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# The main component life quality of patients with bronchial asthma depending on the severity course of the disease

*Key words: bronchial asthma, ginkgolides and bilobalides.*

Bronchial asthma (BA) is one of the most common diseases in modern society. Over the past decades, the incidence of asthma has significantly increased among the young physically active population. The percentage of heavy, resistant to medical therapy of the disease is growing.

Today, the term «quality of life» is widely discussed and used, as a real opportunity to quantitatively and qualitatively evaluate the functional reserves of the patient in his daily life, to establish the patient's ability to adapt to the manifestations of the disease, to evaluate the effectiveness of the treatment [37]. According to the World Health Organization (WHO), «quality of life» is an individual correlation of one's position in the life of society, in the context of a diverse culture and values —system of this society, with the goals of this individual, his plans and capabilities. A large research effort was devoted to the development of criteria for the quality of life of a person (Table 1), WHO [38 – 45]. Until now, the search for universal concepts and precise criteria that could cover a wide range of events and changes in the patient's life under the influence of the disease continues. Numerous studies have shown that BA affects both the physical condition of the individual, and the psychology of his behavior, emotional reactions, changing his place and role in social life. The psyche of a patient suffering from chronic illness is never normal. The psychostatus of a person who constantly feels the manifestations of a chronic disease, acquires neurotic features. Most authors emphasize the need for a lenient attitude to some of the characteristics of the patient, which makes him a serious patient, sometimes capricious, often inventing non-existent complaints.

The concept of quality of life is the basis of the modern understanding of the disease and the determination of the

effectiveness of its methods of treatment. His assessment makes doctors look at the nature of the disease and symptoms, help determine how the disease affects humans, and find appropriate ways to intervene, treat and rehab. YAC allows the physician to focus on the positive aspects of the patient's life and how to improve it.

The parameters of a patient's illness have independent prognostic significance and are more accurate factors of the prognosis of survival and state of the patient during treatment than the general-somatic status. Evaluating the quality of life allows you to compare the effectiveness of different therapeutic programs. In general, we can say that in chronic diseases quality of life — the main criterion for assessing the patient's condition, psychosocial quality of the personality play a major role in adapting the patient to the disease, which makes it especially relevant to study it in patients with asthma, because this pathology most often suffering young, physically active people [1 – 6].

*The main purpose of the study* was to study the nature of the main components of the quality of life of patients with bronchial asthma, depending on the severity of the course of the disease.

## Materials and methods

The research was conducted on the basis of the Department of Pulmonology at the State Enterprise «State Institution» National Institute of Phthysiology and Pulmonology

Them F. G. Yanovsky National Academy of Medical Sciences of Ukraine «. To solve the research problems, subjects of study were patients with bronchial asthma (BA). Patients were included in the study only if they volunteered for the purpose and scope of the planned examinations. According to the above criteria, the study

Table 1

Quality of life recommended by WHO	
Criteria	Characteristic
Physical	Power, energy, fatigue, pain, discomfort, sleep, rest
Psychological	Positive emotions, thinking, learning, memorizing, concentration of attention, self-evaluation, appearance, negative experiences
Social life	Personal relationships, social value of the subject, sexual activity
Environment	Well-being, safety, quality of life, security, availability and quality of medical and social security, availability of information, education and training opportunities, leisure, ecology (polluters, noise, population, climate, etc.).
Duccinctly	Religion, personal beliefs
Level of independence	Daily activity, work capacity, drug independence and treatment

included 40 patients with asthma in the phase of exacerbation, from 21 to 65 years old, on average ( $32.3 \pm 5.8$  years), including 17 men and 23 women. To identify factors that may affect the course of asthma, the constitutional parameters were considered: gender, age, height, weight, body mass index; Information about the peculiarities of the patient's life: smoking (the fact of smoking, bug – years), the presence of professional harmful conditions; Data on the peculiarities of the disease development: presence The closest relatives suffering from bronchial asthma and / or allergic diseases, the debut of the disease (in childhood or in adulthood), the time of manifestation of signs of allergy (in childhood or in adulthood), the presence of an allergic reaction to various substances, the factor causing an attack Strangulation; Data on the specifics of the course of the disease: the duration of the illness, the number of exacerbations and hospitalization per year, the length of stay in the hospital, the severity of the disease; Data on the features of the treatment of the disease: the use of short-acting  $\beta_2$ -agonists,  $\beta_2$ -agonists of prolonged action and inhaled corticosteroids, baseline therapy in the last month, use of a nebulizer in the previous year, the use of non-traditional and alternative treatments.

