



# Early Rehabilitation in the Prophylaxis of Complications of Hemorrhagic Strokes

Ruziev Feruz Giyosovich <sup>1</sup>

<sup>1</sup> Bukhara State Medical Institute

**Abstract:** Hemorrhagic stroke (HG) is a stroke subtype that survived 75 patients. Psychological, clinical, instrumental and neuropsychological treatment Bilan-birgalikda treatment is the main group of 42 patients of early rehabilitation, verticalization and hemorrhagic stroke surgery Control and hemorrhagic stroke is counterintelligence control and measuring.

**Keywords:** ischemic stroke, verticalization, early rehabilitation

**INTRODUCTION** Hemorrhagic stroke has a poor prognosis, with a mortality rate of 50-70%. The level of damage to brain tissue, the most serious disorders of the main functions of the body are observed in wide blood vessels that affect large parts of the cortex of the cerebral hemispheres. In this case, if a person manages to survive, rehabilitation may take several years, and complete recovery may never occur. HG and the presence of co-morbidities. The older a person is, the more difficult it is for him to fight a shock, and in the presence of chronic diseases, especially the cardiovascular system, it often becomes impossible. What an attack. Repeated strokes always increase the risk of death. If an elderly person takes an average of 8 months to recover from a first stroke, it can take a year or more to rehabilitate after a second one.

Psychoemotional state of the patient. To fight such a serious disease requires a great will and desire to live, which not every patient has.

It was proved that calcium excretion from the bones increases 3 hours after the patients are immobilized, which in turn causes changes in the bones (B. Izzeky). Nowadays, in the clinics of the western countries, they try to move the patients to a vertical position even when they are in a coma. In the second half of the 20th century, a large number of research studies were conducted on the development of complications such as pneumonia, deep vein thrombosis, and pulmonary artery thrombosis, showing the harmful aspects of bed rest. It has also been found that inadequate reactions to changes in body conditions after several days of strict bed rest are observed, especially in patients with cardiovascular diseases. (Asberg K.H.).

**Study objective:** Study of the effectiveness of the early rehabilitation process in the prevention of somatic and neurological complications of hemorrhagic strokes.

**MATERIALS AND METHODS.** Results of examination and analysis of 75 patients who were admitted and treated with the diagnosis of acute cerebral blood circulation disorder, hemorrhagic type in 2022-2023 in the Bukhara branch of the Republican Emergency Medical Scientific Center, emergency neurology and neuroreanimation departments, in order to solve the scientific goals and tasks envisaged by our research work. provided. Patients who underwent early rehabilitation after hemorrhagic stroke Group I (Basic group) (BG) consisted of 43 patients, the ratio of women to men was 1:1.2

and the aver was  $56.3 \pm 4.2$ , Group II (respective) (RG) 32 people, the gender ratio is 1:1.4 with a predominance of women and men, and the averBGe BGe is  $58.2 \pm 4.9$ .

**Result and discussion.** Subjective, objective, laboratory and instrumental examinations of patients revealed changes that occurred in various degrees in the organs and organ systems. Both groups of patients were given first aid, along with standard medical procedures, verticalization exercises and early rehabilitation measures, including psychological rehabilitation, physiotherapeutic procedures, and therapeutic exercises were recommended. The condition of the patients was evaluated with the help of somatic and neurological complications and quality of life using the NIHSS and Barthel scales on the 1-2 days, 6-7 days, 11-12 days and 17-18 days of the study.

In the main group of patients, parenchymatous hemorrhages accounted for 45.9%, subarachnoid hemorrhages for 32.5%, and subarachnoid-parenchymatous hemorrhages for 21.6%. The results of blood biochemical analysis in research groups are dynamically analyzed and the results before and after the study are presented.

In the research groups, acutely developed neurological deficits are pupil D=S, and anisocoria is not detected, in BG,  $n=1$ ,  $1.25 \pm 1.24\%$  of patients have mydriasis.

