

QUALITY OF LIFE OF PATIENTS BEFORE AND AFTER SURGICAL TREATMENT OF DIFFUSE TOXIC GOITER

Abdurakhmanov D.Sh.¹, Rakhmanov K.E.², Davlatov S.S.³, Hidirov Z.E.⁴
Email: Abdurakhmanov6106@scientifictext.ru

¹Abdurakhmanov Diyor Shukurullaevich – Assistant;

²Rakhmanov Kosim Erdanovich - Candidate of Medical Sciences, Associate Professor,
SAMARKAND STATE MEDICAL INSTITUTE,
SAMARKAND;

³Davlatov Salim Sulaymonovich - Candidate of Medical Sciences, Associate Professor;

⁴Hidirov Ziyadulla Erkinovich – Assistan,
BUKHARA STATE MEDICAL INSTITUTE,
BUKHARA,
REPUBLIC OF UZBEKISTAN

Abstract: at studying of the remote results of surgical treatment of 363 patients on the basis of III surgery with diffuse a toxic craws' (DTG), at 67 patients from which it is executed operations on O.V.Nikolaev with a traditional methods subtotal subfatione srumectomy (TMSSS - remained culty till 4) (1st group), at 38 patients - subtotal subfatione srumectomy with interoperation autotransplantation a thyroid gland (SSSIOATGT - remained cult till 0,5-1 and with autotransplantation till 1,5-2) (2nd group), and at 258 sick advanced technique of Clinic AGMI subtotal subfation thyroid gland resections on O.V.Nikolaev (s.s. thyroid gland resections - remained cult till 2) (3rd group), that an outcome after operation TMSSS in 85,1 % (d=57) cases is eutyrosis, in 4,5 % (d=3) - hypothyroids and in 10,4 % (d=7) - relapse of thyrotoxicosis. After operation SSSIOATGT in 86,9 % (d=33) cases is eutyrosis, in 10,5 % (d=4) - hypothyroids and in 2,6 % (d=1) - relapse thyrotoxicosis. And after operation in 86,5 % (d=223) cases is eutyrosis, in 12,4 % (d=32) - hypothyroids and in 1,1 % (d=3) - relapse of thyrotoxicosis. At some patients by whom it has been spent SSSIOATGT and MCSSRGT will reach hypothyroids. Risk factor most a failure of surgical treatment DTG - relapse of thyrotoxicosis - is low level TTG (less than 0,6 mmol/l) before operation. On frequency of damage of a returnable guttural nerve and constant hypoparathyroidism authentic distinctions between TMSSS, SSSIOATGT and MCSSRGT it is not revealed. The remote results and quality of a life (QL) studied in terms from 1 month till 1 year after operation. According to the received data, surgical treatment DTG leads to authentically significant improvement QL of patients in 6 months. After operation, and in process of increase in postoperative term the distinct tendency to further growth QL is marked. At comparison of indicators QL of patients after TMSSS, SSSIOATGT and MCSSRGT authentic distinctions except patients relapse of thyrotoxicosis it is not revealed. Thus, MCSSRGT is the optimum and pathogenesis proved volume of operation at DTG.

Keywords: thyrotoxicosis, surgical treatment, late results, quality of life. thyroid tissue autotransplantation.

КАЧЕСТВО ЖИЗНИ ДО И ПОСЛЕ ОПЕРАЦИИ У БОЛЬНЫХ С ДИФФУЗНЫМ ТОКСИЧЕСКИМ ЗОБОМ

Абдурахманов Д.Ш.¹, Рахманов К.Э.², Давлатов С.С.³, Хидиров З.С.⁴

¹Абдурахманов Диёр Шукуруллаевич - ассистент;

²Рахманов Косим Эрданович - кандидат медицинских наук, доцент,
Самаркандский государственный медицинский институт,
г. Самарканд;

³Давлатов Салим Сулаймонович - кандидат медицинских наук, доцент;

⁴Хидиров Зиядулла Эркинович - ассистент,
Бухарский государственный медицинский институт,
г. Бухара,
Республика Узбекистан

