WEB OF SCIENTIST: INTERNATIONAL SCIENTIFIC RESEARCH JOURNAL
ISSN: 2776-0979, Volume 3, Issue 2, Feb., 2022

BIOCORRECTION-DEPENDENT FEATURES OF MORPHOLOGICAL CHANGES OF THE SMALL INTESTINE DURING EXPERIMENTAL ACUTE IRRADIATION

Sultanova L. D.
Bukhara State Medical Institute

Annotation

The aim of the study was to characterize the dynamics of morphological changes in the state of biocorrection in pigments and small intestine of laboratory animals under acute irradiation. It turned out that after acute irradiation in both groups, significant morphological changes were observed in the liver of laboratory animals with a relatively low intensity of morphological changes in group 1, in which no biocorrection was performed, in group 2, where preliminary biocorrection was performed. A similar situation was observed when studying the histological landscape of the small intestine of this white purebred sushlar rat, the intensity of morphological changes was lower than in white breeding rats that did not receive the biologically active additive "Lactopropolis-AWL".

Keywords: acute irradiation, liver and small intestine of laboratory animals, morphological changes, biocorrection

Introduction

The most sensitive to acute radiation are the organs of the immune system (thymus, bone marrow, spleen, lymph nodes), mucous membranes of the gastrointestinal tract, exo- and endocrine glands (pituitary gland, thyroid gland, adrenal glands), sex glands (ovaries, ovaries, prostate gland). Organs with low sensitivity to radiation include the heart, kidneys, liver, brain and spinal cord, bone tissue, joints [1].

During irradiation, the biological tissue membrane becomes destabilized: increased membrane permeability leads to activation of proteins freely located in the cytoplasm due to excessive intake of fluid and various micro- and macroelements, including calcium ions, damage to intracellular structures of lysosomal enzymes, development of hydropic dystrophy of the epithelium of the renal tubules [2, 4, 6].

The aim of the study was to describe the dynamics of morphological changes in the small intestine of laboratory animals under the biocorrective effect of ultraviolet radiation.

WEB OF SCIENTIST: INTERNATIONAL SCIENTIFIC RESEARCH JOURNAL
ISSN: 2776-0979, Volume 3, Issue 2, Feb., 2022

Material and Methods

30 white tailless male rats weighing 160-180 g were selected for experimental studies. All laboratory animals were taken from the same vivarium and were of the same age. All were kept in standard vivarium conditions. Feeding, keeping laboratory animals in vivarium conditions, compliance with biosafety rules and ethical principles when working with them Nuraliev N.A. and that's it. Made on [5].

All laboratory animals were divided into the following groups:

Group 1-rats without biocorrection of white breed, who were in the standard vivarium rasion, who received a single acute irradiation in the amount of 5 Grays (n=15);

Group 2-white mongrel rats that received a one-time acute irradiation in the amount of -5 UAH, with the addition of a biologically active additive “Lactopropolis-SHIM” as a biocorrection to standard vivarion (n=15);

Irradiation of laboratory animals in the experiment was carried out using the gamma-therapeutic apparatus AGAT-P1 (Estonia), in which the radiation source was Co-60. Studies related to the irradiation of animals were conducted in the Bukhara branch of the Republican Specialized Scientific and Practical Center of Oncology and Radiology of the Ministry of Health of the Republic of Uzbekistan.

The drug” lactopropolis-shul" was given every morning, based on the weight of all laboratory animals. Those who received acute radiation were given the drug for 20 days, irradiated on the last day, and then decontaminated on the 5th day and morphological studies were performed.

Biologically active additive "lactopropolis-AWL" contains an extract of probiotic bacteria Lactobacillus rhamnosus 925, Enterococcus durans and biologically active compounds of propolis, has antimicrobial, immunostimulating, anti-inflammatory properties (products of the Institute of Microbiology of the Academy of Sciences of Uzbekistan and LLC” AllWellLab").

To study the morphological parameters of the small intestine of laboratory animals, methods widely used in experimental studies (anatomical cleavage) were used. All histological micro-objects were constructed using a trinocular microscope model XL-19 (China) with software. Preparation of histological preparations from the small intestine of white tailless rats consisted of 4 stages and was carried out by traditional methods. For the manufacture of preparations, a mechanical rotary microtome of the YD-315 brand (China) was used, the prepared incisions were stained with hematoxylin-eosin, photographing was carried out in a microscope with dimensions of 4x10,10x10, 20x10, 40x40, 60x10, 80x10.

WEB OF SCIENTIST: INTERNATIONAL SCIENTIFIC RESEARCH JOURNAL
ISSN: 2776-0979, Volume 3, Issue 2, Feb., 2022

Statistical processing of the obtained material was carried out directly using the generalized information matrix "Excel 7.0". The principles of evidence-based medicine were used in the organization and conduct of the study.