**1- table. Comparison of pathological changes in the neurological status of patients in research groups.**

Indicator	Basic group (n = 43)			Control group (n=32)		
	n	%	m	n	%	m
Diplopia	3	7,0	3,9	1	3,1	3,1
Paresis of the III pair of nerves	1	2,3	2,3	0	0,0	0,0
The face is asymmetrical	18	41,9	7,5	9	28,1	7,9
Dysarthria	21	48,8	7,6	21	65,6	8,4
Aphasia	3	7,0	3,9	3	9,4	5,2
Dysphagia	10	23,3	6,4	5	15,6	6,4
Monoparesis	4	9,3	4,4	3	9,4	5,2
hemiparesis	23	53,5	7,6	21	65,6	8,4
hemiplegia	16	37,2	7,4	8	25,0	7,7

Paresis of oculomotor nerves was observed in  $n=1$ ,  $2.3 \pm 2.3\%$  cases in BG, and this condition was not observed in CG. Diplopia BG  $n=3$ ,  $7.0 \pm 3.9\%$ , CG  $n=1$ ,  $3.1 \pm 3.1\%$  is determined. Dysphagia was observed in both groups, BG  $n=10$ ,  $23.3 \pm 6.4\%$  and CG  $n=5$ ,  $15.6 \pm 6.4\%$ , Dysarthria BG  $n=21$ ,  $48.8 \pm 7.6\%$ , CG  $n=21$ ,  $65.6 \pm 8.4\%$ , with Aphasia BG  $n=3$ ,  $7.0 \pm 3.9\%$  and CG,  $n=3$ ,  $9.4 \pm 5.2\%$ . Central neuropathy of the facial nerve was observed in BG  $n=18$ ,  $41.9 \pm 7.5\%$ , CG  $n=9$ ,  $28.1 \pm 7.9\%$  cases.

Movement and sensory disorders in the research groups, based on neurological examination data, mild movement disorders were observed in monoparesis type BG  $n=3$ ,  $3.75 \pm 2.12$ , CG,  $n=5$ ,  $7.14 \pm 3.08\%$ , moderate and severe movement disorders hemiparesis BG  $n=23$ ,  $53.5 \pm 3.16\%$ , CG  $n=21$ ,  $65.6 \pm 3.8\%$  and hemiplegia BG  $n=16$ ,  $37.2 \pm 2.44\%$ , CG  $n=8$ ,  $25.0\%$  of cases observed in BG patients with moderate and severe movement disorders can be explained by micro- and macroangiopathic complications of QD. Sensory disorders BG  $n=69$ ,  $86.2 \pm 3.85\%$  are observed in the peripheral part of all muscles. Hemihyperesthesia was observed in BG  $n=3$ ,  $3.75 \pm 2.12\%$ , CG  $n=3$ ,  $4.3 \pm 2.42\%$  cases.

**2- table. Dynamics of blood biochemical analysis results in research groups.**

Indicator	BG (n=43)	CG (n=32)	p
	M±m	M±m	( $p > 0,05$ )
Urea front	$7,4 \pm 0,45$	$7,04 \pm 0,32$	( $p > 0,01$ )
Urea last	$6,8 \pm 0,29$	$6,18 \pm 0,27$	( $p > 0,05$ )
Creatinine pre	$98,1 \pm 4,15$	$97,66 \pm 3,65$	( $p > 0,05$ )
Creatinine last	$91,01 \pm 2,87$	$89,79 \pm 2,99$	( $p > 0,001$ )

Glucose pre	6,3±0,39	6,23±0,27	(p>0,01)
Glucose last	8,95±0,32	5,12±0,08	(p>0,05)