Аннотация: при изучении отдаленных результатов хирургического лечения 363 пациентов на базе III хирургии с диффузным токсическим зобом (ДТЗ), у 67 больных из которых выполнена операции по О.В. Николаеву традиционным методом субтотальной субфасциальной струмэктомии (TMSSS – оставшийся культей до 4 г.) (1-я группа), у 38 больных – субтотальная субфасциальная струмэктомия с интраоперационным аутоперансплантацией щитовидной железы (СССИОАТЩЖ – оставшийся культей до 0,5-1 г. и с аутоперансплантацией до 1,5-2 г.) (2-я группа), а у 258 больных усовершенствованной методикой Клиники АГМИ субтотальной субфасциальной резекции щитовидной железы по О.В.Николаеву (МКССРЩЖ – оставшийся культей до 2 г.) (3-я группа) установлено, что исходом после операции TMSSS в 85,1% (d=57) случаев является эутиреоз, в 4,5% (d=3) - гипотиреоз и в 10,4% (d=7) - рецидив тиреотоксикоза. После операции ССССИОАТЩЖ в 86,9% (d=33) случаев является

эутиреоз, в 10,5% (d=4) - гипотиреоз и в 2,6% (d=1) - рецидив тиреотоксикоза. А после операции МКССРЦЖ в 86,5% (d=223) случаев является эутиреоз, в 12,4% (d=32) - гипотиреоз и в 1,1% (d=3) - рецидив тиреотоксикоза. У некоторых пациентов, которым была проведена СССИОАТЦЖ и МКССРЦЖ достигнут гипотиреоз. Фактором риска наиболее неблагоприятного исхода хирургического лечения ДТЗ – рецидива тиреотоксикоза – является низкий уровень ТТГ (меньше 0,6 ммоль\л) до операции. По частоте повреждения возвратного гортанного нерва и постоянного гипопаратиреоза достоверных различий между ТМССС, СССИОАТЦЖ и МКССРЦЖ не выявлено.

Отдаленные результаты и качество жизни (КЖ) изучали в сроки от 1 месяца до 1 года после операции. Согласно полученным данным, хирургическое лечение ДТЗ приводит к достоверно значимому улучшению КЖ пациентов уже через 6 мес. После операции и по мере увеличения послеоперационного срока отмечается отчетливая тенденция к дальнейшему росту КЖ. При сравнении показателей КЖ пациентов после ТМССС, СССИОАТЦЖ и МКССРЦЖ достоверных различий кроме больных рецидива тиреотоксикоза не выявлено. Таким образом, МКССРЦЖ является оптимальным и патогенетическим обоснованным объемом операции при ДТЗ.

Ключевые слова: диффузный токсический зоб, хирургическое лечение, отдаленные результаты, качество жизни, гипотиреоз, рецидив тиреотоксикоза, субтотальная субфасциальная струмэктомия, аутотрансплантация ткани щитовидной железы.

UDC 616.441-008.61+ 616-089.873.4

Introduction: Diffuse toxic goiter (DTG) or thyrotoxicosis with diffuse enlargement of the thyroid gland is one of the most common thyroid diseases of an autoimmune nature [3, 6, 7, 13].

As you know, at present all existing methods of treating DTZ can be combined into three groups: complex drug therapy, radioiodine therapy and surgical treatment.

In the presence of diffuse goiter with a pronounced clinical picture of thyrotoxicosis and with the ineffectiveness of conservative therapy, the question of surgical treatment is raised. The necessary conditions for the surgical treatment of diffuse toxic goiter are a decrease in the recurrence of hyperthyroidism, the absence of severe hypothyroidism and postoperative complications. However, at present there is no single point of view regarding the scope of the operation in case of DTZ. Some authors propose to perform subtotal resection of the thyroid gland with a differentiated approach to the volume of removed thyroid tissue [10, 12, 16] in the hope of achieving a euthyroid state in as many operated patients as possible, since postoperative hypothyroidism is considered a complication of surgical treatment of DTG. Other researchers [7, 13, 17] propose to perform an extremely subtotal resection of the thyroid gland followed by hormone replacement therapy, since hypothyroidism is considered not a complication, but the goal of an operation in DTZ. They argue their approach by the fact that while maintaining the thyroid residue, there remains a "target" for autoantibodies produced by cells of the immune system. Consequently, the probability of recurrence of thyrotoxicosis is high.

Under the main criteria for the effectiveness of DTZ treatment, most researchers mean the elimination of thyrotoxicosis and the achievement of immunological remission. However, according to recent domestic and foreign literature, many scientists consider quality of life (QOL) to be the most reliable and sensitive criterion for assessing the results and effectiveness of therapy [2, 4, 8, 14].

