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CHARACTERISTICS OF DISORDERS OF THE QUALITY OF LIFE OF YOUNG PATIENTS DEPENDING ON THE VARIANT OF THE COURSE OF GASTROESOPHAGEAL REFLUX DISEASE

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The article represents the results of our research on determining the influence of esophageal symptoms of erosive and non-erosive forms of gastroesophageal reflux disease on indicators of the physical and mental components of quality of life according to the Medical Outcomes Study Questionnaire Short-Form 36. The presence and degree of severity of symptoms of gastroesophageal reflux disease were analyzed using the Gastroesophageal Reflux scale Disease Questionnaire. We examined 18 patients with an erosive form and 18 patients with a non-erosive form of gastroesophageal reflux disease. It is shown that against the background of the erosive form of gastroesophageal reflux disease, daily manifestations of the symptoms of the disease are more often observed, namely heartburn (RR=6.00 (0.80-44.95); p>0.05), regurgitation and pain in the epigastric region of the abdomen (RR=2.50 (0.56-11.25); p>0.05), which leads to violations of mainly physical components of quality of life. At the same time, the esophageal symptoms of the non-erosive form of gastroesophageal reflux disease change the quality of life of patients in categories that characterize mental health.

Key words: gastroesophageal reflux disease, clinical symptoms, body mass index, quality of life.

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ОСОБЛИВОСТІ ПОРУШЕНЬ ЯКОСТІ ЖИТТЯ ПАЦІЄНТІВ МОЛОДОГО ВІКУ В ЗАЛЕЖНОСТІ ВІД ВАРІАНТУ ПЕРЕБІГУ ГАСТРОЕЗОФАГЕАЛЬНОЇ РЕФЛЮКСНОЇ ХВОРОБИ

У статті представлені результати власних досліджень визначення впливу стравохідних симптомів ерозивної та неерозивної форм гастроезофагеальної рефлюксної хвороби на показники фізичного і психічного компонентів якості життя за опитувальником Medical Outcomes Study Questionnaire Short-Form 36. Наявність і ступінь тяжкості симптомів гастроезофагеальної рефлюксної хвороби аналізували за допомогою шкали Gastroesophageal Reflux Disease Questionnaire. Нами було обстежено 18 пацієнтів із ерозивною формою і 18 пацієнтів із неерозивною формою гастроезофагеальної рефлюксної хвороби. Показано, що на фоні ерозивної форми гастроезофагеальної рефлюксної хвороби частіше спостерігаються щоденні прояви симптомів захворювання, а саме печія (RR=6,00 (0,80-44,95); p>0,05), регургітація та біль в епігастральній ділянці живота (RR=2,50 (0,56-11,25); p>0,05), що призводить до порушень переважно фізичних компонентів якості життя. Одночасно стравохідні симптоми прояву неерозивної форми гастроезофагеальної рефлюксної хвороби змінюють якість життя пацієнтів у категоріях, які характеризують психічне здоров'я.

Ключові слова: гастроезофагеальна рефлюксна хвороба, клінічні симптоми, індекс маси тіла, якість життя.

The study is a fragment of the research project "Improving diagnostic approaches and optimizing the treatment of diseases of the digestive organs in combination with other diseases of body systems", state registration No. 0117U000300.

In recent years, gastroesophageal reflux disease (GERD) has taken a leading place among all pathologies of the upper gastrointestinal tract (GIT) and is one of the most relevant and widely studied problems of modern gastroenterology [3]. GERD occurs with equal frequency in men and women, most often between the ages of 25 and 44. According to modern studies, GERD affects from 20 % to 40 % of the adult population of Western European countries [7, 10]. In the conditions of general medical practice, according to the results of the endoscopic examination, 25–40 % of patients with GERD have esophagitis, but the majority of them do not have any endoscopic manifestations [5].