All patients were divided into three groups:

– And a group of 11 patients with a mild persistent course of the disease (symptoms occur at least once a week, but less than once a day for more than 3 months, symptoms of exacerbation can affect activity and sleep, the presence of chronic symptoms requiring symptomatic treatment, Almost daily, nightly symptoms of asthma occur more often 2 times a month; FEV1 or POSH exhalation and 80.0 % of the proper; daily oscillations of the exhaled OSH or FEV1 – 20.0 % - 30.0 %). 5 men and 6 women with mean age ( $27.8 \pm 1.9$  years), FEV1 ( $83.5 \pm 2.1$  %), FEV1 / FVC ( $105.5 \pm 2.1$ ) with BA duration ( $3.5 \pm 1.5$ ) years, the frequency of exacerbations of BA – ( $0.4 \pm 0.1$ ) times / year. Patients and groups did not receive inhaled corticosteroid drugs regularly, used as a treatment  $\beta_2$  – a short-acting salbutamol agonist;

– Group II – 19 persons with persistent middle-term progression (continuous presence of prolonged daytime symptoms, average exacerbation every 3-4 months, frequent nocturnal symptoms, partial limitation of physical activity due to BA, FEV1 or POST from 60.0 % to 80.0 % Of due, daily fluctuations in PID or FEV1 > 15.0 %, increase in the frequency of use of 2-agonists of short duration no more than 8 inhalations per day, courses of oral administration of GCS no more than 1 to 2 times a year), 9 men and 10 women, mean age ( $45.6 \pm 1.5$ ) years, FEV1 ( $63.5 \pm 2.1$  %), FEV1 / FVC ( $81.5 \pm 1.7$ ), duration ( $9.2 \pm 1.6$ ) years, the frequency of exacerbations of BA – ( $1.8 \pm 0.2$ ) times / year, which received only standard baseline therapy of the remission period, including the use of a combined preparation (corticosteroid + LABA). As well as a short-acting  $\beta_2$ -agonist for the purchase of asthma symptoms;

– Group III – 10 people with severe, poorly controlled course ((persistent presence of prolonged daytime symptoms, frequent severe exacerbations, frequent nocturnal symptoms, physical activity restriction due to asthma, FEV1 or POST < 60.0 % of proper, daily fluctuations of POSHvid or FEV1 > 30.0 %, increase in the frequency of use of  $\beta_2$ -agonists of short duration, more than 8 inhalations per day, courses of oral administration of the corticosteroids more than 2 to 3 times a year, as well as frequent ambulance calls), 3 men and 7 women, middle age ( $58, 4 \pm 2.3$ ) years, duration of asthma ( $18.8 \pm 1.5$  years), mean F EV1 ( $44.7 \pm 3.4$  %), FEV1 / FVC ( $61.5 \pm 2.5$ ), frequency of exacerbations of BA – ( $3.1 \pm 1.4$ ) times / year, receiving only standard baseline therapy in the remission period, Which includes the use of a combined preparation (corticosteroid + LABA), oral corticosteroid prednisolone 10 mg per day for either constant or intermittent administration (within a day), and a short-acting  $\beta_2$  agonist for acquiring asthma symptoms.

The assessment of the current condition of the patients was carried out according to the following clinical criteria: asthma control test, number of attacks of myocardial infarction (NSA) per day and week in the last month, MRC

dyspnea outside the scale of attack, daytime physical activity, respiratory rate and heart rate Contractions (heart rate). All of these patients were included in a prospective, controlled, randomized trial. When diagnosis of asthma was taken into account anamnesis, clinical symptoms, indicators of the function of external respiration, reversibility of obstruction in the sample with bronchodilator. The selection of patients according to the severity of asthma was performed in accordance with the criteria of Order № 128 of the Ministry of Health of Ukraine dated March 19, 2007 «On Approval of Clinical Protocols for the Provision of Medical Aid in the Specialty» Pulmonology «and Order №. 868 of the Ministry of Health of Ukraine of October 08, 2013» Unified Clinical protocol of primary, secondary (specialized) medical aid. Bronchial asthma» [7]. As a control, 10 healthy volunteers who had no serious clinically significant pathology were examined. As a questionnaire for determining the quality of life, patients were requested to fill in the general questionnaire SF-36 [8]. Survey of patients with asthma was performed three times – at exacerbation and twice in remission of the disease at intervals of six months. The general questionnaire SF-36 was used by healthy respondents to determine the «conditional norm.» Initial data obtained using the SF-36 questionnaire were subject to re-coding. The calculation of the YES criteria in the SF-36 questionnaire was conducted only on the basis of re-coding the data of the Likert rating summing method (by 100-point scale, %). The KPIs for SF-36 are as follows. Physical activity, FA (PF – Physical Functioning). The role of physical problem in limiting life, PF (RP – Role-Physical). Pain, B (BP – Bodily Pain). General GH – General Health. Viability, vitality (VT). Social active, CA (SF – Social Functioning). Along the emotional problem in limiting life, VE (RE – Role-Emotional). Criminal Justice, Mental Health. Comparison of well-being, SS. The respondent's physical status is characterized by 5 scales (FA, RF, B, OZ, ZH), psychosocial status was also assessed on 5 scales (PE, CA, PO, OZ, and ZH). The last two indicators are determined both by physical and mental status of a person. Statistical: Statistical processing of the material was carried out using the licensed software products included in the Microsoft Office Professional 2000 package, the Russian Academic OPEN NO LEVEL License 17016297 license on the IBM Atlon personal computer in Excel. To verify the normality of data sharing, the method was used by Lapach S. N. and others. (2001) (the function NORMSAMP-1, which is embedded in the Excel environment) [9, 10]. The work is done at public expense.