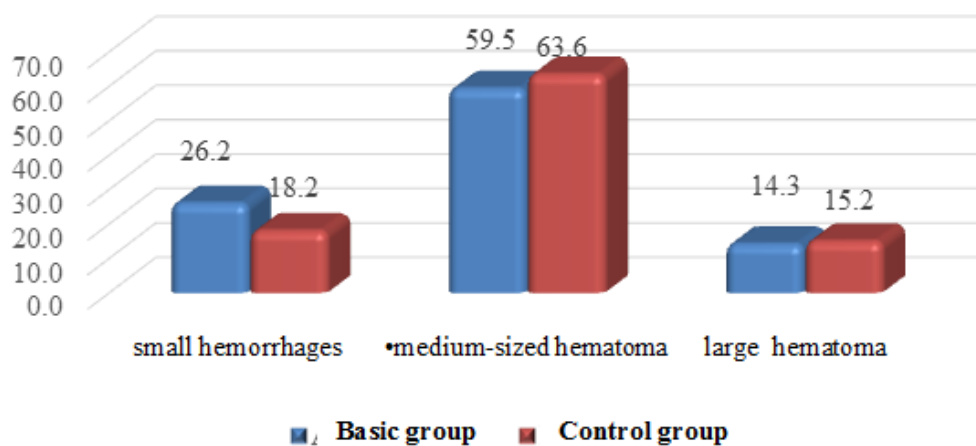
Between the main group of patients who underwent early rehabilitation measures and the patients of the comparative group, there were no sharp, significant differences in the results of blood biochemical analysis before and after the study (Table 2). In the practical recommendations as a result of the research, in order to focus the attention of neurologists and neuroreanimatologists on diabetic nephropathy, it was recommended to postpone the verticalization procedure in cases where the creatinine level in the blood is higher than 150  $\mu$ .mmol/l and to continue treatment based on the advice of a nephrologist.

Hematomas in the brain were divided into the following groups according to their size:

- Small hemorrhages (hematoma <20ml)
- medium-sized hematoma (hematoma 20-50 ml)
- Large hematoma (hematoma >50 ml)

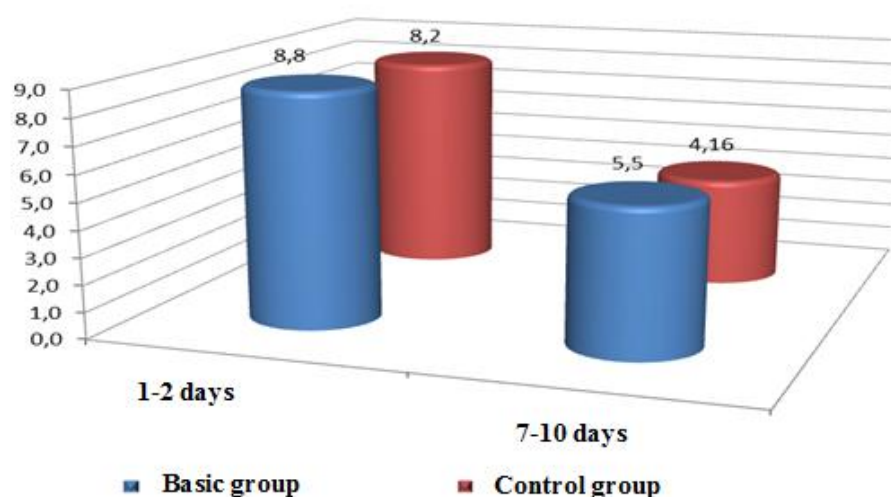
The frequency of these hematomas in the study groups is reflected in the following diagram in terms of percentages.

**1- figure. Meeting of research groups according to the size of hematomas (%).**



In all patients, hemorrhagic type MSCT of acute blood circulation disorder in the brain is noted. In the course of the study, it was learned that the initiation of a number of early rehabilitation measures directly depends on the laboratory indicators.

**2-figure. Dynamics of average indicators on the NIHSS scale.**



The dynamics of complications observed in BG and CG on 1-6 days, 7-12 days and 13-18 days after observation of hemorrhagic stroke. In the first days of the onset of the disease, the symptoms of encephalopathy predominate, and on the 13-18th day of the disease, complications of the respiratory system increase in CG compared to BG, and it is possible to observe the appearance of other complications.

With the NIHSS Scale, the patient's consciousness, vision, motor and sensory function, coordination disorders, gnosis and speech function are evaluated. The NIHSS scale was used to assess the dynamics of the patients' condition in the first and last days of hospitalization and compared between groups.

The average value of NIHSS scale before the study was BG  $8.8 \pm 0.36$ , after the study was  $5.5 \pm 0.29$  and CG was  $8.2 \pm 0.37$  before treatment and  $4.16 \pm 0.29$  after rehabilitation measures.