The term "disruption of vital activity" means the limitation or loss of the ability to carry out daily activities as a result of "damage" within the limits considered normal for the human body [1, 9].

Disability is measured by assessing the patient's behavior in performing individual actions in specific situations under certain conditions and is an important indicator that helps to understand the relationship between injury, disease process and its outcome [5].

In connection with this concept, it is the assessment of disability that is suitable for the potential measurement of the outcomes of long-term chronic diseases [15].

Social (role) constraints are understood as the resulting from damage and disruption to life, restrictions on the performance of the social role that is considered normal for a given individual in accordance with his age, gender, social and cultural characteristics [2].

Of course, all of the above consequences of diseases are interrelated: damage causes disruption of vital activity, which, in turn, leads to social restrictions and to a change in the quality of life of patients [14,23,24].

In medicine, and in surgery in particular, the degree of change in the patient's social constraints is considered one of the decisive factors for determining the effectiveness of medical manipulations and evaluating the effectiveness of therapy. The restoration of the patient's social role is inevitably preceded by a decrease in his life activity disorders, which usually requires an initial intervention aimed at eliminating the existing damage [16, 20, 21, 22].

It is conceptually and theoretically justified to assume that medical manipulations and medication interventions aimed at removing the mechanisms underlying the disease process will affect the level of disability. And, at least theoretically, it is easier to define precisely these changes, and not social constraints, which can be

influenced by numerous other situations not directly related to the patient's injury and functional impairment [4, 26, 27, 28].

In recent years, the concept of "health-related quality of life (QOL)" has been increasingly used, which is considered as an integral characteristic of the physical, mental, emotional and social state of the patient, based on his subjective perception [11, 17, 18, 19].

The purpose of this work was the study of long-term results of surgical treatment of DTG, taking into account the quality of life.

Material and methods: In this work, we analyzed the results of surgical treatment of 363 patients with DTG on the basis of the third surgery department of the AGMI Clinic for the period from 2011 to 2018. Of these, 67 patients underwent surgery according to O.V. Nikolaev with the traditional method of subtotal subfascial stumectomy (TMSSS) - leaving tissue thyroid stump up to 4 g (group 1), 38 patients - subtotal subfascial strumectomy with intraoperative autotransplantation of thyroid tissue (SSSIATSH) - leaving the tissue of the thyroid stumps up to 0.5-1 g and with autotransplantation up to 1.5 2 g (group 2), 258 patients with improved subtotal subfascial resection of the thyroid gland according to the clinic method (MCSSRT) - leaving the tissue of the thyroid stumps up to 2 g (group 3). The first group of patients in terms of age, sex, severity of thyrotoxicosis, the combination of DTG with EOP, duration of the disease, duration of thyrostatic therapy (TST) before surgery, thyroid volume was similar to the second and third groups of patients.

To compare the QoL indicators after various types of surgeries for DTZ, as well as to identify the effect of surgical treatment of DTZ on the quality of life of patients, a control group of practically healthy individuals (n = 45) was formed, consisting of 25 women and 20 men. The age range was from 21 to 41 years (on average 31 ± 7.03 years).

In order to study the quality of life in the postoperative period, a study was carried out according to the methodology developed on the basis of the department of the III surgical department of the AGMI Clinic, with the calculation of the so-called quality of life index (IQI) of the III surgical department of the AGMI Clinic, which allows to study both the general level of QOL its components. To determine only the general level of QOL and as an express method, we used a linear analogue scale (LAS).

The questionnaire included two modules: universal and specific (28 and 12 questions, respectively). The answers to the questions of the universal module gave an idea of the patient's functional ability and his perception. Functional ability is understood as physical activity, daily activities, social connections, sexual and emotional functions, intellectual activity, economic security. Perception questions provided responses from patients regarding their health status, general well-being, life satisfaction, and the impact on life of the treatment. The universal module included questions designed to assess those components of the quality of life that are common to patients with a wide variety of pathologies.

The specific module included questions related to the effect on the patient of the underlying disease and the consequences of surgical treatment.

The total number of questions included in the questionnaire was 40. The hypothetically possible range of the total score could range from the minimum (0) to the maximum (160). The quality of life level is in direct proportion to the amount of points.