In recent decades, the perception of GERD, as well as its impact on the quality of life of patients, has fundamentally changed for several reasons:

– most patients with GERD have a non-erosive form of reflux disease (NERD) without esophagitis;

– symptoms of GERD can go far beyond heartburn and belching and even beyond esophageal manifestations, which sometimes complicates the timely detection of the disease [2];

– a significant overlap between the non-erosive form of GERD and functional disorders of the gastrointestinal tract that potentiates the negative impact on the quality of life of patients [1, 4, 9; 10].

Therefore, a new paradigm for the correct analysis of the impact of GERD on the quality of life of patients is needed, since the effectiveness of treatment can be evaluated not only by the disappearance of symptoms or the slowing of disease progression but also by the preserved adaptation of GERD patients in society and their everyday living.

Symptoms of GERD affect the following categories of patients' quality of life:

1. Physical condition associated with pain and discomfort, and avoiding activities that may cause symptoms, including lack of exercise and maintaining a sedentary lifestyle;

2. Mental state that goes through a higher level of emotional disturbance and impacts normal life, harming personal relationships. The indicated symptoms may indicate a more serious underlying disease;

3. Social functioning, for example, meal period violations, avoidance of certain foods, eating out, etc.;

4. Impact on productivity, especially association with sleep disturbance [4; 9; 10; 12].

The problems of researching the quality of life of patients with GERD lie in the difficulty of choosing an assessment tool. The general SF-36 questionnaire, which is widely used in Europe and the USA, maybe the most rational. The SF-36 questionnaire allows for a comprehensive assessment of various components of the patient's physical and mental state, does not require large material costs, and is easy and accessible to use and calculate data [7]. In our opinion, the influence of the severity of the main symptoms of both erosive and non-erosive forms of GERD, on the indicators of physical and mental health of patients, requires further study, which can help in understanding certain pathogenetic mechanisms of GERD and developing an individual approach to the treatment of this category of patients.

The purpose of the study was to assess the influence of esophageal symptoms of erosive and non-erosive forms of gastroesophageal reflux disease on indices of physical and mental components of quality of life according to the SF-36 questionnaire.

Materials and methods. Data from 36 patients with GERD who underwent outpatient treatment in the polyclinic department of the Municipal Enterprise "Poltava Regional Clinical Hospital named after M. V. Sklifosovskyy of Poltava regional Council", 20 (55.6 %) males and 16 (44.4 %) females, were analyzed. The median age of the examined patients was 30.8±1.6 years. All patients underwent upper endoscopy before study inclusion. Depending on the presence of esophageal mucosal lesions, the examined patients were divided into two groups:

Group I (n =18) – patients with an erosive form of GERD;

Group II (n =18) – patients with a non-erosive form of GERD

Group III included 26 practically healthy individuals, aged 25.3±4.2 years, 8 (30.8 %) males and 18 (69.2 %) females.

All participants underwent anthropometric measurements (height, body weight). The body mass index (BMI) was calculated according to the formula: weight (kg) / height (m^2). According to the WHO classification, a BMI of 18–24.9 kg/m^2 was considered normal, 25–29.9 kg/m^2 – overweight, and 30 kg/m^2 or higher – obese.

The presence and severity of GERD symptoms were evaluated using the GERD – Q scale: scores 0-2 points were considered as a <50 % probability of having GERD; 3–7 points – 50 % likelihood of GERD; 8–10 points – 79 % likelihood and 11–18 points – 89 % likelihood of GERD. All patients completed the GERD -Q questionnaire, which included questions about their well-being during the past 7 days. When processing the results of the questionnaire, the total score of the questionnaire and a separate score for each of the six questions were noted: the presence and frequency of heartburn, regurgitation, pain in the epigastric area, nausea, sleep disturbances because of the burning pain, additional need for taking medication.

