



MORPHOFUNCTIONAL FEATURES OF THE LYMPHOID STRUCTURES OF THE COLON IN NORMAL AND UNDER THE INFLUENCE OF A BIOSTIMULATOR ON THE BACKGROUND OF RADIATION SICKNESS

R. R. Navruzov

Bukhara State Medical Institute named after Abu Ali IBN Sino

Abstract

A healthy state of the gastrointestinal tract is the key to normal growth, development, stable immunity and the realization of the heredity of the body.

Knowledge of the laws of the development of the digestive organs in ontogenesis is a biological prerequisite for the development of a full-fledged feeding system, the organization of prevention and diagnosis of various diseases, and also makes it possible to control the vital processes of the body [J.I.P. Teltsov, 2005].

Constantly in contact with a large number of substances and agents of the external environment, as well as factors affecting the vital activity of the entire body, the colon occupies an important place among the digestive organs with its numerous vital functions. The share of diseases of the digestive system of non-infectious etiology accounts for from 29.5 to 57.5% of pathologies [L. P. Teltsov et al., 2000; V. A. Zdorovinin, 2007].

Peyer's plaques of the small intestine, appendix and single lymphoid follicles of the colon and rectum. Peyer's plaques are an extremely important site for the induction of immune reactions in the colon and have a characteristic structure, forming dome-shaped structures extending into the intestinal lumen [Charles et al., 2001].

Of particular practical interest is the cecum and the ileocecal sphincter, which are the borderline department between the small and large intestines and are part of the so-called ileocecal zone [V. A. Zdorovinin, 2015; B. JI. Martynov, 2015; Yu. T. Akhtemiychuk, 2017; V. F. Azarov, 2018; A. A. Sotnikov, I. B. Kazantsev, 2011; L. P. Degen, 2017; Braun et al., 2012; A.D. Valdivia, 2017]. It attracts attention, being the place of the most frequent lesions, as a focus of pathological impulses that cause reflex disorders of the functions of the stomach, duodenum and other internal organs [L. L. Kolesnikov, 2017; E. A. Kharibova, Sh.Zh. TeshaeV 2020].

A comprehensive study of the regularities of the development of the bloodstream in ontogenesis will make it possible to clarify the features of intestinal digestion and improve the methods of treatment of gastrointestinal diseases of various etiologies. The circulatory system, as part of one of the most important integral systems, is a reflection of the state of the organ and plays an important role in ensuring the metabolic processes of the body [A. B. Razhabov, 2006; A. S. Ilyasov, 2016].





The morphology of the large intestine, its vascular and nervous system in humans and laboratory animals was studied by Yu.V. Bashkirov, 2009; G. G. Efremov, 2004; T. V. Karpenkova, A. B. Razhabov, 2005, 2006; A. S. Ilyasov, 2019-2016; L. L. Kolesnikov, 2008-2017; E. A. Kharibova, Sh. Zh. Teshaev, 2018-2020; L. P. Teltsov, V. A. Zdorovinin, O. V. Krasovitova, 2001; P. V. Gruzdev, V. A. Porublev, 2006-2007; and other scientists. A significant part of the works is devoted to the perinatal morphogenesis of the intestine, its extra-and intra-organ vascular bed and nervous system, and there are not enough works revealing its features in chronic radiation sickness and immune stimulation with biostimulants. The morphogenesis of the wall of parts of the colon in the above-mentioned pathology and condition has not been practically studied.

Approximately 20% of all lymphocytes are located in the intestine, being exposed to many possible foreign immunogens. Intestinal immune cells control the border with potentially dangerous sources of infections [Ganusov VV, De Boer RJ., 2007].

Lymphoid tissue is scattered throughout the gastrointestinal tract; however, only in the upper respiratory tract and in the ileum it is organized in structures similar to those present in other secondary lymphoid organs, such as the spleen and lymph nodes [López Rocío del Pilar, Andrade Rafael Enrique, 2010].

As a result of the effects of various adverse environmental factors on the body, the body's defenses weaken, immunity decreases [T. S. Huseynov, S. T. Huseynova, 2010]. One of these adverse factors is radiation. Affecting the body as a whole and its individual functions, radiation causes persistent changes in the immune system, blood system, etc. [V. G. Koveshnikov, A. Yu. Berest, 2012; M. A. Kriventsov, 2014]. Despite a significant number of works, both domestic and foreign authors, devoted to the study of the effect of radiation on organs and tissues, its effect on intestinal lymphoid tissue has not yet been definitively clarified, the available data are contradictory [M. A. Kriventsov, 2014; Mebius R. E. 2003].

At the same time, therapeutic agents that can stimulate or accelerate the restoration of hematopoietic and immune systems in radiation sickness are limited [Butomo N. V. et al., 2004].

Lymphoid tissue is scattered throughout the body and is home to lymphocytes. Lymphocytes are packed in clusters in the walls of body parts that are often exposed to foreign substances [Martini FH et al., 2002].

The analysis of the literature data shows that during ionizing radiation, subtle complex mechanisms of disorders in the immune organs occur, requiring further detailed study to predict and possibly correct immunological and biochemical changes in the body.



The purpose of the study: to study the morphofunctional features of lymphoid formations of the large intestine of rats in normal and under the influence of the biostimulator ASD-2 on the background of radiation sickness.

Research Objectives

to study the microtopography of lymphoid formations of the large intestine of rats in normal, with chronic radiation sickness under the influence of a biostimulator against the background of radiation sickness;

to determine the morphometric parameters of the wall of the large intestine of a rat at 3, 6, 9 and 12 months of age in normal, with chronic radiation sickness when exposed to a biostimulator against the background of radiation sickness;

to establish the features of the dynamics of the state of lymphoid tissue in different parts of the colon wall in normal and under the influence of a biostimulator against the background of radiation sickness;

to determine the optimal time of the best use and the dose of the biostimulator ASD – 2 fraction in rats with chronic radiation sickness based on the state of the colon.

The object of the study. The study used 187 white randomized male rats of newborn, 3, 6, 9 and 12 months of age, who were in normal vivarium conditions. The animals were divided into 5 groups: a control group with chronic radiation exposure and 3 groups under the correction of ASD fraction 2.

Research Methods

- Coloring of macropreparations by Helmany
- Coloring of micro-preparations according to Van Gieson
- Coloring of micro-preparations by Foot in the modification of A. N. Yurina
- The method of variational statistics using tables

Strelkov and the definition of the Student's t-test

The histotopography of the lymphoid structures of the large intestine of rats in the age aspect with chronic radiation sickness was studied;

The results of studying the morphological structure of the immune system of parts of the colon and its structural changes will help to reveal the complex mechanism of immunity that occurs in the body in postnatal ontogenesis under the influence of various pathogenic factors.

The early diagnosis of pathomorphological disorders in the lymphoid formations of the colon and methods of immune correction with the Dorogov antiseptic stimulator of the second fraction are substantiated.





The results of the study are implemented in the educational process of the Department of Anatomy, Clinical Anatomy of the Bukhara State Medical Institute, the Department of Oncology and X-ray Radiology.

Literature

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