It can be observed that BG was  $45.5 \pm 2.24$  points at the beginning of the study and improved to  $69.4 \pm 2.05$  points at the end of the study. NG, this indicator was  $55.5 \pm 2.45$  at the beginning and  $83.7 \pm 2.2$  at the post-test. It can be observed that the ratio of neurologic deficit level was 1.22 at the beginning of the study and 1.20 at the end of the study.

## CONCLUSIONS.

1. To sum up, in the acute period of hemorrhagic stroke, a number of complications are revealed in the somatic and neurological condition of patients and in the dikamika.
2. The results of the early rehabilitation procedures were evaluated using the NIHSS and Barthel scales before and after the study and the improvement of the quality of life was studied.
3. Decrease in developed neurological deficits in the main group and less development of somatic symptoms compared to the comparison group, shows the effectiveness of early rehabilitation measures.

## REFERENCES

1. O'rinov R. M., Po'latov S. S. FEATURES OF THE FUNCTIONAL STATE OF AUTONOMIC REGULATION IN PATIENTS WITH POST-COVID SYNDROME //Art of Medicine. International Medical Scientific Journal. – 2023. – T. 3. – №. 3.
2. Musayevich U. R. et al. POST-COVID SINDROMI BO'LGAN BEMORLARDA MIYA GEMODINAMIKASI VA MIKROGEMOSIRKULYATSIYA XUSUSIYATLARI //BARQARORLIK VA YETAKCHI TADQIQOTLAR ONLAYN ILMIY JURNALI. – 2023. – T. 3. – №. 6. – C. 55-58.
3. Musayevich U. R. et al. POST-COVID SINDROMI BO'LGAN BEMORLARDA MIYA GEMODINAMIKASI VA MIKROGEMOSIRKULYATSIYA XUSUSIYATLARI //BARQARORLIK VA YETAKCHI TADQIQOTLAR ONLAYN ILMIY JURNALI. – 2023. – T. 3. – №. 6. – C. 55-58.
4. Musayevich U. R., Sayfulloyevich P. S. Features of the Functional State of Autonomic Regulation in Patients with Post-Covid Syndrome //International Journal of Formal Education. – 2023. – T. 2. – №. 6. – C. 64-70.
5. Urinov R. M., Pulatov S. S. FEATURES OF CEREBRAL HEMODYNAMICS, MICROHEMOCIRCULATION IN PATIENTS WITH RENAL SYNDROME //British Medical Journal. – 2023. – T. 3. – №. 3.
6. Sul'tonova N. A. THE PROBLEM OF ADDICTED MISSING OF PREGNANCY IN EARLY STAGES OF PREGNANCY //Oriental Journal of Academic and Multidisciplinary Research. – 2023. – T. 1. – №. 1. – C. 94-101.
7. Sul'tonova N. A. Dopplerometric Features of Blood Flow Changes in the Utero-Placental System in Women With Related Pregnancy Mission //Miasto Przyszłości. – 2023. – T. 34. – C. 268-273.