### Results obtained

The main determinants of the quality of life of healthy are presented in Fig. 1

As a result of the study, it is established, regardless of the severity of the course of asthma, exacerbation of the disease always worsens the quality of life by limiting physical activity, changing the psychological state of the individual, limiting social activity, causing stress and negative attitude to their health. But just how much these changes are

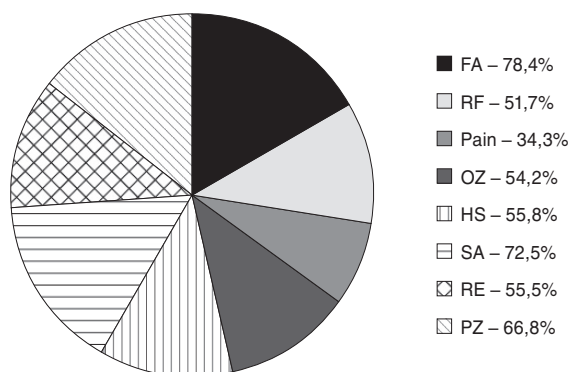


Fig. 1 Structure of the main determinants of the quality of life of healthy people.

expressed, their depth and duration in time completely depends on the degree of severity of the course of the disease. In patients with a slight persistent course of the disease, acute exacerbation of BA does not significantly limit physical activity – FA ( $67.8 \pm 2.1$ ) points, bringing to the fore physical problems with limitation of vital activity – RF ( $55.3 \pm 1.1$ ) points. The proportion of emotional problems in life-limiting activity is also increasing – RH ( $81.3 \pm 2.1$ ) points, which suggests that there is no significant stress during this period of the disease. The criteria for QA are related to the mental sphere: there was no significant decrease in the «viability» of the LC – ( $50.8 \pm 1.8$ ) points and the «mental health» of the software – ( $55.5 \pm 2.0$ ) points. Coefficients of social activity of patients with SA – ( $67.6 \pm 2.1$ ) points fall, respectively, indicating the inability of patients to fully implement social relationships in accordance with age, social status and level of needs during this period of the disease. Also, patients subjectively perceive the general state of their health, marked as «general health» OZ – ( $46.9 \pm 1.2$ ) points. The parameter YAZ «Pain» when exacerbated by asthma was ( $33.6 \pm 2.1$ ) points and did not differ from the value of a healthy group, which is explained by the fact that in the period of exacerbation, patients are seriously concerned only with specific symptoms of asthma and do not pay attention to pain in the literal Her understanding (Fig. 2).

In patients with a course of BA, of moderate severity, parameters (FA, RF, CA, OZ, PE) were significantly worse than in the healthy group. The index of physical activity of FA fell to ( $54.3 \pm 1.8$ ) points, the indicator of the role of physical problems of the Russian Federation was ( $41.4 \pm 1.2$ ) points. There was an increase in the index of emotional problems of PE – ( $87.3 \pm 2.5$ ) points, the index of mental sphere: «viability» of JS – ( $44.6 \pm 1.3$ ) points and «mental health» of software – ( $48.3 \pm 1.8$ ) points. Relatively lower were the indicators of social activity: CA before ( $52.4 \pm 1.1$ ) points. Also, there was a significant low subjective perception of patients with asthma general condition of their health, marked as «general health» of OZ – ( $39.1 \pm 0.8$ ) points. Parameter YZH «Pain» practically did not differ from the group of healthy – ( $33.3 \pm 2.1$ ) points (Fig. 3).

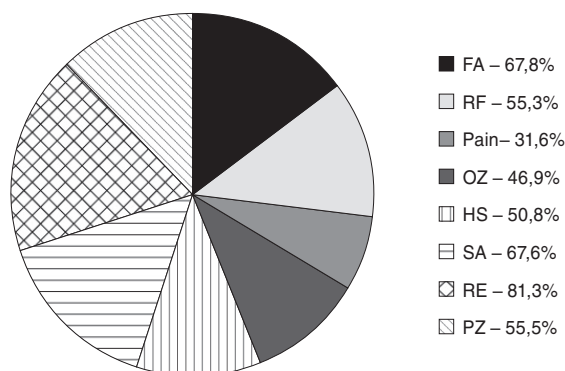
The worst indicators of the questionnaire were in the group of patients with a severe course of the disease.

Namely: the index of physical activity of the FA was significantly lowered to  $(11,9 \pm 1,1)$  points, the index of the Russian Federation was reduced to  $(26,2 \pm 1,1)$  points. The index of emotional problems of the RE to  $(96,3 \pm 2,9)$  points significantly increased, the indicator of the mental sphere: the «viability» of the NF fell to  $(18,5 \pm 0,3)$  points and the «mental health» of the PO –  $(13,4 \pm 0,5)$  points. Reduced were the indicators of social activity: SA to  $(8,3 \pm 0,4)$  points. Also there was a reduced low subjective perception of patients with asthma general condition of their health, marked as «general health» OZ –  $(15,3 \pm 0,3)$  points. The parameter «Pain» increased to  $(79,5 \pm 2,1)$  points (Fig. 4).