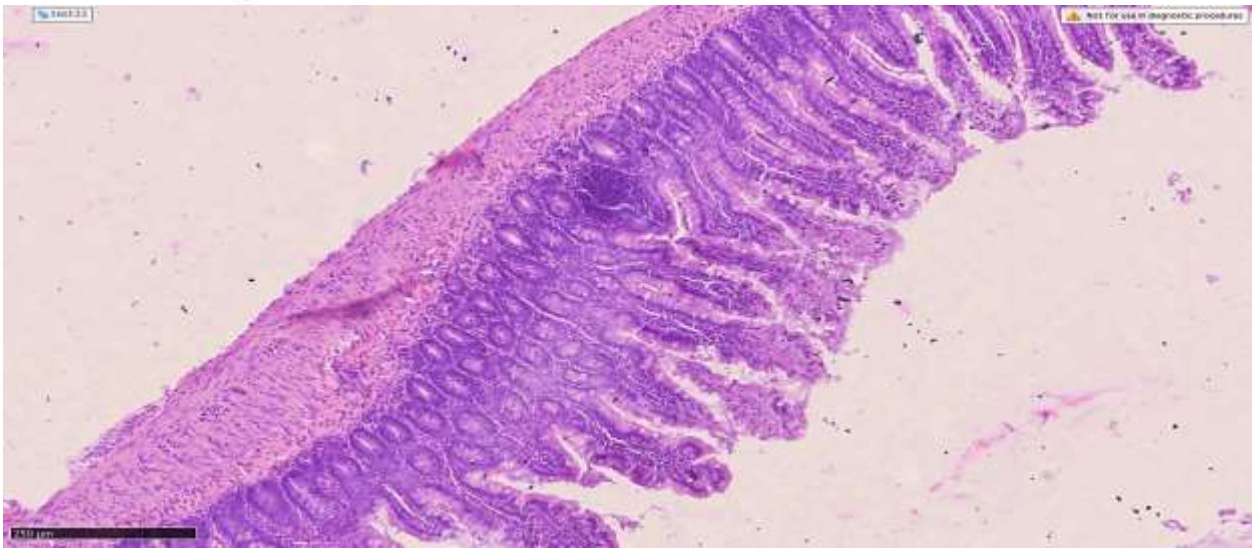
Results and their discussion. The results obtained showed that in the rats of white breeds belonging to group 1, the histological structure of the small intestine remained unchanged, the villi of the mucous membrane had the same visibility (100.0%, n=15) (Fig.1).

1-picture.Histological appearance of the small intestine of rats without white breed receiving acute irradiation (histostructure unchanged, mucous larvae look the same. Hematoxylin-painted with eosin, 4x10).

When another histological drug was studied, white non-breed rats receiving one-time acute irradiationushlar detected foci of necrosis of mucocytes on the surface of vorsinka of the mucous membrane of the small intestine (66,7%, n=10), hyperplastic changes in the germinative area of the malt structure were shown to be sluggish (53,3%, n=8), serous curtain was of the same thickness

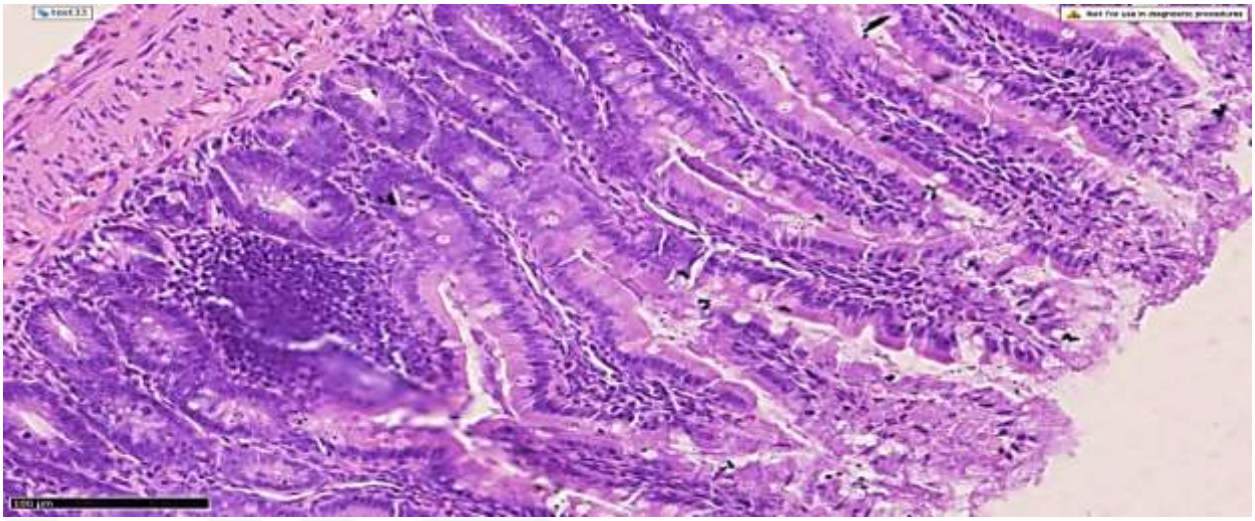
As you know, goblet cells (mucocytes), one of the types of enterocytes, account for 9,5% of epithelial cells. These cells contain mucinogen granules, which, in turn, absorb water and swell and turn into mucin. For this reason, it is important to study and evaluate the structure, morphological status of leukocytes [4].

