet and rational motor activity: 48 of 56 patients who consumed alcohol (85.71 %,  $\chi^2 = 27.35$ ,  $p = 0.001$ ), decided to quit drinking, 46 of 62 smoking patients (74.19 %,  $\chi^2 = 16.81$ ,  $p = 0.001$ ) — decided to quit smoking, 67 patients (54.47 %,  $\chi^2 = 6.7$ ,  $p = 0.05$ ) — decided to increase motor activity and 56 patients (45.52 %,  $\chi^2 = 5.87$ ,  $p = 0.05$ ) — decided to balance nutrition. A similar trend was observed after training in schools of health of patients with pathology of other organ systems [14, 15].

The methodology of the educational process made it possible to arouse interest in learning, as a result of which 104 patients (84.55 %) wished to take a second course of classes to obtain a deeper knowledge on CL, 95 patients (77.23 %) began to independently study popular scientific medical literature.

Follow-up after 1 year (Fig. 2) after discharge from the hospital showed that the level of preservation of self-control and adherence to a healthy lifestyle among patients of the follow-up group was higher than in the comparison group. Sixty-eight percent and 62 %, respectively, quit drinking and smoking, while 31 % and 25 %, respectively, quit these bad habits in the group of those not trained ( $\chi^2 = 6.2$ ,

$\rho = 0.03$  and  $\chi^2 = 9.7$ ,  $\rho = 0.03$ ). Eighty-two percent of patients in the follow-up group and 35 % in the comparison group followed the correct diet ( $\chi^2 = 11.4$ ,  $\rho = 0.02$ ). The rules of rational motor activity were followed by 79 % and 42 %, respectively ( $\chi^2 = 5.5$ ,  $\rho = 0.04$ ).

## Conclusion

The use of the developed structured program of active training of patients with an early stage of CL as part of the complex therapy contributed to the strengthening of the therapeutic effect, which manifested in a faster reduction of pain and dyspeptic syndrome, and in the restoration of psycho-emotional balance. During training, there was a positive change in HL and MA, which was expressed in a higher level of knowledge about the problem of CL and willingness to apply this knowledge in practice. Motivation to maintain health-saving behavior remained after 1 year after training.

Thus, the therapeutic training of patients with stage I of CL at the school of health seems clinically justified and a promising direction of CL treatment and prevention of gallstone formation.

## Conflict of interests

The authors declare no conflict of interests.

## References:

1. Vakhrushev Ya.M., Kkhokhlacheva N.A. Gallstone disease: epidemiology, risk factors, clinical features, prevention. The Russian Archives of Internal Medicine. 2016; 6(3): 30-35. doi.org/10.20514/2226-6704-2016-6-3-30-35. [In Russian]
2. Vakhrushev, Ya.M., Khokhlacheva N.A., Glazyrina N.N., Bystrova A.V. Clinical supervision of patients with gallstone disease. Izhevsk. 2019: 142. [In Russian]
3. Myshkina L.V., Susloparova G.I., Shkatova E.Yu. The experience of health schools for patients of the Kirov Regional Clinical Hospital. Home Nurse. 2013; 2: 22-37. [In Russian]
4. Vasiliev O.V. Health schools for patients is one of the measures of secondary and primary prevention. Nurse. 2013; 4: 8-12. [In Russian]
5. Gorbunova I.V. Experience of the School of patient care in the district hospital. Home Nurse. 2016; 4: 17-25. [In Russian]
6. Suchkova E.V., Khokhlacheva N.A., Gorbunov A.Yu. The effectiveness of classes in school health for patients with hepatobiliary pathology. Public Health and Healthcare. 2012; 1: 63-67. [In Russian]
7. Maklaeva N.N., Osychenko M.E., Kamynina N.N. School nutrition correction as one of the forms of preventive work with the population. Nurse. 2016; 5: 51-54. [In Russian]
8. Gridnev O. Some aspects of the organization of preventive work of health centers. Health care. 2014; 1: 36-40. [In Russian]
9. Lobykina E.N. Nutritional assistance to the population in the municipal health care system in terms of the activities of health centers. Healthcare of the Russian Federation. 2012; 2: 53-55. [In Russian]
10. Filippov N.E., Ignatin I.M. School of Health for Diabetics. Nurse. 2012; 4: 38-39. [In Russian]
11. Myshkina, L.V., Shkatova, E.Yu., N. M. Popova, N.M. The use of nursing education programs to improve the quality of life of patients with peptic ulcer. Health, demography, ecology of the Finno-Ugric peoples. 2017; 4: 14-17. [In Russian]
12. Ilchenko A.A. Classification of gallstone disease. Experimental and clinical gastroenterology. 2002; 1: 131. [In Russian]
13. Medvedev V.E. Therapy of anxiety disorders in patients with cardiovascular diseases. The Russian Archives of Internal Medicine. 2013; 3: 70-76. [In Russian]
14. Vakhrushev Ya.M., Khokhlacheva N.A., Sergeeva N.N. Psycho-emotional state and vegetative status of patients with cholelithiasis. Therapeutic archive. 2017; 4: 64-68. DOI: 10.17116 / terarkh201789464-68. [In Russian]
15. Khokhlacheva N.A., Glazyrina N.N. Clinical and pathogenetic rationale for the treatment of patients with cholelithiasis stage I in the elderly. Clinical Gastroenterology. 2017; 11-12: 56-61. DOI:10.26347/1607-2499201711-12023-029. [In Russian]

Ⓐ

Article received on 04.03.2019

Accepted for publication on 04.04.2019