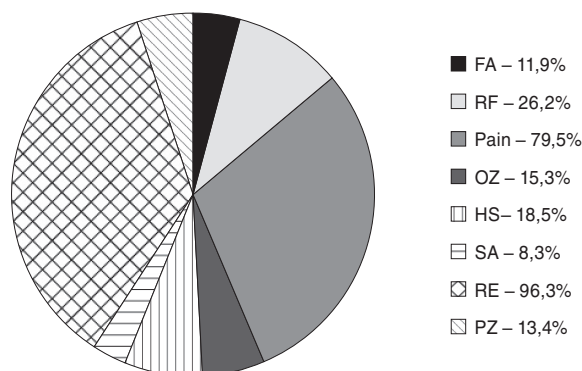
In the remission of the disease, the structure of the main determinants of quality of life was directly determined by the severity of the course of the disease. With the mild course of asthma in patients with remission, the rates did not differ from the group of healthy. Physical activity of the FA was within the norm  $(77,1 \pm 1,5)$  points, the indicator of the role of physical problems of the RF was changed from  $(55,3 \pm 1,1)$  points to  $(51,6 \pm 1,2)$  points. The index of emotional problems of PE with  $(81,3 \pm 2,1)$  points to  $(58,3 \pm 1,1)$  points decreased, the index of mental sphere: «viability» of ZH with  $(50,8 \pm 1,8)$  points to  $(54,2 \pm 1,5)$  points and «mental health» of software – with

$(55,5 \pm 2,0)$  points to  $(71,9 \pm 1,5)$  points. The indicators of social activity – SA from  $(67,6 \pm 2,1)$  points to  $(73,4 \pm 1,7)$  points increased. Normalized subjective perception of patients with asthma was my health, marked as «general health» of OC with  $(46,9 \pm 1,2)$  points before  $(55,1 \pm 1,8)$  points. The parameter «Pain» remained without significant changes –  $(34,5 \pm 2,2)$  points.

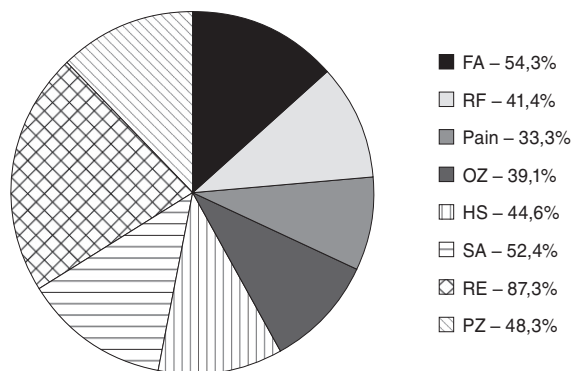
The calculation of the correlation coefficient between the values of the parameters of YA and two periods of the disease (remission or exacerbation) showed a clinically and statistically significant relationship between them. The strongest link with the periods of the course of asthma is defined for patients with mild asthma in the parameters of «physical activity» ( $\rho = -0,62$ ). Other parameters of YAZ had less force in relation to BA periods: «viability» ( $\rho = -0,55$ ) pain –  $\rho = -0,39$ , the role of emotional problems in limiting life –  $\rho = -0,48$ , general health –  $\rho = -0,46$ , mental health –  $\rho = -0,47$ , the role of physical problems in limiting livelihoods –  $\rho = 0,21$  and social activity –  $\rho = -0,35$ . The peculiarities of perception of the data of patients with their own diabetes mellitus, depending on the course of the disease, were evaluated based on the results of factor analysis. In the remission, the assessment of asthma patients with the lung of their lungs is one set of factors (the first major factor), which included



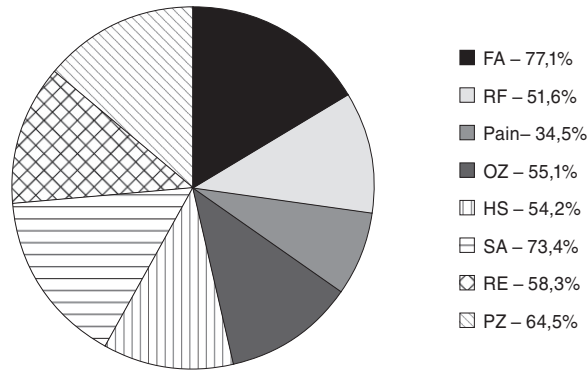
**Fig. 2. Structure of the main determinant components of quality of life in the mild course of asthma in the phase of exacerbation**  
Note. # the difference between the indicator and the healthy group is probable ( $p < 0,05$ )



**Fig. 4. Structure of the main determinant components of quality of life in the severe course of asthma in the phase of exacerbation**  
Note. # the difference between the indicator and the healthy group is probable ( $p < 0,05$ )



**Fig. 3. Structure of the main determinants of quality of life in the course of BA of moderate severity in the phase of exacerbation**  
Note. # the difference between the indicator and the healthy group is probable ( $p < 0,05$ )



**Fig. 5. The structure of the main determinant components of quality of life after 6 months of observation with the mild course of asthma in the remission phase**  
Note. There was no significant difference in the estimated values compared to the healthy group