Physical and psychological components of health were assessed using the MOS SF-36 (Medical Outcomes Study-Short form) questionnaire. To interpret the obtained results, we used the data processing instructions of the company "Evidence. Clinical and pharmacological studies" (http://www.evidence-cpr.com). The SF-36 questionnaire includes 8 scales that measure physical and mental components of health-related quality of life. The physical component of health (Physical health – PH) included physical functioning (PF), role limitations due to physical health (RP), bodily pain (BP), and general health (GH). The mental component (Mental health – MH) of health included vitality (VT), social functioning (SF), role limitations due to emotional problems (RE), and mental health (MH). Indicators for each of the scales ranged from 0 to 100. Thus, the higher the values of the indices, the better the quality of life.

Data processing. Statistical analysis of the data was performed using GraphPad Prism 5.0 (GraphPad Software, Inc., San Diego, CA, USA), which allows for performing parametric and non-parametric statistical analysis. With a normal data distribution, the results were presented in the form of the arithmetic mean (M) and the standard error (m). The Student's t-test was used to determine a significant difference between group means. In the case of non-normal distribution, the paired non-parametric methods of the Wilcoxon and Mann-Whitney rank tests were used. The degree of association between the studied indices was measured using Spearman's correlation. The odds ratio (OR) was calculated according to the formula: OR = (a*d) /(b*c), where *a* is the presence of the factor in the studied group, *b* is the absence of the factor in the studied group, *c* is the presence of the risk factor in the control group, *d* is the absence of the factor in the control group. Relative risk (RR, risk ratio) was estimated according to the formula: RR = A (C + D) / C (A + B), where A, B, C, and D are the number of observations in the cells of the correlation table. A p-value of <0.05 was considered statistically significant.

Results of the study and their discussion. We evaluated the role of overweight and obesity in the development of erosive and non-erosive forms of GERD. According to the data we obtained, the weight and BMI of patients with GERD, regardless of its form, exceeded the indices of practically healthy individuals (fig. 1).

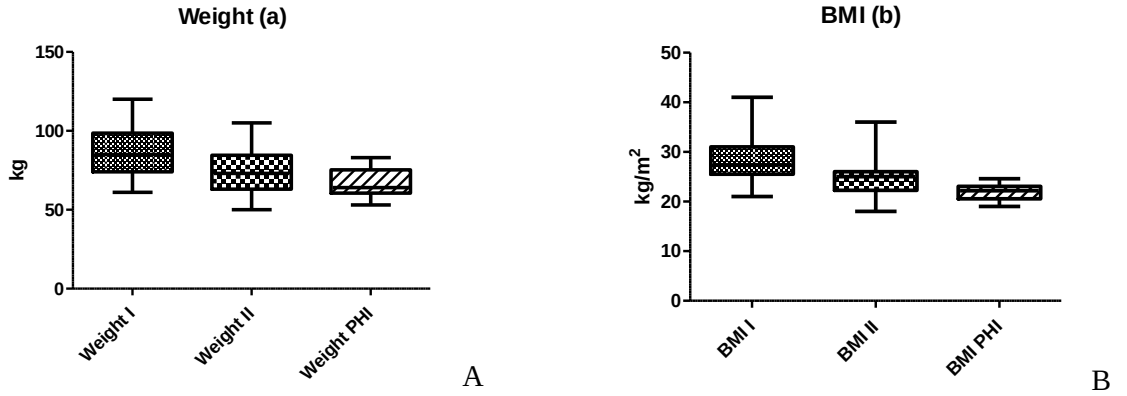

Fig. 1. Anthropometric indices of patients with erosive and non-erosive forms of GERD: a) weight of patients with erosive and non-erosive forms of GERD; b) BMI of patients with erosive and non-erosive forms of GERD. Note: # $p<0.05$ – statistically significant differences between indices of patients of groups I and II and practically healthy individuals of group III, & $p<0.05$ – statistically significant differences between indices of I and II groups.