WEB OF SCIENTIST: INTERNATIONAL SCIENTIFIC RESEARCH JOURNAL
ISSN: 2776-0979, Volume 3, Issue 2, Feb., 2022



2-picture.Histological appearance of the small intestine of rats without white breed receiving acute irradiation(detected foci of necrosis of many mucocytes on the surface of the mucous membranes of the small intestine(1), hyperplastic changes in the germinative sac of the malt structure formed stagnant (2), serous curtain with a different thickness (3). Hematoxylin-painted with eosin, 10x10)

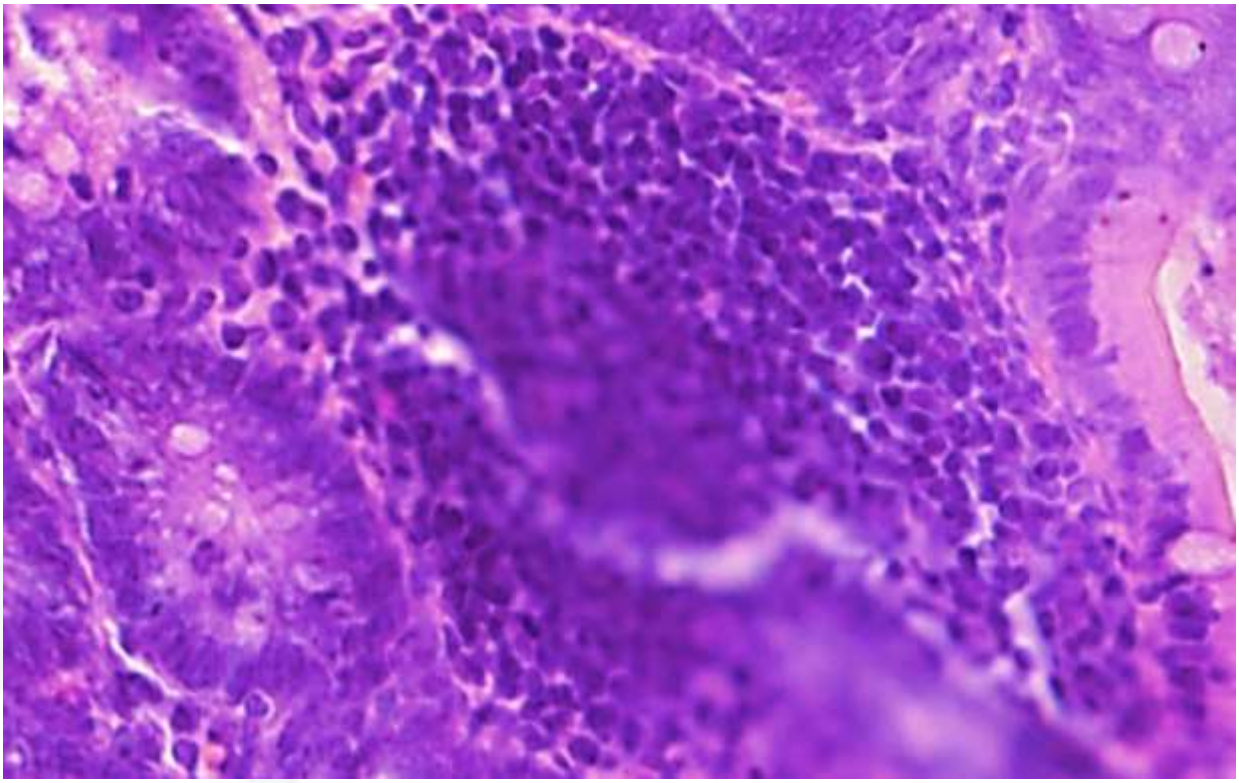
In another histological preparation, it was found that the goblet cells located in the intestinal vorsinki in the field of vision (Figure 3) were of different sizes, there were many focal necrosis foci in mucocytes(66,7%, n=10), fibrinoid suppuration foci were observed in the stroma of the muscle layer (46,7%, n=7).



3-picture. Histological appearance of the small intestine of rats without white specimens receiving acute irradiation(goblet cells located in the larynx are of different sizes (1), numerous focal necrosis foci (2) in mucocytes, fibrinoid excretory foci (3)in the stroma of the muscle layer were determined. Painted with hematoxylin-eosin. 40x10).

WEB OF SCIENTIST: INTERNATIONAL SCIENTIFIC RESEARCH JOURNAL
ISSN: 2776-0979, Volume 3, Issue 2, Feb., 2022

At the same time, a slow-growing proliferation (80,0%, n=12) was observed in lymphocytes detected in the lymphoid follicle of the small intestine, while in the paraffollicular capillaries, the foci of anemia (86,7%, n=13) were detected, hypersecretion and cytoplasm of the gland cells surrounding the follicle on the mucous membrane was determined basophilic staining (Figure 4).