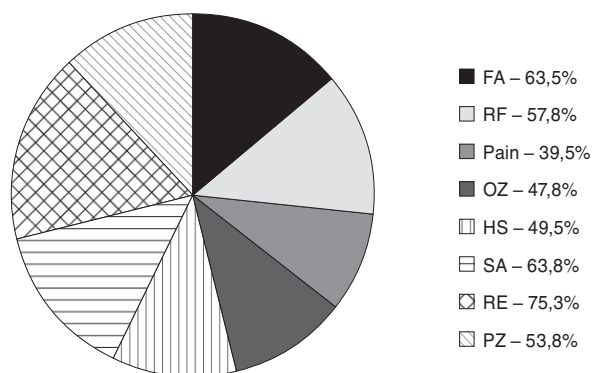
7 indicators with 8 (the «pain» figure has formed a separate second factor). On the background of complete clinical well-being, patients are not inclined to isolate the individual components of YAZ, but perceive the quality of their life intact (if everything is good, then everything is good). In turn, at exacerbation, parameters (pain and role of physical problems) «fell out» from the evaluation of patients with diabetes, the remaining 6 parameters formed two independent factors: the first main factor included FA, JS, CA and OZ, in the second – PE and software. This suggests that in case of exacerbation of the disease, the deterioration of YA patients is due, above all, to the limitation of physical abilities, and then to psycho-emotional disorders. In patients with a course of the disease of moderate severity in remission, some of the indicators of YAH differed significantly from healthy group. With an insignificant positive trend in the indicators of the Federal Republic of Germany, the Russian Federation, the CA, the OZ. Indicators of JS and software remained unchanged. Physical activity was reduced – ( $63,5 \pm 2,1$ ) points, there was a role of physical problems of the RF – ( $57,8 \pm 2,1$ ) marks (Fig. 6).

The index of emotional problems of the PE with ( $87,3 \pm 2,5$ ) points to ( $75,3 \pm 2,6$ ) points diminished somewhat, there was a positive trend in the mental sphere of the «viability» of the NSC with ( $44,6 \pm 1,3$ ) points To ( $49,5 \pm 1,5$ ) points and the indicator «mental health» of software with ( $48,3 \pm 1,8$ ) points to ( $53,8 \pm 1,9$ ) points. The indicators of social activity – SA from ( $52,4 \pm 1,1$ ) points to ( $63,8 \pm 1,5$ ) points. Also, there was a normalization of subjective perception of patients with asthma general state of their health, designated as «general health» of OZ from – ( $39,1 \pm 0,8$ ) points to ( $47,8 \pm 1,2$ ) points. The parameter YZH «Pain» remained without significant changes – from ( $33,3 \pm 2,1$ ) points to ( $39,5 \pm 2,1$ ) points. The calculation of the correlation coefficient between the values of the parameters of QOL and the two periods of the disease in patients of the II group showed a clinically and statistically significant relationship between them. The strongest link with the periods of the BA flow parameters «viability» ( $\rho = -0,71$ ) and the role of emotional problems in limiting life –  $\rho = -0,48$ . Other parameters

of YAH had less force in relation to the periods of BA: pain –  $\rho = -0,35$ , general health –  $\rho = -0,41$ , mental health –  $\rho = -0,48$ , the role of physical problems In the limitation of life –  $\rho = -0,23$  and social activity –  $\rho = -0,32$ . Peculiarities of the perception of the patients of the II group of their lung according to the periods of the disease were as follows. In the remission, the assessment of patients with asthma of moderate severity of her lupus erythematosus is one set of factors (the first major factor), which also included 7 indicators with 8 (the indicator of «pain» formed separately the second factor). At exacerbation, parameters (pain and role of physical problems) «fell out» from the evaluation of patients with diabetes, the remaining 6 parameters formed two independent Factor: in the first main factor included PE, JS, CA and FZ, in the second – OZ and software. This testifies that in case of exacerbation of the disease, the deterioration of YA patients is due, above all, to psycho-emotional disorders as a result of limiting physical abilities.

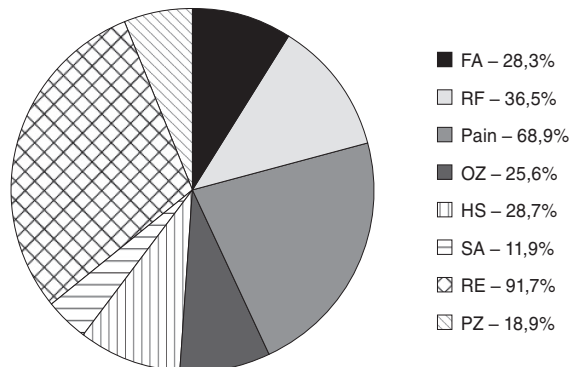
The most indicators of the questionnaire at Visit II remained in the group of patients with severe illness. There was an insignificant positive trend, with a significant difference in practically all indicators compared with the healthy group. The physical activity index of the FA varied from ( $11,9 \pm 1,1$ ) points to ( $28,3 \pm 1,5$ ) points, the index of the RF with ( $26,2 \pm 1,1$ ) points to ( $36,5 \pm 1,1$ ) Points. The index of emotional problems of PE with ( $96,3 \pm 2,9$ ) points varied ( $91,7 \pm 2,5$ ) points, the index of the mental sphere: «viability» of ZH with ( $18,5 \pm 0,3$ ) points to ( $28,7 \pm 0,5$ ) marks and «mental health» of software with ( $13,4 \pm 0,5$ ) points to ( $18,9 \pm 0,5$ ) points. Reduced indicators of social activity remained: CA from ( $8,3 \pm 0,4$ ) points to ( $11,9 \pm 0,8$ ) points. It also improved, however, the subjective perception of patients with BA in general condition of their health, marked as «general health» of OZ with ( $15,3 \pm 0,3$ ) points to ( $25,6 \pm 0,8$ ) points, remained low.. The parameter «Pain» did not decrease reliably from ( $79,5 \pm 2,1$ ) points to ( $68,9 \pm 2,3$ ) points (Fig. 7).