Thus, the weight of groups I and II patients increased by 1.3 (86.61±4.03 kg; $p<0.0001$) and 1.13 (75.33±3.44 kg; $p=0.01$) times, respectively, compared to the index of practically healthy individuals (66.12±1.63 kg) (Fig. 1a). BMI of patients in groups I and II exceeded normal values by 1.3 (27.94±1.06 kg/m^2 versus 21.88±0.32 kg/m^2; $p<0.0001$) and 1.2 (25.49±1.05 kg/m^2 versus 21.88±0.32 kg/m^2; $p=0.0005$) times, respectively (Fig. 1b). At the same time, the weight of individuals with the erosive form (group I) increased by 1.1 (27.94±1.06 kg/m^2 vs. 25.49±1.05 kg/m^2; $p=0.04$) times compared to patients with a non-erosive form of GERD (fig. 1b).

In the first group of patients with the erosive form of GERD, 8 (45 %) patients were overweight, and 6 (33 %) were obese. Among patients with a non-erosive form of GERD, overweight was recorded in 5 (28 %) patients, and obesity in 3 (17 %). In addition, BMI within the normal range was found in 10 (55.6 %) patients with a non-erosive form of GERD and 4 (22.2 %) patients with an erosive form of GERD (OR=4.37 (95 % CI, 1.02–18.63; $p<0.05$). Therefore, in patients with a normal BMI, the probability of developing an erosive form of GERD is lower than in overweight and obese patients.

According to the GERD – Q score, we found that daily manifestations of the symptoms are more frequently observed in patients with an erosive form of GERD (Table 1).

Table 1

Survey results according to the GERD – Q questionnaire in patients with erosive and non-erosive forms of GERD

Groups	I (n=18)				II (n=18)			
Frequency score for symptoms	0 days	1 day	2-3 days	4-7 days	0 days	1 day	2-3 days	4-7 days
How often did you have a burning feeling behind your breastbone (heartburn)?	5 (27.8 %)	1 (5.6 %)	6 (33.3 %)	6 (33.3 %)	3 (16.7 %)	6 (33.3 %)	8 (44.4 %)	1 (5.6 %)
How often did you have stomach contents (liquid or food) moving upwards to your throat or mouth (regurgitation)?	3 (16.7 %)	2 (11.1 %)	8 (44.4 %)	5 (27.8 %)	6 (33.3 %)	4 (22.2 %)	6 (33.3 %)	2 (11.1 %)
How often did you have pain in the center of the upper stomach?	3 (16.7 %)	5 (27.8 %)	5 (27.8 %)	5 (27.8 %)	5 (27.8 %)	5 (27.8 %)	6 (33.3 %)	2 (11.1 %)
How often did you have nausea?	8 (44.4 %)	3 (16.7 %)	1 (5.6 %)	6 (33.3 %)	5 (27.8 %)	9 (50 %)	4 (22.2 %)	0 (0 %)
How often did you have difficulty getting a good night's sleep because of your heartburn and/or regurgitation?	12 (66.7 %)	1 (5.6 %)	4 (22.2 %)	1 (5.6 %)	7 (38.9 %)	6 (33.3 %)	4 (22.2 %)	1 (5.6 %)
How often did you take additional medication for your heartburn and/or regurgitation, other than what the physician told you to take (such as Tums, Rolaids, and Maalox)?	5 (27.8 %)	7 (38.9 %)	2 (11.1 %)	4 (22.2 %)	10 (55.6 %)	4 (22.2 %)	4 (22.2 %)	0 (0 %)

Thus, in group I, daily heartburn occurred in 6 (33.3 %) patients, and in group II – only in 1 (5.6 %) patient (RR=6.00 (0.80–44.95); p >0.05). At the same time, regurgitation and epigastric pain bothered 5 (27.8 %) patients of group I and 2 (11.1 %) patients of group II (RR=2.50 (0.56–11.25); p > 0.05). The survey results indicate that the feeling of nausea was only observed in 6 (33.3 %) patients with the erosive form of GERD.