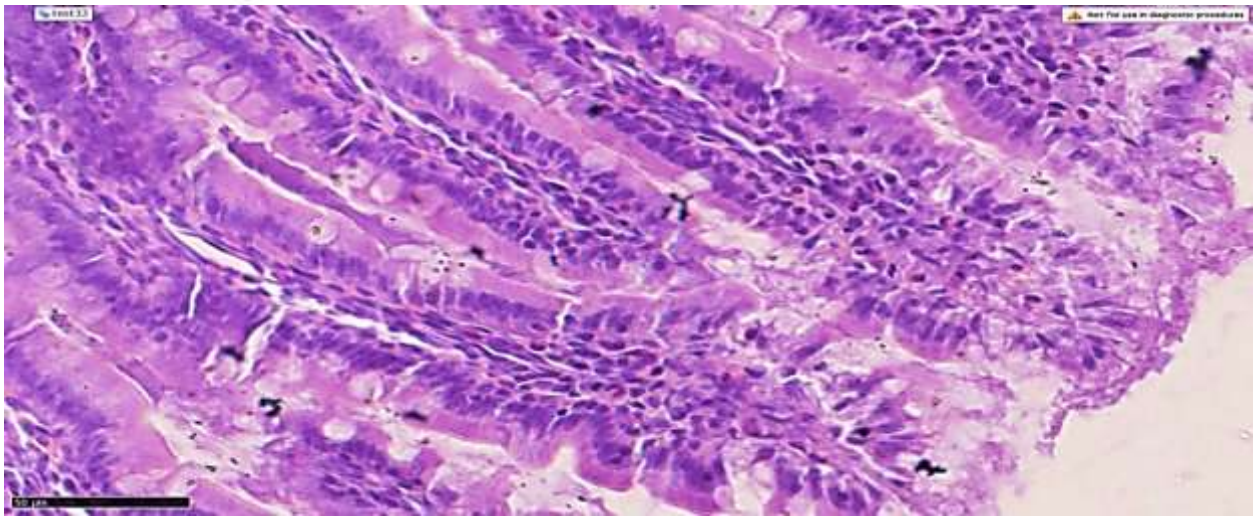


4-picture.Histological appearance of the small intestine of rats without acute irradiation received white blood cell (stagnant enhanced proliferation(1) in lymphocytes in the lymphoid follicle of the small intestine, anemia foci (2) in the paraffollicular capillary,hypersecretion in the gland cells surrounding the follicle and cytoplasm basophilic painted (3). Painted with hematoxylin-eosin. 80x10).

Hematoxylin-another histological drug, stained with eosin, was evaluated for mucocytes(Figure 5). It was found that in vorsinka stroma, fibroblasts proliferated(66,7%, n=10), dystrophic and necrotic foci were detected in secretory producing cells(53,3%, n=8), necrotic erosive changes were detected in the mucocytes on the vorsina surface (53,3%, n=8).

Thus, significant morphological changes were detected in the small intestine of white non-breed rats receiving acute irradiation. The above-mentioned changes in the small intestine of these laboratory animals, which are only in the ration of vivarium without giving biological preparation, were evaluated as an acute irradiation effect.

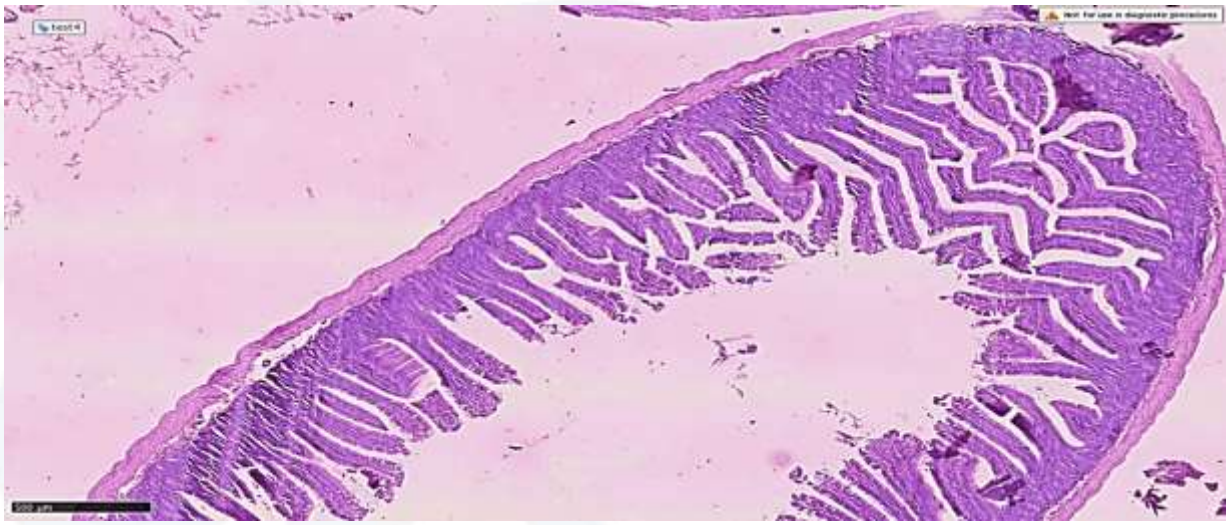
WEB OF SCIENTIST: INTERNATIONAL SCIENTIFIC RESEARCH JOURNAL
ISSN: 2776-0979, Volume 3, Issue 2, Feb., 2022



5-picture.Histological appearance of the small intestine of rats without white breed, given acute irradiation(fibroblasts proliferation in vortices stroma developed(1), dystrophic and necrotic foci in secretory producing cells (2), necrotic erosive changes in the mucocytes on the surface of the vorsina were detected (3). Painted with hematoxylin-eosin. 40x10).

The histological landscape of the small intestine of white undigested ratsushlar was also studied, which received the corresponding dose of the biologically active additive "Lactopropolis-AWL" once a day until acute irradiation was carried out.

These rats were immobilized, and when histological preparations made from the small intestine were studied, histioarchitectonics of the small intestine were observed to be unchanged, with the vortices of the same size (Figure 6).