The calculation of the correlation coefficient between the values of the parameters of QOL and the two periods of the disease in patients of the III group showed a clinically and statistically significant relationship between them.



**Fig. 6. Structure of the main determinants of quality of life after 6 months of follow-up in the course of BA of moderate severity in the remission phase**

Note. # the difference between the indicator and the healthy group is probable ( $p < 0,05$ )



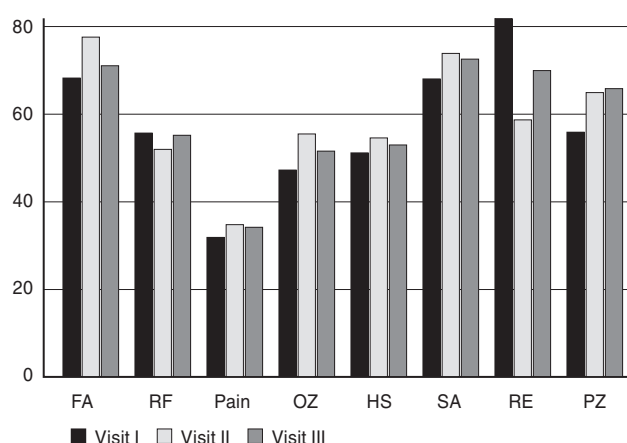
**Fig. 7. Structure of the main determinant components of quality of life in severe bouts of asthma after 6 months of follow-up (remission phase)**

Note. # the difference between the indicator and the healthy group is probable ( $p < 0,05$ )

The strongest connection with the periods of the course of BA parameters: mental health –  $\rho = -0.61$ , the role of physical problems in limiting life –  $\rho = -0.63$  and social activity –  $\rho = -0.70$ , the role of emotional problems in limitation of life –  $\rho = -0.4$ . Other parameters of YAZ had less force in relation to BA periods: «viability» ( $\rho = -0.71$ ) and pain –  $\rho = -0.35$ , general health –  $\rho = -0.41$ . The peculiarities of the patient's perception of the third group of their lung according to the periods of the disease were as follows. In the remission, the assessment of asthma patients with the lung of their lungs is one set of factors (the first major factor), which also included 7 indicators with 8 (the indicator of «pain» formed separately the second factor). At exacerbation, parameters (pain and role of physical problems) «dropped out» from evaluation of patients with diabetes, the remaining 6 parameters formed two independent factors: the first main factor included PE, ZH, CA and FZ, and software in the second – OZ. This suggests that such patients pose the problems of mental health, emotional problems and social activity, physical activity in the deterioration of diabetes mellitus, but the vitality, the level of general health and pain go to the background.

After 1 year of observation in patients with asthma, the light persistent flow of significant dynamics in the indicators of the questionnaire was not observed compared with the results obtained in remission after 6 months after exacerbation. There was no significant difference with the data of the healthy group. The index of physical activity of the FA was ( $70.6 \pm 1.2$ ) points, the indicator of the role of physical problems of the RF – ( $54.8 \pm 1.1$ ) points. There was a somewhat increased index of emotional problems in the PE – ( $69.5 \pm 1.6$ ) points, the indicator of the mental sphere: «viability» of the ZhS – ( $52.6 \pm 1.2$ ) marks and «mental health» of the software – ( $52.6 \pm 1.2$ ) points. The rate of social activity of the CA was ( $72.1 \pm 1.6$ ) points. Subjective perception of patients with asthma general condition of their health, marked as «general health» was adequate – OZ ( $51.2 \pm 1.6$ ) points. Parameter «Pain» practically did not differ from the group of healthy ( $33.9 \pm 2.1$ ) points (Fig. 8). There was no statistically significant difference between the 2nd and 3rd visits in the group.

After 1 year of follow up in patients with Group II, there was also no significant dynamics in the indicators of the questionnaire as compared to the results of remission 6 months after exacerbation, a significant difference was maintained compared to the healthy group in the FA, JS, CA, PE, PO. Namely: the index of physical activity of the FA was ( $53.5 \pm 1.8$ ) points, the indicator of the role of physical problems of the RF – ( $48.9 \pm 1.5$ ) points. There was an increased index of emotional problems in the PE – ( $79.5 \pm 2.1$ ) points, the index of the mental sphere: «viability» of the ZhS – ( $46.5 \pm 1.2$ ) marks and «mental health» of the software – ( $51.2 \pm 1.6$ ) points. Indicators of social activity SA were reduced – ( $55.3 \pm 1.3$ ) points. Also, there was no adequate subjective perception of patients with asthma general condition of their health, marked as «general health» of OZ – ( $43.2 \pm 1.1$ ) points.