The specific weight of the triad of questions was: "functional activity" - 25 (62.5%) questions, "perception" - 3 (7.5%) questions, "specific questions" on the symptoms of the disease - 12 (30%), which answers the generally accepted questionnaire design standards.

To measure the general level of quality of life, LASH was used, represented by a straight line 200 mm long, on the diametrical sections of which the opposite of the possible states of the patient are marked: "the happiest", "the healthiest" (the right side of the segment) and the most unfortunate ", " the sickest "(Left side of the line). It is believed that there are no more important indicators for assessing the overall quality of life than happiness and health, they are interrelated and inseparable.

The range of estimates is from the minimum (0) to the maximum (200) conventional units (conventional units). One questionnaire LASH allowed patients to accurately assess the degree of their well-being, and the results of such an assessment are comparable to multi-level measures of quality of life.

Statistical data processing was carried out using the SPSS for Windows 11.5 software (SPSS inc., USA). Student's criteria were calculated. The critical level of significance when testing statistical hypotheses was taken equal to $p < 0.05$.

Results and discussion: When analyzing the long-term consequences of surgical treatment, it was revealed that the outcome after TMSS surgery was euthyroidism in 85.1% (n = 57) cases, hypothyroidism in 4.5% (n = 3), and in 10.4% (n = 7) - recurrence of thyrotoxicosis. After SCSIOETHY surgery, 86.9% (n = 33) of cases have euthyroidism, 10.5% (n = 4) have hypothyroidism, and 2.6% (n = 1) have recurrent thyrotoxicosis. And after the operation of MCSSR, in 86.5% (n = 223) cases there is euthyroidism, in 12.4% (n = 32) - hypothyroidism and in 1.1% (n = 3) - recurrence of thyrotoxicosis. Hypothyroidism has been achieved in some patients who underwent SSSIOS and PCOS. The risk factor for the most unfavorable

outcome of surgical treatment of thyrotoxicosis - recurrence of thyrotoxicosis - is a low TSH level (less than 0.6 mmol / l) before surgery.

All patients of the 2nd group developed primary hypothyroidism after SCSIoTS.

Paresis of the recurrent laryngeal nerve (RLN) was determined as a complication of surgical treatment of DTZ in 3 (2.4%) patients after TMSS and in 1 (0.8%) after SCSIoTHY. When comparing the frequency of this complication in the study groups, no significant differences were found: $p > 0.05$.

Postoperative hypoparathyroidism was detected in 3 (2.4%) patients after TMCCS and in 1 (0.8%) patient after CVSIOATS. We again found no significant differences between the studied groups $p > 0.05$.

Taking into account the task before us of finding the factors that determine the prognosis of the outcome of TMSSS in DTG, we analyzed the relationship between the age, gender of patients, the duration of the disease, a number of hormonal (St. T3, St. T4, TSH) and immunological (antibodies to TSH receptors, antibodies to thyroid peroxidase) parameters, the volume of the thyroid gland before the operation and the function of the thyroid gland in the period from 3 to 11 years after the operation. As a result of the study, it was found that the only reliable risk factor for recurrence of DTG after TMSS is a high level of antibodies to the TSH receptor (AT to rTTG) before surgery.

In order to study the effect of surgical treatment of DTG on QOL, we interviewed patients at the preoperative stage. At the same time, it was revealed that the disease had a negative impact on many aspects of QoL (Table 1). On average, ICI of patients before surgery was only 104.8 ± 11.6 points. The lowest values among all QOL components (less than 60% of the maximum possible value) were recorded when the patient evaluated the conservative treatment (45%) and his own health (52.5%), as well as the economic state (58.7%). Almost the same low QOL was in the following indicators: physical condition (60.3%), emotional function (63.4%), intellectual function (66.8%), maintaining social contacts (67.5%), sexual function (68%). Less pronounced changes (74.5%) were found in the manifestation of disease symptoms. The value of such QOL indicators,

A moderate inverse correlation was found between the level of ICI and the duration of the disease ($p < 0.001$).