The severity of symptoms of the erosive form of GERD led to the need for additional medication intake in 13 (72.2 %) patients of group I. 8 (44.4 %) patients with NERD took an extra dose of antacids and proton pump inhibitors. It can therefore be assumed that it is the erosive form of GERD that can potentiate the increase in the frequency and severity of the symptoms of the disease, which leads to the need for medical treatment to reduce the intensity of reflux symptoms and can probably disrupt the quality of life.

According to the SF-36 questionnaire data, in patients with erosive and non-erosive forms of GERD, a decrease in the "physical functioning" index was observed by 1.1 (p<0.0001) and 1.2 (p=0.0003) times, respectively, "role limitations due to physical health" – 1.7 (p<0.0001) and 1.4 (p=0.0013) times, respectively, compared to practically healthy individuals (Table 2). Thus, in patients with GERD, regardless of the endoscopic variant, there are violations in the physical component of health due to the deterioration of physical and role functioning due to physical health, which confirms the special negative impact on the quality of life of the very existence of clinical symptoms of GERD.

Table 2

Received results of the SF-36 questionnaire (M± m)

Health domain	Group I (n=18)	Group II (n=18)	Group III (n=26)
PF – physical functioning	89.44 ±2.55 #	82.5±5.23 #	97.97±0.54
RP – role limitations due to physical health	52.78 ±7.53 #	63.89±8.14 #	89.06 ±3.16
BP – bodily pain	65.89 ±4.97 #	73.67 ±5.22 #	91.17 ±2.51
GH – general health	61.94 ±3.94	53.61 ±5.67 #	72.19 ±3.19
VT – vitality	50.56 ±4.85	48.33±4.70	60.31 ±4.0
SF – social functioning	64.86±5.10 #	73.11 ±4.64	79.69±4.34
ER – role limitations due to emotional problems	66.6 ±8.11	44.28 ±8.10	63.54 ±6.92
MH – mental health	61.11 ±5.53	59.11±3.96	66.0±4.17

Note: # p<0.05 – statistically significant differences between indices of patients of I and II groups and practically healthy individuals of III group, & p<0.05 – statistically significant differences between indices of I and II groups.

The "bodily pain" domain, which reflected the impact of the pain syndrome on the ability to perform usual daily activities, was decreased by 1.4 (p<0.0001) times in the patients of group I, and by 1.2 times (p=0.0013) in group II, respectively, compared to practically healthy individuals with no significant difference in group I.

At the same time, the "general health" indicator significantly decreased only in patients with NERD (group II) by 1.3 (p=0.0033) times in comparison with practically healthy individuals.

It is important that the mental health components "role limitations due to emotional problems", "vitality", and "mental health" showed no significant differences between the patients with both erosive and non-erosive forms of GERD and practically healthy individuals. However, in the patients of the I group, a decrease in the "social functioning" indicator was recorded by 1.2 (p=0.003) times compared to the group of practically healthy people, without significant differences in the patients of the II group.

Therefore, according to the results of our study, differences in the severity of clinical manifestations of esophageal symptoms were determined in patients with erosive and non-erosive forms of GERD. Thus, against the background of erosive GERD, daily manifestations of heartburn and regurgitation were observed significantly more often, which led to an increase in the need for patients to use antacids and drugs for the treatment of GERD. The results obtained by us differ from other studies that demonstrate the absence of fundamental differences between the clinical symptoms of GERD and the presence and degree of endoscopic lesions of the esophageal mucosa [5–7, 10, 11]. On the contrary, esophageal and extraesophageal symptoms of the non-erosive form of GERD can be more pronounced than under the conditions of the erosive form. Regardless of whether outcomes are assessed using specific or nonspecific testing, studies have shown a greater impact on quality of life in the non-erosive form of GERD, particularly in terms of emotional distress and lack of vitality [5]. This finding is not explained by differences in the severity or frequency of classic GERD symptoms. The data we obtained may indicate differences in the pathogenesis of erosive and non-erosive GERD. According to the results of our study, the role of overweight and obesity in the development of GERD was recorded, which is consistent with the

results of previous studies [4, 7]. However, patients with an erosive form of GERD had a higher BMI compared to patients with a non-erosive form, which gives reason to think about the role of the increased weight of patients in the formation of lesions of the esophageal mucosa.