**Fig. 8. Dynamics of the main determinant components of quality of life in the light persistent flow of asthma in a year of observation (compared with the phase of exacerbation)**

Note. # Is the difference between the indicator and the visit, and it is probable ( $p < 0.05$ ).

The parameter «Pain» practically did not differ from the group of healthy ( $36.8 \pm 2.0$ ) points.

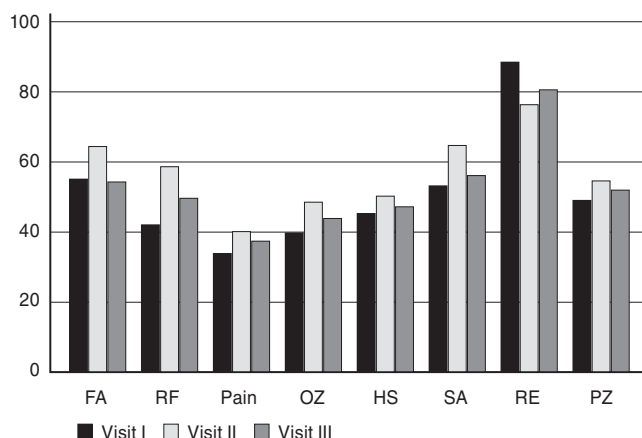
Compared with the data of the visit, and on visit II, only the FA and JS index was reliably normalized. On the visit III, compared with the visit of II, the social activity index of SA from ( $63.8 \pm 1.5$ ) points to ( $55.3 \pm 1.3$ ) points significantly deteriorated (Fig. 9).

The worst indicators of the questionnaire at the visit III were again demonstrated in a group of patients with a severe course of the disease. When comparing the data of visit I and II, the reliable difference was observed in all absolute indicators. Compared with the results of the visit of the 2nd and 2nd places, a significant deterioration of the FA and the RF, the OZ, the ZhS and the indicator «Pain» was established. The physical activity index of the FA changed from ( $63.5 \pm 2.1$ ) points to ( $43.1 \pm 1.1$ ) points, the index of the RF with ( $57.8 \pm 2.1$ ) points to ( $41.3 \pm 1.2$ ) points. The index of emotional problems of PE with ( $75.3 \pm 2.6$ ) marks to ( $65.9 \pm 2.1$ ) marks, the indicator of the mental sphere «viability» of the ZhS with ( $49.5 \pm 1.5$ ) points to ( $35.6 \pm 1.1$ ) points and the «mental health» of software with ( $53.8 \pm 1.9$ ) points to ( $49.8 \pm 1.9$ ) points (Fig. 10).

The social activity indicators remained ( $63.8 \pm 1.5$ ) to ( $28.9 \pm 1.1$ ) points. Also, the subjective perception of patients with BA of the general state of their health deteriorated, marked as «general health» of the OZ with ( $47.8 \pm 1.2$ ) points to ( $35.6 \pm 1.1$ ) points. The Pain parameter increased significantly from ( $53.8 \pm 1.9$ ) points to ( $49.8 \pm 1.9$ ) points, but the values of the exacerbation period did not reach any of the calculated parameters.

## Conclusion

As a result of the study, it was found that the degree of severity of the course of bronchial asthma significantly affects the quality of life of patients. The easier the course is – the better the quality of life. In the mild course of bronchial asthma, the exacerbation of the disease did not significantly change the quality of life of patients for a short time and did not significantly change, only at the expense

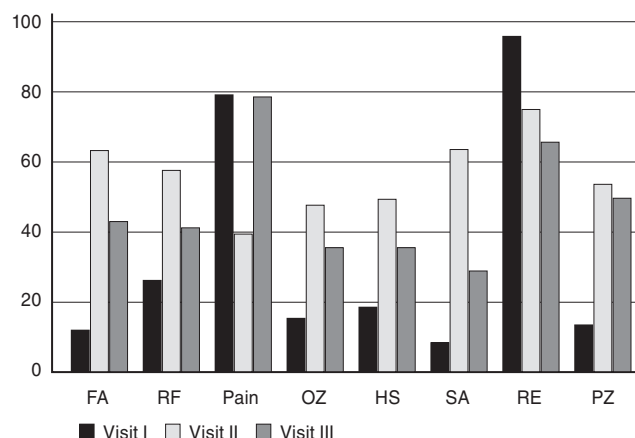


**Fig. 9. Dynamics of the main determinants of quality of life in the persistent flow of BA in moderate severity in a year of follow-up (compared with the phase of exacerbation)**

Notes:

# – the difference between the indicator and visit I is probable ( $p < 0,05$ ).

\* – the difference between the indicator and the visit is II probable ( $p < 0,05$ ).



**Fig. 10. Dynamics of the main determinant components of quality of life in severe persistent flow of asthma in a year of observation (compared with the phase of exacerbation)**

Notes:

# – the difference between the indicator and visit I is probable ( $p < 0,05$ ).

\* – the difference between the indicator and the visit is II probable ( $p < 0,05$ ).

of stress and emotional problems, normalizing in remission and keeping unchanged during the year of dynamic observation. Exacerbation of asthma patients with the course of the disease of moderate severity due to significant limitation of physical activity, caused depression of the emotional state and mental sphere, creating obvious conditions for the further risk of developing depression, subverting the subjective assessment of the perception of patients with the state of their mental health, limiting social activity. In the remission of asthma patients in the first place in the violation of quality of life advocated the restriction of physical activity, the failure to conduct adequate age and social life, the implementation in society with the development

of mild depression, change in behavioral reactions and aggravated severity of their condition, subjective perception I will have my health, not a calm relation to my illness, which was kept practically without significant fluctuations during the year of dynamic observation. And a completely catastrophic picture according to the received data of the questionnaire took place in a group of patients with a severe course of the disease. Regardless of the phase of remission, or aggravation, such patients were constantly in a depressed state, anxiety, aggravation of their physical tan, were dissatisfied with their health, did not consider that supportive therapy helps them and they can control the course of their illness.