8. Sulstonova N. A. Evaluation of Clinical and Instrumental Results of Patients with a Risk of Development of Recurrent Mission //Central Asian Journal of Medical and Natural Science. – 2023. – Т. 4. – №. 2. – С. 536-542.
9. Тиллоева Ш. Ш., Давлатов С. С. Эффективность и переносимость локсидола в лечение ревматоидного артрита у пациентов старших возрастных групп //Central Asian Journal of Medical and Natural Science. – 2021. – С. 432-436.
10. Тиллоева Ш. Ш. и др. Estimation of the condition of the cardiorespiratory system of patients with the conciliation of bronchial asthma and arterial hypertension, effects of complex therapy //Новый день в медицине. – 2020. – №. 2. – С. 227-230.
11. Tillaeva S. S. et al. Currency and diagnostic criteria of rheumatoid arthritis in patients of senior age groups //Asian Journal of Multidimensional Research (AJMR). – 2018. – Т. 7. – №. 11. – С. 184-188.
12. Ilkhomovna K. D. Morphological Features of Tumor in Different Treatment Options for Patients with Locally Advanced Breast Cancer //International Journal of Innovative Analyses and Emerging Technology. – 2021. – Т. 1. – №. 2. – С. 4-5.
13. Khodzhaeva D. I. Changes in the Vertebral Column and Thoracic Spinecells after Postponement of Mastoectomy //International Journal of Innovative Analyses and Emerging Technology. – 2021. – Т. 1. – №. 4. – С. 109-113.
14. Khodjayeva D. I. MORPHOLOGY OF IDIOPATHIC SCOLIOSIS BASED ON SEGMENT BY SEGMENT ASSESSMENT OF SPINAL COLUMN DEFORMITY //Scientific progress. – 2022. – Т. 3. – №. 1. – С. 208-215.
15. Ilkhomovna K. D. Modern Look of Facial Skin Cancer //BARQARORLIK VA YETAKCHI TADQIQOTLAR ONLAYN ILMIY JURNALI. – 2021. – Т. 1. – №. 1. – С. 85-89.
16. Idiyevna S. G. Discussion of results of personal studies in the use ofmil therapy in the treatment of trauma to the oral mucosA //European Journal of Molecular medicineVolume. – Т. 2.
17. Idiyevna S. G. THE EFFECTIVENESS OF THE USE OF MAGNETIC-INFRARED-LASER THERAPY IN TRAUMATIC INJURIES OF ORAL TISSUES IN PRESCHOOL CHILDREN //Academic leadership. ISSN. – Т. 15337812.
18. Sharipova G. I. Light and laser radiation in medicine //European journal of modern medicine and practice. – 2022. – Т. 2. – №. 1. – С. 36-41.
19. Idievna S. G. THE EFFECT OF DENTAL TREATMENT-PROFILACTICS ON THE CONDITION OF ORAL CAVITY ORGANS IN CHILDREN WITH TRAUMATIC STOMATITIS //Tibbiyotdayangikun» scientific-abstract, cultural and educational journal.- Bukhara. – 2022. – Т. 5. – №. 43. – С. 103-106.
20. Idievna S. G. CHANGES IN THE CONTENT OF TRACE ELEMENTS IN THE SALIVA OF PATIENTS IN THE TREATMENT OF PATIENTS WITH TRAUMATIC STOMATITIS WITH FLAVONOID-BASED DRUGS //Journal of research in health science. – Т. 6. – С. 23-26.
21. Ikromovna I. F., Jumatovich J. U., Elmuradovich I. G. Influence of the harmful factors of manufacture of synthetic detergents and cleaners on the clinical-functional parameters of the oral cavities in the workers //European science review. – 2014. – №. 9-10. – С. 31-32.
22. Ибрагимова Ф. И., Жумаева А. А., Ражабова Д. Б. Влияние неблагоприятных факторов условий труда в производстве синтетических моющих и чистящих средств на состояние тканей пародонта у рабочих //Наука молодых–Eruditio Juvenium. – 2015. – №. 1. – С. 31-34.