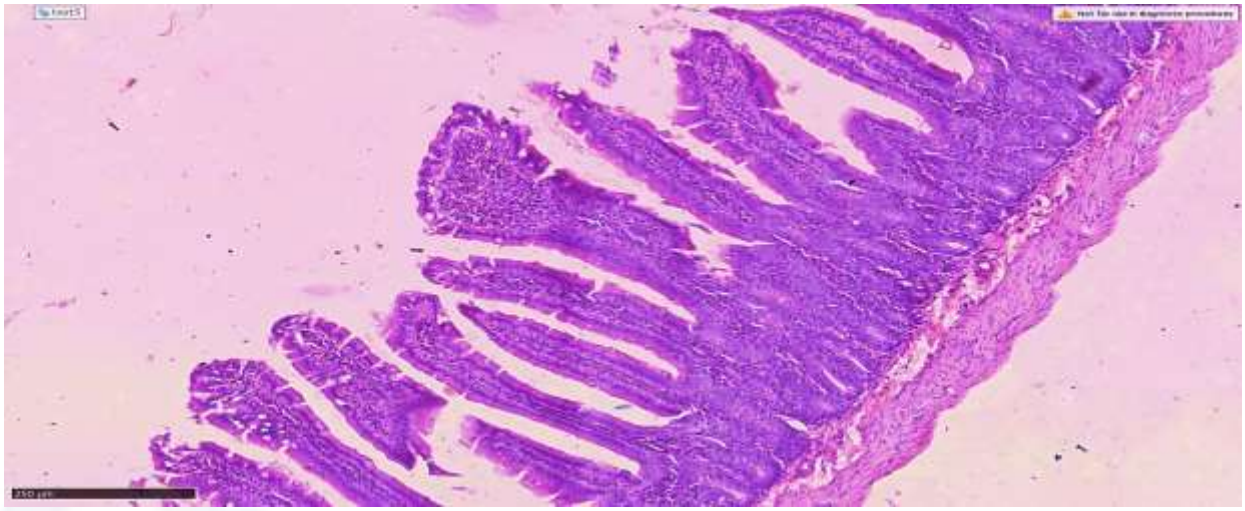


6-picture. Histological appearance of the small intestine of rats without white offspring given biopreparate before acute irradiation (histioarchitectonics of the small intestine unchanged, the vortices are the same size. Painted with hematoxylin-eosin. 4x10).

WEB OF SCIENTIST: INTERNATIONAL SCIENTIFIC RESEARCH JOURNAL
ISSN: 2776-0979, Volume 3, Issue 2, Feb., 2022

In this case, there were no practical changes in both groups, a statistically significant difference in morphological characteristics is evident.

Another laboratory animal belonging to this small group had a full-fledged appearance of intestinal vorsins(Figure 7), interstitial tumors of the stroma (33,3%, n=5), blood vessels of the mucous membrane with a full-fledged appearance(33,3%, n=5), uneven intermediate tumors of the serous membrane (46,7%, n=7).

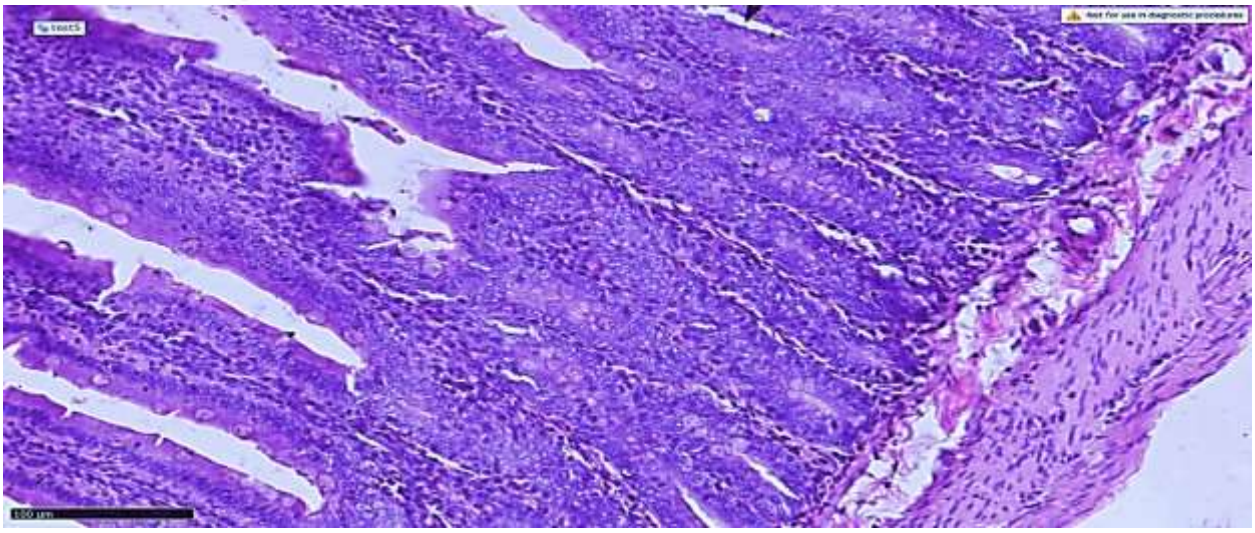


7-picture. Histological appearance of the small intestine of rats without white blood cells, given biopreparat until acute irradiation (intestinal vorsins appear full-fledged, interstitial tumors in the stomata, blood vessels of the mucous membrane appear full-fledged(1), uneven intermediate tumors in the serous membrane are detected. Painted with hematoxylin-eosin. 10x10).

As is known, intestinal vorsins (lat. villi intestinal) the intestinal mucosa is a tumor of its own platelet, formed from the permeability of the mucous membrane in the form of a ringworm or leaflet, which is characterized by the fact that they freely penetrate into the cavity of the small intestine. The main function of intestinal vorsinki is to ensure the size of the area of absorption of this mucous membrane. On account of these vorsincks, the absorption surface of the small intestine increases by 8-10 times[3].

In another histological preparation, foci of hydropic dystrophy were detected in the mucocytes on the surface of the vortices(40,0%, n=6), as well as fibroblasts proliferation in the vortices (40,0%, n=6) (Figure 8).