## Список літератури

1. Relationship between exercise capacity and quality of life in adolescents with asthma [Text] / R. Basso, [et al.] // J. Bras. Pneumol. – 2013. – № 2. – P. 121–127.
2. Physical Activity and Asthma: A Systematic Review and Meta-Analysis [Web] / M. Eijkemans, [et al.] // Eur. Respir. J. – 2015. – № 3. – P. 35–45.
3. Everhart, R. Validation of the asthma quality of life questionnaire with momentary assessments of symptoms and functional limitations in patient daily life [Text] / R. Everhart, J. Smyth // Respiratory Care. – 2012. – № 5. – P. 427–432.
4. Eves, N. Evidence-based risk assessment and recommendations for physical activity clearance: respiratory disease [Text] / N. Eves, W. Davidson // Physiol. Nutr. Metab. – 2011. – № 1. – P. 80–100.
5. Quality of life of adolescents with asthma: The role of personality, coping strategies, and symptom reporting [Text] / O. Monique, [et al.] // Journal of Psychosomatic Research. – 2011. – № 71. – P. 166–173.
6. Asthma control and quality of life in patients with moderate or severe asthma [Text] / E. Pereira, [et al.] // J. bras. Pneumol. – 2011. – № 37. – P. 113–119.
7. Наказ МОЗ України № 128 від 19.03.2007 р. «Про затвердження клінічних протоколів надання медичної допомоги за спеціальністю «Пul'монологія» [Текст]. – Київ: ТОВ «Велес», 2007. – 148 с.
8. Quality of life in asthma. Internal consistency and validity of SF36 questionnaire [Text] / J. Bousquet [et al.] // Am. J. Respir. Crit. Care Med. – 1994. – № 149. – P. 371–375.

## Reference

1. Basso R, et al. Relationship between exercise capacity and quality of life in adolescents with asthma. J. Bras. Pneumol. 2013;2:121–127.
2. Eijkemans M, et al. Physical Activity and Asthma: A Systematic Review and MetaAnalysis. Eur. Respir. J. 2015;3:35–45.
3. Everhart R, Smyth J. Validation of the asthma quality of life questionnaire with momentary assessments of symptoms and functional limitations in patient daily life. Respiratory Care. 2012;5:427–432.
4. Eves N, Davidson W. Evidencebased risk assessment and recommendations for physical activity clearance: respiratory disease. Physiol. Nutr. Metab. 2011;1:80–100.
5. Monique O, et al. Quality of life of adolescents with asthma: The role of personality, coping strategies, and symptom reporting. J of Psychosomatic Research. 2011;71:166–173.
6. Pereira E, et al. Asthma control and quality of life in patients with moderate or severe asthma. J. bras. Pneumol. 2011;37:113–119.
7. Nakaz MOZ Ukraini № 128 vid 19.03.2007 r. «Pro zatverdzhennya klinichnikh protokoliv nadannya medichnoi dopomogi za spetsial'nistyu «Pul'monologiya» (Decree of MOH of Ukraine № 128 from 19.03.2007 «On approval of clinical protocols of medical care in the specialty «Pulmonology»). Kiiv: TOV «Veles», 2007. 148 s.
8. Bousquet J, et al. Quality of life in asthma. Internal consistency and validity of SF36 questionnaire. Am. J. Respir. Crit. Care Med. 1994;149:371–375.

9. Бабич, П. Н. Применение современных статистических методов в практике клинических исследований. Сообщение третье. Отношение шансов: понятие, вычисление, интерпретация [Текст] / П. Н. Бабич, А. В. Чубенко, С. Н. Лапач // Український медичний часопис. — 2005. — № 2. — С. 113–119.

10. Лапач, С. Н. Статистические методы в медико-биологических исследованиях с использованием Excel [Текст] / С. Н. Лапач, А. В. Чубенко, П. Н. Бабич. — Киев: Морион, 2001. — 320 с.

9. Babich PN, Chubenko AV, Lapach SN. Primenenie sovremennykh statisticheskikh metodov v praktike klinicheskikh issledovaniy. Soobshchenie tret'e. Otnoshenie shansov: ponyatie, vychislenie, interpretatsiya (The use of modern statistical methods in the practice of clinical research. Message three. The odds ratio: definition, calculation, interpretation). Ukr med chasopis. 2005;2:113–119.

10. Lapach SN, Chubenko AV, Babich PN. Statisticheskie metody v medikobiologicheskikh issledovaniyakh s ispol'zovaniem Excel (Statistical methods in biomedical research using Excel). Kiev: Morion, 2001. 320 s.

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