According to obtained results, the symptoms of both erosive and non-erosive forms of GERD worsen the quality of life of patients, which is consistent with the results of other studies that demonstrate the impact of an increase in the frequency and severity of symptoms of erosive GERD on the quality of life in the categories of physical functioning, non-erosive GERD – in the categories of mental functioning [7].

However, during the analysis of the correlation between GERD symptoms according to the GERD – Q score and the decrease of certain components of the quality of life, we found differences between erosive and non-erosive forms of GERD. Thus, against the background of erosive GERD, the influence of disease symptoms on indicators of the physical component of health was observed, and against the background of the non-erosive form of GERD – on the components of mental health. Therefore, in patients of group I, the increase in the frequency of heartburn reduced the quality of life in "physical functioning" and "mental health" scales, which is confirmed by the inverse correlations ($r = -0.63$; $p=0.005$) and ($r=-0.51$; $p=0.03$) respectively. At the same time, in patients with an erosive form of GERD, an inverse correlation was established between the need to use antacids and the "physical functioning" indicator ($r = -0.47$; $p=0.049$), which testifies to a negative impact of the need to use medication on daily performance physical activity of patients.

At the same time, in patients of group II, an inverse correlation was found between the decrease in the quality of life in the "mental health" domain and the frequency and severity of heartburn ($r = -0.57$; $p=0.014$), sleep disturbances due to belching/heartburn ($r = -0.59$; $p=0.01$) and the need to use medicines $r = -0.61$; $p=0.008$). It is important that the need to use medicines led to a decrease in the quality of life in both the "physical functioning" ($r = -0.51$; $p=0.03$) and "mental health " ($r = -0.61$; $p=0.008$) categories.

Thus, according to the results of our study, the role of overweight and obesity in the development of GERD was recorded, which coincides with the results of previous studies. However, patients with an erosive form of GERD had a higher BMI compared to patients with a non-erosive form, which has important implications for the role of increased weight in the formation of esophageal mucosal lesions.

The results we obtained confirmed the formation of the erosive form, which disrupts the quality of life of patients mainly in the categories that reflect the indicators of physical health, and the non-erosive GERD – in the categories that characterize the indicators of mental health.

Conclusions

1. Overweight obesity increases the risk of developing GERD and, especially, its erosive form, which is confirmed by the increased BMI of group I and group II patients in 1.3 ($p<0.0001$) and 1.2 ($p=0.0005$) times, respectively, compared to practically healthy individuals.

2. Against the background of the erosive form of GERD, daily manifestations of the symptoms of the disease are more often observed, namely heartburn (RR=6.00 (0.80-44.95); $p>0.05$), regurgitation, and, pain in the epigastric region (RR=2.50 (0.56-11.25); $p>0.05$).

3. Under the conditions of the erosive form of GERD, there is an inverse correlation between the frequency of the heartburn and the "physical functioning" ($r = -0.63$; $p=0.005$) and "mental health" ($r = -0.51$; $p=0.03$) scales and between the need to use antacids and the "physical functioning" ($r = -0.47$; $p=0.049$) index.

4. Against the background of non-erosive GERD, a negative correlation was found between the "mental health" domain and the frequency and severity of heartburn ($r = -0.57$; $p=0.014$), sleep disturbances due to belching/heartburn ($r = -0.59$; $p=0.01$) and the need to use medicines ($r = -0.61$; $p=0.008$).

