

MORPHOLOGY OF LOCAL REGULATORY COMPONENTS OF THE SMALL INTESTINAL MUCOSA IN THE CONTEXT OF CONGENITAL SMALL BOWEL OBSTRUCTION EXPERIMENTALLY ANALYZED IN NEONATES

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Abstract: This study analyzed the morphology of the small intestine in rabbit fetuses exposed to pesticide during pregnancy and in newborns suffering from congenital small intestinal obstruction. It was revealed that morphological changes in the structure of the jejunum of experimental animals are similar to the small intestine anomalies in newborns with the same diagnosis. Pesticide poisoning of rabbit mothers during pregnancy causes a delay in the development of both structural components of the jejunum and its regulatory structures in the offspring. Typical morphologic changes in the structure of the small intestine are also observed in newborns with congenital pathology of this organ.

Key words: newborns, small intestine, morphology, atresia, stenosis, jejunum, pesticide, nervous apparatus.

Introduction. According to modern theories, in newborn children, as well as in other mammals, after birth, the function of the mother-placenta-fetus system, which provides continuous intrauterine harmonious development of the fetus, is replaced by a subsequent system: mother's breast milk - child [1-5]. It is known that one of the factors polluting the environment (biosphere) is pesticides used for plant treatment. However, the influence of pesticides on all local regulatory structures in their complex (nervous, diffuse endocrine and immune), as well as on inductive and integrative interrelationships of regulatory structures among themselves, remains an understudied issue. Extreme environmental factors during the formation of organs and systems in ontogenesis are often the cause of various congenital developmental anomalies [6-10]. To elucidate the mechanisms of pesticide action during pre- and postnatal development, it is necessary to conduct a detailed study of the development of tissue and regulatory structures of the intestine, as well as to perform a comparative analysis of the features of their morphogenesis in the control and in animals exposed to pesticides during these periods of ontogenesis. Consequently, the study of morphology of internal organs and their local regulatory structures during the late prenatal and early

postnatal ontogenesis, when morphofunctional differentiation and formation of organs and systems of the future organism takes place, is important for both scientific and practical aspects [11-14]. Consequently, the issues of sequential development and morphofunctional formation of regulatory structures of internal organs and the influence of pesticides on them through the maternal body remain insufficiently studied.

Purpose of the study. The main purpose of this study is to analyze the morphological characteristics of the small intestine wall in order to reveal the peculiarities of congenital small intestinal obstruction in experimental animals and newborns.

Material and methods of research. The object of the study was the small intestines of rabbit fetuses subjected to pesticide poisoning during pregnancy of rabbits, as well as operated newborn rabbits with congenital anomalies of the small intestine.

Results of the study and their discussion. In the course of experimental studies, it was found that exposure of pregnant rabbits to pesticides, and consequently the developing fetus, increases the likelihood of congenital malformations, including atresia and stenosis of the intestinal tube. Pesticides entering the body of pregnant rabbits penetrate the placental barrier and have a negative impact on the developing fetus, which leads to a delay in its growth and development. This is reflected in the formation and functional establishment of morphological structures of the small intestine of rabbit offspring, including its regulatory apparatuses - intramural nervous, diffuse endocrine and immune. Comparative analysis of morphological and morphometric parameters showed a significant effect of pesticides on the development of the fetal organ, including its morphogenesis and histogenesis, as well as the formation of intestinal wall structures. This is manifested in irregular thickening of the wall, increase of muscular and submucous membranes. In fetuses exposed to pesticides during pregnancy of rabbits, a delayed "maturation" of the structural components of the intestinal wall is observed, leading to a low rate of decrease in morphometric parameters and preservation of high values, which is characteristic of poorly differentiated structural components of the small intestine wall. Such results indicate possible prerequisites for the development of congenital pathologies such as jejunal atresia and stenosis.

In newborn animals from the experimental group, there is a significant diversity in the shape of villi and crypt cavities, as well as a high content of mesenchymal cells, especially in the submucosal base. Animals from the experimental group have a delay in the development and formation of the jejunum, which leads to an increase in the duration of the period of mixed feeding and a later transition to the final feeding.