WEB OF SCIENTIST: INTERNATIONAL SCIENTIFIC RESEARCH JOURNAL
ISSN: 2776-0979, Volume 3, Issue 2, Feb., 2022



8-picture. Histological appearance of the small intestine of rats without white specimens given biopreparat until acute irradiation (foci of hydropic dystrophy (1)in mucocytes on the surface of the vorsinka were detected, proliferation of fibroblasts in the vorsine stroma (2). Painted with hematoxylin-eosin. 10x10).

From scientific sources it is known that gidropic dystrophy (vacuum dystrophy, aqueous dystrophy) is a tumor of parenchyma cells, characterized by the appearance of vacuoles filled with cytoplasmatic fluid in the cell[3].

When the histological landscape of the small intestine of white undigested ratsushlar, which received the corresponding dose of the biological active additive "Lactopropolis-AWL" once every day until acute irradiation was conducted, changes in the morphological properties of the small intestine were observed in most of them, but the intensity of these changes was greater than that of white undigested rats that did not This case is presented in the table based on the numbers.

Conclusions

1. Single-time acute irradiation received White undigested squidushlar necrosis foci of mucocytes on the surface of the mucous membrane of the small intestine vortices were detected (66,7%), hyperplastic change in the germinative sac of the malt structure was shown to be sluggish (53,3%), the serous membrane was of the same thickness, the goblet cells located in the intestinal vortices were of soaking furnaces were observed (46,7%). In lymphocytes of the same member lymphoid follicle, underdeveloped proliferation (80,0%), in paraffollicular capillaries, anemia foci (86,7%) were detected.

2. Laboratory animals developed proliferation of fibroblasts (66,7%) in the stroma of the small intestine vortices, dystrophic and necrotic foci in secretory producing cells (53,3%), necrotic-erosive changes in the mucocytes on the surface of the vorsina were detected (53,3%).

3. When histological preparations made from the White undigested squidushlar thin intestine, which received the corresponding dose of the biologically active additive "Lactopropolis-AWL" once a day before acute irradiation, vorsinas were detected as full-fledged, interstitial tumors in the stroma (33,3%), uneven intermediate tumors in the serous membrane (46,7%). Foci of gidropic dystrophy were detected (40,0%) in mucocytes on the surface of vorsinka, fibroblasts proliferation kuchaygan (40,0%) was observed in vorsinka stroma.

4. When the histological landscape of the small intestine of white undigested ratsushlar, which received the corresponding dose of the biological active additive "Lactopropolis-AWL" once every day until acute irradiation was conducted, changes in the morphological properties of the small intestine were observed in most of them, but the intensity of these changes was greater than that of white undigested rats that did not.

Used literatures

1. Коноплянников А.Г. Клеточные основы радиационных эффектов человека // В кн.: «Радиационная медицина. Том 1. Теоретические основы радиационной медицины». Под общ.ред. Л.А. Ильина. – Москва: Изд. АТ, 2004. - С.189-277.
2. Котенко К.В., Бушманов А.Ю., Иванов А.А. Способ профилактики и лечения острой лучевой болезни в эксперименте. Патент РФ 2551619. Опубликован в Бюллетене № 15. - 27.05.2015.
3. Курченкова В.И., Капралов Н.В., Шоломицкая-Гулевич И.А. Болезни тонкой кишки. Основные сведения по анатомии и физиологии. Часть 1 // Военная медицина. – 2021. - №1. – С.105-114.
4. Михеев А.Н. Малые дозы радиобиологии. Моя маленькая радиологическая вера. - Киев, Фотосоциоцентр, 2016. - 371 с.
5. Нуралиев Н.А., Бектимиров А.М-Т., Алимова М.Т., Сувонов К.Ж. Правила и методы работы с лабораторными животными при экспериментальных микробиологических и иммунологических исследованиях // Методическое пособие. - Ташкент, 2016. - 34 с.
6. Barabanova A., Baranov A., Bushmanov A., Guskova A. Radiation Effects in Man Selected clinical lectures. Eds.: K. Kotenko, A. Bushmanov. – M.: OAO «Издательство «Медицина», 2008. - 158 с.

7. Axmadova Maftuna Amin qizi .Ko'krak bezi-o'ziga xos intrakranial a'zo//JOURNAL OF ADVANCED REASERCH AND STABILITY(JARS)//Volume:01.05/2021.,171-180 bet.
8. Шерзод Алишер огли Абдулхакимов, Муножат Хаятовна Исмаилова Современные тенденции лучевой диагностики при очаговых поражениях печени. Современная медицина: новые подходы и актуальные исследования // 2018 – с. 106-108
9. Abdulhakimov Sh.A. The role of computed tomography in the diagnosis of spinal injuries // International Journal of Development and Public Policy. – 2021. - Vol.1 (4). – P.106-108
10. A.T.Cho'liyev.,U.S.Mamedov.,M.A.Akhmadova.,R.R.Navro'zov.,D.F.Narziyeva Diagnostics of exinococcosis in youth at the modern stage./Journal of Natural Remedies.2021,№1(1).-P37-40
11. Guljamol Fazliddinonvna Makhmudova, Adkhambek Uygunovich Nurboboyev.Treatment of mechanical jaundice via the modern way// Scientific progress, 2021.-№6.-P.530-537
12. Makhmudova G.F. Age-related clinical,anatomical and morphological features of malignant tumors of the cervix// Journal of science and technology//2021.-P.-475-480
13. Абдулхакимов Шерзод Алишер огли. Сексуальная восстановление пациентов после контактной лучевой терапии по поводу ограниченного рака простаты. – 2021. - Central asian journal of medical and natural sciences. – 2021. - Vol.2 (5). – P.449-455
14. Iskandarova Iroda Mashrabovna. Relapses of Differentiated Thyroid Cancer // EUROPEAN JOURNAL OF LIFE SAFETY AND STABILITY (EJLSS) ISSN 2660-9630.- www.ejlss.indexedresearch.org Volume 7, 2021 ||.-С. 70-75.
15. Шерзод Алишер огли Абдулхакимов, Муножат Хаятовна Исмаилова. Современные тенденции лучевой диагностики при очаговых поражениях печени. Современная медицина: новые подходы и актуальные исследования. Сборник статей по материалам VIII международной научно-практической конференции . 2018. Стр. 29-32
16. Махмудова Г. Ф., Темирова, Д. В., &Баротова, Ш. Б. (2021). Бачадон бўйни хавфли ўсмаларининг ёшга хосхусусиятлари// Academic research ineducationalsciences // 2(5).-Б.-186-196. https://doi.org/10.24411/2181-1385-202100871
17. Maxmudova G.F.,Soxibova Z.R., Mamedov U.S., Nurboboyev A.U. Fertil va keksa yoshli ayollarda bachadon bo'yni xavfli o'smalari tahlili (Buxoro