23. Kromovna I. F. Prevalence and character of the oral cavity mucosa in the workers of the manufacture of the synthetic detergents //European science review. – 2016. – №. 3-4. – С. 178-179.
24. Ибрагимова Ф. И., Замонова Г. Ш. Влияние вредных факторов производства на клиничко-функциональные показатели полости рта рабочих //Символ науки. – 2016. – №. 8-1. – С. 181-182.
25. Ibragimova F. I., Idiev G. E. The state of health of workers in the production of synthetic detergents and cleaning products." Problems of Biology and Medicine //International Scientific Journal.-Samarkand. – 2012. – №. 1. – С. 68.
26. Ибрагимова Ф. И., Жуматов У. Ж. Поражения слизистой оболочки полости рта у работающих в производстве синтетических моющих и чистящих средств //Молодежный инновационный вестник. – 2016. – Т. 5. – №. 1. – С. 165-166.
27. Ибрагимова Ф. И., Замонова Г. Ш. ОЦЕНКА НЕКОТОРЫХ ФУНКЦИОНАЛЬНЫХ ПОКАЗАТЕЛЕЙ ПОЛОСТИ РТА У РАБОЧИХ ПРОИЗВОДСТВА СЫРЬЕВЫХ КОМПОНЕНТОВ ДЛЯ СИНТЕТИЧЕСКИХ МОЮЩИХ СРЕДСТВ //Молодежный инновационный вестник. – 2016. – Т. 5. – №. 1. – С. 163-165.
28. Ибрагимова Ф. И., Замонова Г. Ш. Влияние вредных факторов производства на клиничко-функциональные показатели полости рта рабочих //Символ науки. – 2016. – №. 8-1. – С. 181-182.
29. Ибрагимова Ф. И., Идиев Г. Э. Действие гипохлорита натрия (ингредиента синтетических моющих средств) на активность окислительно-восстановительных ферментов, и её коррекция введением растительных препаратов в эксперименте //Проблемы биологии и медицины–Самарканд. – 2017. – Т. 4. – С. 98.
30. Urinbaevna Y. R. Features of Prediction of the Severity of Iron Deficiency in Helicobacter Pylori Infection //Scholastic: Journal of Natural and Medical Education. – 2023. – Т. 2. – №. 4. – С. 93-99.
31. Юлдашова Р. У. ЭПИДЕМИОЛОГИЧЕСКАЯ ХАРАКТЕРИСТИКА ЖЕЛЕЗОДЕФИЦИТНОЙ АНЕМИИ У ДЕТЕЙ И ПОДРОСТКОВ В РЕСПУБЛИКЕ УЗБЕКИСТАН ЗА 2007-2019 ГОДЫ //Новый день в медицине. – 2020. – №. 4. – С. 742-747.
32. Юлдашова Р. У., Жарылкасынова Г. Ж., Сафоев Б. Б. МОДЕРНИЗАЦИЯ КУРСА ДОВРАЧЕБНОЙ НЕОТЛОЖНОЙ ПОМОЩИ В БУХАРСКОМ ГОСУДАРСТВЕННОМ МЕДИЦИНСКОМ ИНСТИТУТЕ КАК ОДИН ИЗ УСОВЕРШЕНСТВОВАННЫХ МЕТОДОВ ОБУЧЕНИЯ (в рамках проекта ModeNEd) //Оптимизация высшего медицинского и фармацевтического О-62 образования: менеджмент качества и инновации: материалы IX внутривузовской научно-практической конференции.—Челя-бинск: Издательство Южно-Уральского государственного меди-цинского университета, 2018.— 153,[1] с. – 2018. – С. 150.
33. Юлдашова Р. У. и др. ИСПОЛЬЗОВАНИЕ СИСТЕМЫ ДИСТАНЦИОННОГО ОБУЧЕНИЯ MOODLE ПРИ ПОВЫШЕНИИ КВАЛИФИКАЦИИ ВРАЧЕЙ //Оптимизация высшего медицинского и фармацевтического об-О-62 разования: менеджмент качества и инновации: материалы VIII внутривузовской научно-практической конференции.—Челя-бинск: Издательство Южно-Уральского государственного меди-цинского университета, 2017.—136 с. – 2017. – С. 135.
34. Юлдашова Р. У., Халилова Ф. А., Тошева Х. Б. ОТНОШЕНИЕ СТУДЕНТОВ И ПРЕПОДАВАТЕЛЕЙ К ИСПОЛЬЗОВАНИЮ СОЦИАЛЬНЫХ СЕТЕЙ В ОБУЧЕНИИ //Педагогический профессионализм в образовании. – 2015. – С. 218-219.
35. Ziyolloevich A. M. Etiotropic Therapy of Viral Hepatitis //EUROPEAN JOURNAL OF INNOVATION IN NONFORMAL EDUCATION. – 2022. – Т. 2. – №. 11. – С. 52-56.