Table 1. Dynamics of quality of life before and after surgery in patients with diffuse toxic goiter

Index	Before surgery	After operation		
		After 1 month	After 6 months	After 1 year
IKZH	104.8 ± 11.6	125.3 ± 15.07	130.1 ± 9.8	132.27 ± 7.7
Intelligent function	10.7 ± 1.5	13.5 ± 1.9	14.2 ± 1.4	14.3 ± 1.37
Emotional function	20.3 ± 2.9	23.2 ± 3.8	23.9 ± 3.3	24.6 ± 3.06
Physical activity	16.9 ± 3.3	20.2 ± 3.9	21.27 ± 3.1	21.85 ± 2.4
Perception of health	4.2 ± 0.7	5.8 ± 1.2	5.9 ± 1.09	5.9 ± 1.09
No symptoms of the disease	35.8 ± 4.7	40.8 ± 4.2	41.8 ± 3.2	42.6 ± 2.05
Sexual function	2.7 ± 0.5	3 ± 0.7	3.1 ± 0.4	3.1 ± 0.4
Social function	8.1 ± 1.3	10 ± 1.6	10.4 ± 1.3	10.4 ± 1.3
Economic condition	4.7 ± 0.6	5.9 ± 1.4	6.3 ± 1.1	6.4 ± 1.2
Impact of treatment	1.8 ± 0.4	2.9 ± 0.8	3.1 ± 0.5	3.1 ± 0.5

Table 2. Quality of life parameters before and after surgery in patients with diffuse toxic goiter

Index	Before surgery	After operation		
		After 1 month	After 6 months	After 1 year
IKZH	123.6 ± 15.5	127.1 ± 14.3	129.6 ± 13.05	131.05 ± 13.06
LASH	130.95 ± 14.59	156.42 ± 18.80	162.70 ± 12.31	165.32 ± 9.72

Repeated questioning of patients 6 months after the operation showed a significantly significant improvement in quality of life indicators. As the postoperative period increases, there is a tendency to further growth of ICI (see Table 2).

The results obtained when the patients answered the questions of the IKZH and LASH questionnaires correlate and allow us to conclude that these methods are highly reliable and sensitive in studying the quality of life of patients with DTG (Table 2). The correlation (r) of the ICI and LASH questionnaire was 0.85 ($p = 0.001$).

When studying the long-term results of surgical treatment of thyroid gland disease based on the quality of life, it was determined that there were no significant differences in the group of patients who underwent TMSS (group 1) and in the group of patients who had undergone SCSIoTS (group 2): the total number of points in the 1st group it averaged 119.41 ± 18.73 , in the 2nd group - 121.52 ± 19.17 ($p > 0.05$) (Table 3). Also, no significant differences were found when considering individual QOL indicators.

Table 3. Quality of life during operations in patients with diffuse toxic goiter

Index	Operation types		
	TMSSS	SSSIOATSCH	MKSSRSCH
IKZH	119.41 ± 18.73	121.52 ± 19.17	133.49 ± 6.9
Intelligent function	12.8 ± 1.3	13.0 ± 1.7	14.9 ± 1.0
Emotional function	20.3 ± 3.7	20.7 ± 3.5	23.1 ± 1.9
Physical activity	18.7 ± 4.1	19.4 ± 3.1	22.2 ± 0.8
Perception of health	6.1 ± 1.1	6.4 ± 1.4	7.2 ± 1.1
No symptoms of the disease	41.5 ± 3.9	41.8 ± 3.5	42.7 ± 1.5
Sexual function	3.0 ± 1.0	3.1 ± 1.1	3.9 ± 0.6
Social function	9.0 ± 1.6	9.4 ± 1.6	10.3 ± 0.3
Economic condition	6.4 ± 1.2	6.0 ± 1.3	6.4 ± 0.5
Impact of treatment	2.3 ± 0.9	2.5 ± 0.9	3.0 ± 0.3

To determine the effect of surgical treatment of DTG on QOL parameters, we formed a control group of 40 people who considered themselves healthy. In terms of age and sex, the control group was similar to the 1st and 2nd groups of patients. For the control group, a universal questionnaire module was used, with the exception of the question of perception of the treatment process and its consequences.

According to the results of the study, in patients of the 1st group in comparison with the control group, a decrease in the following indicators of the quality of life was recorded: physical condition, social function, emotional function, economic condition, perception of their health. The differences between the mean values and the indices of healthy individuals by these criteria are statistically significant ($p < 0.01$). We did not get any significant differences in changes in intellectual and sexual functions compared to healthy individuals ($p > 0.05$).