viloyatida)//Oriental Renaissance: Innovative, educational, natural and social sciences//-2021.-V 8.-B. 175-184.

18. Nurboboyev A.U., Makhmudova G.F. Miniinvazive approach in the complex treatment of tumor and stone etiology of mechanical jaundice// International journal on Orange technology// Vol 3. Issue 9. Sep.2021.-P. 85-90
19. М.А. Ахмадова, А.Т.,Сохибова З.Р., Д.К. Худойбердиев.,Ж.Р.Нуров Диагностика эхинококкоза у молодёжи на современном этапе./Тиббиётда янги кун 2019 й.3(27)- стр 54-56
20. М.А. Ахмадова, А.Т. Чўлиев, Ж.Р. Нуров, Д.К. ХудойбердиевЛучеваядиагностикаэхинококкозапечени./Биологияватиббиё тмуаммолари.2019,№4.2(115)с.20-25
21. Сохибова З.Р.,Ахмадова М.А. Комплексная диагностика и хирургическое и хирургическое лечение осложненных форм эхинококкоза печени./OrientalRenaissance:Innovative,Educational, naturalandsocialsciences/2021й -стр 203-212.
22. НарзиеваД.Ф.ЗначениеИммуногистохимических маркеров при метастазировании рака молочной железы в легкие.// Oriental Renaissance:Innovtive,educational,natural and social sciences.// -2021 Vol.1-С.170-175
23. Xalikova Feruza. Current concepts of breast cancer risk factors//International journal of philosophical studies and social sciences//2021.- Vol 1.-P.57-66.
24. Z.R. Sokhibova, M.R. Turdiyev, (**2021**). Some Features Of Laboratory Indicators Of Micro And Macro-Elementary Condition Of The Organism Of Female Age Women Innormality And In Iron Deficiency. The American Journal of Medical Sciences and Pharmaceutical Research, **3**(**02**), MO- **145**.
25. 18.Mamedov U.S., Pulatova D.SH. The Results of Cancer Treatment of the Oral Caviti Tumors in //the Republic of Uzbekistan European journal of Pharmaceutical and Medical Research. -2019. - 6(9). - P. 326-329.
26. Narziyeva D.F., Jonibekov J.J.; Morphological features of tumor in different treatment options for patients with locally advanced breast cancer // Middle European scientific bulletin.Volume 7- 2020-Dec. – P. 105-10
27. Nurov Jamshid Raxmatovich. Morphofunctional characters of the greater omentum // International Journal of Discoveries and Innovations in Applied Sciences. – 2021. – Vol. 1(5). – P. 130-134.
28. Nurov J.R., Khalikova F.S. Long-term results of surgical treatment patients with stomach cancer // Вестник науки и образования. – 2020. – №23-2(101). – С. 85-89.

29. Р.Р.Наврузов. Характеристика морфометрических параметров желудка белой крысы в раннем постнатальном периоде // Новый день в медицине. 2 (34/3) 2021 С.17-23
30. Р.Р.Наврузов. Морфологические и морфометрические изменения слоя желудка месячных белых крыс // Журнал Fогинновационных разработок в фармацевтической и технической науке (JIDPTS). Объем:4, Выпуск:5, Май:2021 стр. :(7-10)
31. Р. Р. Наврузов. Лимфотропная терапия в комплексе лечения гнойно-воспалительных заболеваний кисти в амбулаторных условиях // Новый день в медицине 30.2020
32. R. R. Navruzov. Morphofunctional features of the lymphoid structures of the colon in normal and under the influence of a biostimulator on the background of radiation sickness // Web of Scientist: International Scientific Research Journal Sep 8, 2021 Page: (53-56)
33. Р. Р. Наврузов., Тешаев Ш.Ж., Очилов К.Р., Худойбердиев Д.К. Сравнительная характеристика толстой кишки белых беспородных крыс при хронической лучевой болезни и после воздействия биостимулятора асд-2ф // Новый день в медицине 6 (38) 2021г. С. 272-276
34. Гафур Нормуродович Саидов, Учкун Гафурович Абдукаримов, Гулжамол Фазлиддиновна Махмудова. Эпидемиологические показатели первично-множественных опухолей (обзор литературы)// Биология и интегративная медицина// 2019№ 11 (39).-С.
35. Нуров Ж.Р. Послеоперационная аналитика раннего периода хирургического лечения злокачественной опухоли желудка // Oriental Renaissance: Innovative, educational, natural and social sciences. – 2021. – Vol. 1(8). – P. 185-191.
36. Rakhmonovna, S. Z., & Sharipovna, A. N. (2020). Characteristics of exchange of essential microelements of copper and zinc in healthy fertilized women and women with combined copper and zinc deficiency state. European Journal of Molecular & Clinical Medicine, 7(1), 3332-3335.
37. Nurov Jamshid Raxmatovich, Narzieva Dilnoza Fakhriddinovna. The Significance of Immunohistochemical Markers in the Treatment of Breast Cancer // International journal on orange technology. – 2021. – Vol. 03(9). – P. 69-72.
38. Nurov Jamshid Raxmatovich, Ahmadova Maftuna Amin qizi. Features of Anatomy of the Greater Omentum // International journal on orange technology. – 2021. – Vol. 03(9). – P. 66-68.