36. Abdulloev M. Z. EFFECTIVENESS OF ANTIVIRAL THERAPY IN VIRAL HEPATITIS //Journal of new century innovations. – 2022. – Т. 11. – №. 3. – С. 132-136.
37. Абдуллоев М. З., Облокулов А. Р. АНАЛИЗ РЕЗУЛЬТАТОВ ИССЛЕДОВАНИЯ ПО ОПРЕДЕЛЕНИЮ ЦИТОКИНОВ У БОЛЬНЫХ ХРОНИЧЕСКОГО ГЕПАТИТА С В ЗАВИСИМОСТИ ОТ НАЛИЧИЯ КРИГЛОБУЛИНЕМИИ // " XALQ TAVOVATI VA ZAMONAVIY TIBBIYOT, YANGI YONDASHUVLAR VA DOLZARB TADQIQOTLAR". – 2023. – Т. 6. – С. 8-9.
38. Abdulloev M. Z. EFFECTIVENESS OF ANTIVIRAL THERAPY IN VIRAL HEPATITIS //Journal of new century innovations. – 2022. – Т. 11. – №. 3. – С. 132-136.
39. Ziyodulloevich A. M. EFFICIENCY OF ETIOTROPIC TREATMENT IN CHRONIC VIRAL HEPATITIS //Galaxy International Interdisciplinary Research Journal. – 2023. – Т. 11. – №. 4. – С. 450-454.
40. Oblokulov R. A., Abdulloev M. Z. To Study the Effectiveness of Direct-Antiviral Drug in the Treatment of Chronic Viral Hepatitis C, Your Act //Web of Scholars: Multidimensional Research Journal. – 2022. – Т. 1. – №. 5. – С. 201-206.
41. Облокулов А. Р. и др. ВИРУСОЛОГИЧЕСКИЙ ОТВЕТ ПРИ ЛЕЧЕНИИ ВИЧ-ИНФЕКЦИИ АНТИВИРУСНЫМИ ПРЕПАРАТАМИ //Новый день в медицине. – 2020. – №. 1. – С. 306-308.
42. Ахмедова С. М. Морфологическая характеристика развития стенок сердца крысят //Наука и мир. – 2015. – №. 1-2. – С. 85-87.
43. Каримов Х., Ахмедова С., Тен С. Морфологическая характеристика развития стенок сердца и их изменения при воздействии пестицидов //Журнал вестник врача. – 2011. – Т. 1. – №. 03. – С. 51-54.
44. Ахмедова С., Нортоева Н., Нортоев А. Morphological changes in the teeth of adolescent children with hypotireosis : дис. – Тошкент тиббиёт академияси, 2022.
45. Ахмедова С. М. Возрастные особенности анатомии сердца крысят в раннем постнатальном онтогенезе //International medical scientific journal. – 2015. – С. 40.
46. Ахмедова С. М. Гистотопография стенок сердца крысы в постнатальном онтогенезе //Врач-аспирант. – 2011. – Т. 46. – №. 3.2. – С. 283-288.
47. Ахмедова С. М., Айтжанова А. Е., Сагдуллаева М. К. К МОРФОЛОГИИ ИЗМЕНЕНИЙ ПОЧЕК ПРИ ЭКСПЕРИМЕНТАЛЬНОМ АЛКОГОЛИЗМЕ //Journal of new century innovations. – 2022. – Т. 16. – №. 2. – С. 166-168.
48. Ахмедова С. М., Якубова Ф. ПОКАЗАТЕЛИ ФИЗИЧЕСКОГО РАЗВИТИЯ У СЛЕПЫХ И СЛАБОВИДЯЩИХ ДЕТЕЙ //Conferencea. – 2022. – С. 103-105.
49. Миршарапов У. М. и др. СОСТОЯНИЕ СОСУДОВ ПРИ ЭКСПЕРИМЕНТАЛЬНОМ САХАРНОМ ДИАБЕТЕ //Проблемы и достижения современной науки. – 2017. – №. 1. – С. 13-15.
50. Ахмедова С. М., Хатамов А. И., Худайбергенов Б. Э. МОРФОФУНКЦИОНАЛЬНЫЕ ОСОБЕННОСТИ УЛЬТРАСТРУКТУРНОГО СТРОЕНИЯ МИОКАРДА ПРИ ВЛИЯНИИ ПЕСТИЦИДА //Проблемы и достижения современной науки. – 2017. – №. 1. – С. 11-13.
51. Ахмедова С., Эрматов Н. Характер морфофункциональных изменений сердца при воздействии пестицидов //Журнал проблемы биологии и медицины. – 2016. – №. 3 (89). – С. 135-137.