The 2nd group of patients showed significant differences with the control group in the following components of the quality of life: physical condition, emotional function, economic condition, perception of their health ($p < 0.01$). At the same time, we did not find statistically significant differences in social, sexual, intellectual functions ($p > 0.05$).

In 105 (84%) of the examined patients, primary hypothyroidism was achieved as a result of DTG treatment. To determine the possible effect of hormone replacement therapy on the QoL level, a comparison was made between the ICI indicators of patients taking L-thyroxine preparations and ICI of patients who do not receive substitution therapy. At the same time, there were no significant differences in the results obtained: ICI was 120.46 ± 17.90 c.u. and 114.44 ± 24.31 c.u. respectively ($p > 0.05$).

Thus, surgical treatment of DTG leads to a significant improvement in the QoL of patients with DTG. Significant improvement in QoL is determined as early as 6 months after surgery. As the postoperative period increases, there is a clear trend towards further growth in QoL.

In this regard, it can be concluded that, despite the absence of significant differences in QoL indicators in the 1st and 2nd groups of patients, TMSS for DTG leads to different results (recurrence of thyrotoxicosis, often - postoperative hypothyroidism and very rarely - to persistence persistent euthyroidism) and the same risk of postoperative complications as the SSSIOATS. At the same time, postoperative hypothyroidism is the only clinically predictable outcome of the surgical treatment of DTG, which is easily compensated by L-thyroxine preparations and does not lead to a decrease in the quality of life of patients. It is also necessary to take into account the pathogenetic features of the onset of the disease: in case of TMSS, the body, in fact, remains a "target" for antithyroid antibodies produced by the cells of the immune system.

Conclusions:

1. Persistent hypothyroidism, which is achieved by almost complete removal of the thyroid gland, should be considered the predicted favorable result of surgical treatment of thyroid gland.
2. The quality of life of patients with DTG after 6 months. after surgical treatment in many respects does not significantly differ from the quality of life of healthy people.
3. Postoperative hypothyroidism, subject to adequate hormone replacement therapy, does not lead to a deterioration in the quality of life of patients.
4. The volume of surgery (TMSSS or SSSIOATSZH) in DTG does not have a significantly significant effect on the quality of life of patients. However, taking into account the fact that the MCSSR is the most pathogenetic justified comparable low-traumatic operation, which excludes the recurrence of thyrotoxicosis and does not lead to an increase in the frequency of postoperative complications, this intervention should be considered the operation of choice in DTG.