39. Nurov Jamshid Raxmatovich, Narzieva Dilnoza Fakhriddinovna. Immediate Results of Surgical Treatment of Gastric Cancer // International journal on orange technology. – 2021. – Vol. 03(9). – P. 62-65.
40. Sokhibova, Z. R., & Turdiyev, M. R. (2021). Some Features Of Laboratory Indicators Of Micro And Macro-Elementary Condition Of The Organism Of Female Age Women Innormality And In Iron Deficiency. The American Journal of Medical Sciences and Pharmaceutical Research, 3(02), 140-145.
41. Khalikova Feruza Sharofovna, Abdullaev Khabibullo Narzullayevich. Early Diagnosis and Treatment of Gastric Cancer in Modern Oncology // Journal of Innovations in Social Sciences Volume: 01 Issue: 04 | 2021 –C. 46-50.
42. Mamedov U.S, Khalikova F. Sh. Advantages of Magnetic Resonance Computer Tomography in the Diagnosis of Thyroid Cancer //Pindus Journal of Culture, Literature, and ELT. – 2021. – T. 9. – C. 80-84.
43. Axmedov Farxod Xakimovich// CENTRAL ASIAN JOURNAL OF MEDICAL AND NATURAL SCIENCES// Морфологические Изменения Внутри И Внепеченочных Протоков, И Сфинктеров У Больных С Желчекаменной Болезнью, Постхолецистэктомии. Volume: 02 Issue: 05 | Sep-Oct 2021
44. Xudoyberdiyev Dilshod Karimovich CHARACTERISTICS OF MORPHOMETRIC PARAMETERS OF THE WHITE RAT'S STOMACH IN THE EARLY POSTNATAL PERIOD// Тиббиётда янги кун// 2 (34/3) 2021 С-17-23
45. Xudoyberdiyev Dilshod Karimovich ОҚ КАЛАМУШЛАР ЙЎҒОН ИЧАГИ СУРУНКАЛИ НУР КАСАЛЛИГИДА ВА БИОСТИМУЛЯТОРЛАР ТАЪСИРИДАН КЕЙИНГИ ҚИЁСИЙ ХУСУСИЯТЛАРИ// Биология ва тиббиёт муаммолари// 2021, №3 (128)
46. Xudoyberdiyev Dilshod Karimovich МОРФОЛОГИЧЕСКИЕ И МОРФОМЕТРИЧЕСКИЕ ИЗМЕНЕНИЯ СТЕНКИ ЖЕЛУДКА ОДНОМЕСЯЧНЫХ БЕЛЫХ КРЫС// INTERDISCIPLINARY RESEARCH: SCIENTIFIC HORIZONS AND PERSPECTIVES International Scientific and Theoretical Conference// March 12, 2021 С 57-61
47. Axmedov Farxod Xakimovich SCIENTIFIC COLLECTION «INTERCONF» COMPARATIVE MORPHOMETRY OF INTRA AND EXTRAHEPATIC BILIARY TRACT, BILIARY SPHINCTERS IN PATIENTS WITH CHOLELITHIASIS WHO UNDERWENT CLASSICAL AND LAPAROSCOPIC CHOLECYSTECTOMY № 78 | October, 2021 P-325-327
48. Sultanova L. The Dj.Nuraliyev N.A.Indicators of Seeding of Microorganisms translated from the Large Intestine to Internal Oragans under the Influence of

Acuteationation in the Experiment//American Journal of Medicine and Medical Sciences//Volume 10, Number 11,Novembr 2020.p-929-932

49. 45.Nurbayev Farman Ergashovich, Jabbarova Aysha Iskandarova, Umarov Feruz and Sultanova Lola Jakhonkulovna.PHARMACOECONOMOC ANALYSIS OF THE TREATMENT OF CHRONIC HEPATITIS"C"//EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH//.P-71-75.
50. Muslim Akhadovna Abdullaeva and Sultanova Lola Jakhonkulovna.CELLULAR FACTORS OF ENDOTHELIAL DEVELOPMENT DYSFUNCTIONS AT NAA//EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH / / P-168-170.
51. G.F.Makhmudova Colposcopic analysis of cervical pathology in women with uterine fibroids//Scientific progress// 3(1), 289-296,2022
52. А.У. Нурбобоев, МС Шаропова, А.Ф. Махмудова Турли этиологияли механик сарикликни даволашда замонапвий минилапаратом усуллар// Scientific progress// 3(1), 713-721, 2022.