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THE SIGNIFICANCE OF THE COMBINED USE OF THE TI-RADS SYSTEM, ELASTOGRAPHY AND FINE NEEDLE ASPIRATION BIOPSY IN THE DIAGNOSIS AND TREATMENT TACTICS IN THYROID NODULES

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The results of examination and treatment of 399 patients aged 12 to 83 years with thyroid nodules of various morphological structures were analyzed. All patients were ranked into 2 groups. Group 1 included 127 (37.6 %) patients who underwent a fine needle aspiration biopsy of thyroid nodules. The 2nd group included 212 (62.4 %) patients who underwent ultrasound examination using the TI-RADS system, sonoelastography in combination with fine needle aspiration biopsy. Surgical treatment was performed in 50 (group 1) (39.3 %) of 127 patients, benign tumors were diagnosed in 40 (80 %), malignant tumors in 10 (20 %). Surgical treatment in group 2 was performed in 52 (24.5 %) of 212 patients, benign tumors were detected in 33 (63.5 %) patients, malignant in 19 (36.5 %). The combined use of the TI-RADS system, sonoelastography and fine needle aspiration biopsy contributed to a significant increase in the frequency of detection of thyroid nodules of malignant structure, which amounted to 36.5 % in patients of the main group (versus 20 % in patients of the control group) and a decrease in the frequency of surgical interventions by more than 1.5 times in patients of the second group.

Key words: thyroid gland, nodular formations, ultrasound examination, fine needle aspiration biopsy, sonoelastography, stratification systems.

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ЗНАЧЕННЯ КОМБІНОВАНОГО ВИКОРИСТАННЯ СИСТЕМИ TI-RADS, ЕЛАСТОГРАФІЇ ТА ТОНКОГОЛКОВОЇ АСПІРАЦІЙНОЇ БІОПСІЇ У ДІАГНОСТИЦІ ТА ЛІКУВАННІ ВУЗЛОВИХ УТВОРЕНЬ ЩИТОВИДНОЇ ЗАЛОЗИ

Було проаналізовано результати обстеження та лікування 399 пацієнтів віком від 12 до 83 років з вузловими утвореннями щитовидної залози різних морфологічних структур. Усі пацієнти класифікувались на 2 групи. Перша група включала 127 (37,6 %) пацієнтів, яким виконували тонкоголкову аспіраційну біопсію вузлових утворень щитовидної залози. Друга група включала 212 (62,4 %) пацієнтів, яким проводили ультразвукове обстеження за допомогою системи TI-RADS, та соноеластографію в поєднанні з тонкоголковою аспіраційною біопсією. Хірургічне лікування проводили у 50 (1 група) (39,3 %) зі 127 пацієнтів, доброякісні пухлини діагностували у 40 (80 %), злоякісні – у 10 (20 %). Хірургічне лікування у 2-й групі проводили у 52 (24,5 %) з 212 пацієнтів, доброякісні пухлини були виявлені у 33 (63,5 %) пацієнтів, злоякісні – у 19 (36,5 %). Комбіноване використання системи TI-RADS, соноеластографія та тонкоголкова аспіраційна біопсія сприяли надійному збільшенню частоти виявлення вузлових утворень щитовидної залози злоякісної структури, що становило 36 % основної групи (проти 20 % у пацієнтів контрольної групи) і зменшенню частоти хірургічних втручань більш ніж 1,5 рази у пацієнтів другої групи..

Ключові слова: щитовидна залоза, вузлові утворення, ультразвукове обстеження, тонкоголкова аспіраційна біопсія, соноеластографія, системи стратифікації.

Clinical and epidemiological studies of recent decades indicate a steady trend towards an increase in nodular formations (NF) of the thyroid gland (TG). In the general population, the proportion of palpable NF TG is 4–7 %, and their detection by ultrasound increases to 30–67 %. At the same time, TG cancer accounts for 5–15 % of all NF of the organ [7, 14].