References / Список литературы

1. *Amidzhanova V.N., Goryachev D.V., Korshunov N.I. etc.* Population indicators of the quality of life according to the SF-36 questionnaire (results of the multicenter study of the quality of life "MIRAGE") // *Nauchno-prakticheskaya. rheumatol.*, 2008. № 1. P. 36-48.
2. *Amidzhanova V.N., Koilubaeva G.M., Goryachev D.V. etc.* Validation of the Russian version of HAQ. *Scientific and practical rheumatology*, 2004. 2, 59-65.
3. *Gozibekov Zh.I., Yusupalieva D.B.K., Tilavova Yu.M.K.* Long-term results of surgical treatment of thyroid nodules // *Achievements of science and education*, 2019. № 7 (48).
4. *Gozibekov Jamshid Isabaevich, Usubalieva Dilnora Bahodir kizi and Tilavova Yulduz Muhammadshokir Kesity.* "Long-term results of surgical treatment of nodular formations of the thyroid gland." *Achievements of science and education* 7 (48) (2019).
5. *Gozibekov Zh.I., Yusupalieva D.B.K. & Tilavova Yu.M.K.* (2019). Long-term results of surgical treatment of nodular formations of the thyroid gland. *Achievements of science and education*, 7 (48). *Gozibekov Zh.I., Zainiev A.F., Tilavova Yu.M.K.* Results of surgical treatment of patients with nodular goiter // *Questions of science and education*, 2019. № 13 (60).
6. *Gozibekov Jamshid Isabaevich, Zayniev Alisher Faridovich and Tilavova Yulduz Muhammadshokir Kesity.* "Results of surgical treatment of patients with nodular goiter". *Issues of science and education* 13 (60) (2019).
7. *Gozibekov Zh.I., Zainiev A.F. & Tilavova Yu.M.K.* (2019). Results of surgical treatment of patients with nodular goiter. *Questions of Science and Education*. 13 (60).
8. *Zayniev A.F. Yunusov O.T., Sarova Z.S.* Results of surgical treatment of patients with nodular goiter // *Bulletin of Science and Education*, 2017. Vol. 1. № 6 (30).
9. *Zayniev Alisher Faridovich, Yunusov Oybek Turaevich and Syrlybaeva Zilola Swarov.* "Results of surgical treatment of patients with nodular goiter." *Bulletin of Science and Education* 1.6 (30) (2017).
10. *Zainiev A.F., Yunusov O.T. & Suyarova Z.S.* (2017). Results of surgical treatment of patients with nodular goiter. *Bulletin of Science and Education*, 1(6 (30)).
11. *Rakhmanov K.E., Davlatov S.S.* Diagnosis and treatment of mirizzi syndrome // *Questions of science and education*, 2020. № 13 (97).
12. *Rakhmanov Mowing Aganovich and Davlatov Salim Sulaymonovich.* "Diagnosis and treatment of mirizzi syndrome." *Issues of science and education* 13 (97) (2020).
13. *Rakhmanov K.E. & Davlatov S.S.* (2020). Diagnosis and treatment of mirizzi syndrome. *Questions of Science and Education*. 13 (97).
14. *Erdanovich R.K., Sulaimonovich D.S., Khorievich M.M.* Modern methods of surgical treatment of varicocele (literature review) // *Bulletin of Science and Education*, 2020. № 23-2 (101).
15. *Rakhmanov Aganovich Mowing, Davlatov Salim Sulaymonovich, Mamanov Muhammad Jurievich.* "Modern methods of surgical treatment of varicocele (literature review)". *Bulletin of Science and Education* 23-2 (101) (2020).
16. *Erdanovich R.K., Sulaimonovich D.S. Chorievich M.M.* (2020). Modern methods of surgical treatment of varicocele (literature review). *Bulletin of Science and Education*. 23-2 (101).
17. *Davlatov S.S., Khidirov Z.E., Nasimov A.M.* Differentiated approach to the treatment of patients with Mirizzi syndrome // *The academy*, 2017. № 2 (17).
18. *Davlatov Salim Sulaymonovich, Hidirov Sadulla Erkinovich and Nasimov Abduljalil Mamayunusov.* "A differentiated approach to the treatment of patients with Mirizzi syndrome." *The Academy* 2 (17) (2017).
19. *Davlatov S., Sarvinoz A.* Hernioabdominoplasty of postoperative ventral hernias in obese patients // *International Scientific Review*, 2016. № 11 (21).
20. *Davlatov Salim and Abdusattarova Sarvinoz.* "Hernioabdominoplasty of postoperative ventral hernias in obese patients". *International Scientific Review*. 11 (21) (2016).
21. *Davlatov S. and Sarvinoz A.* (2016). Hernioabdominoplasty of postoperative ventral hernias in obese patients. *International Scientific Review*, (11 (21))
22. *Davlatov S.S., Khidirov Z.E. & Nasimov A.M.* (2017). Differentiated approach to the treatment of patients with Mirizzi syndrome. *Academy*, (2 (17)).
23. *Rizaev Zh.A., Khazratov A.I.* Carcinogenic effect of 1, 2-dimethylhydrazine on the body as a whole. - 2020. № 1. P. 116.
24. *Rizaev Jasur A. and Isamiddinova Alisher Hasraton.* "The carcinogenic effect of 1, 2-dimethylhydrazine on the body as a whole." *Biology 1* (2020): 116.
25. *Rizaev Zh.A. & Khazratov A.I.* (2020). Carcinogenic effect of 1, 2-dimethylhydrazine on the body as a whole. *Biologiya*. (1). 116.
26. *Rizaev Yu.A., Maeda Kh., Khramova N.V.* Plastic surgery of defects in the maxillofacial region after surgical resection of benign tumors // *Annals of cancer research and therapy*, 2019. Vol. 27. № 1. P. 22-23.

27. *Rizaev Yasur A., Maeda Hiromichi and Khramova Natalia V.* "Plastic surgery of defects in the maxillofacial region after surgical resection of benign tumors." *Annals of cancer research and Therapy* 27.1 (2019): 22-23.
28. *Rizaev J.A., Maeda H., Khramova N.V.* (2019). Plastic surgery of maxillofacial defects after surgical resection of benign tumors. *Annals of Cancer Research and Therapy*, 27(1), 22-23.