In the mucous membrane of the jejunum of experimental animals, linear dimensions decrease, and the total density of apudocytes decreases. Pesticide ingestion in rabbit fetuses through the mother's body during pregnancy causes reactive changes

in the intramural nervous apparatus of their offspring during late prenatal and early postnatal ontogenesis. These changes are manifested in hyperimpregnation of nerve structures, hyperplasia of outgrowths, as well as in the formation of dendritic plates and hypertrophy of nerve fibers and their terminals. Some synaptic structures undergo deformation. All this leads to some delay in the morphofunctional development of nerve structures compared to control animals, which can probably affect the development of structural components of the jejunal wall and contribute to the development of congenital anomalies.

The formation of immune structures of the jejunal mucosa and other regulatory structures of the organ is relatively slow compared to the same-aged control rabbits. Hypoplasia of the organ and its structures should be considered as a natural consequence of the toxic effect of the pesticide on the processes of morphogenesis and organogenesis, differentiation of structures and formation of functional systems of different levels, as well as integration and adaptation. During the transition to mixed nutrition, an increase in the number of leukocytes and immunocytes is observed, which reflects the adaptation response of the organ to the impact of an unfavorable factor.

To further analyze the negative impact of pesticides on the formation of the gastrointestinal tract of human fetuses, the morphology of the small intestine of newborns with congenital small intestinal obstruction was studied. For this purpose, samples of the affected area of the small intestine were taken from newborns during surgery for subsequent histologic analysis. The histologic study showed hypoplasia of the organ and similar changes in the morphology of structural components of the small intestine, which is a natural consequence of the lag in the formation of functional systems, integration and adaptation. Thus, experimental poisoning of rabbits during pregnancy with pesticide leads to delayed development of both structural components of the jejunum and its regulatory structures in the offspring. Characteristic morphological changes are also observed in the small intestine of newborns with congenital anomaly of the organ.

Conclusions. Our experimental studies demonstrate that morphologic changes in the jejunum of experimental animals are similar to the structural changes found in the small intestine of newborns with congenital anomalies of the small intestine during surgical interventions.

Given the assumption that one of the main routes of contamination of humans, including pregnant women, with pesticides widely used in agriculture is water bodies used by the population and water supply services of settlements as sources of drinking water, we can conclude that there is a high degree of correlation between the risk of birth of children with congenital malformations of the small intestine and the problems of water supply to the population, as well as the intensity of use of chemical plant protection products observed in some regions.

List of references

1. Oripov F.S. Adrenergic nervous structures of the jejunum of rabbits in early postnatal ontogenesis // *Morphology*, 2008. T. 133. № 2. C. 100a-100a.
2. Teshayev Sh.Zh., Khudojberdiev D.K., Teshayeva D.Sh. Impact of exogenous and endogenous factors on the stomach wall // *Problems of biology and medicine*. C. 212.
3. Teshayev Sh.Zh. et al. Relationship of anthropometric indices with the volume of testicles and spermatogenesis of young men of conscription age in Bukhara region // *Physician-aspirant*, 2006. № 1. C. 84-87.
4. Firdavs O. Age morphology of immune structures of the jejunum of the rabbit during early postnatal ontogenesis // *European science review*, 2017. № 1-2.
5. Oripov F.S. Morphology of the neuroendocrine-immune system of the jejunum in early postnatal ontogenesis // *European science review*, 2017. no. 1-2. C. 95-98.
6. Oripov F. S. Age morphology of immune structures of the jejunum of the rabbit during early postnatal ontogenesis // *Scientific journal "Medicine and Health"*, 2011. T. 5. C. 130-134.
7. Aminov Z., Haase R. & Carpenter D., 2011. Effects of polychlorinated biphenyls on lipid synthesis. *Epidemiology*. 22 (1). S. 298-S. 299.
8. Indiaminov S.I. Morphological features of the human brain at different variants of lethal blood loss against the background of alcohol intoxication // *Bulletin of the Russian State Medical University*. Moscow, 2011. № 5. C. 63-66. 106
9. Jamshid S., Ravshan S. Associated malformations in children with congenital cleft lip and palate // *European science review*, 2017. no. 1-2.
10. Kasimov S. et al. Hemosorption in the complex treatment of hepatargy // *International Journal of Artificial Organs*, 2013. T. 36. № 8.
11. Slepov V.P. et al. The use of etonium in the combined treatment of purulent-inflammatory diseases in children // *Clinical Surgery*, 1981. № 6. C. 78.
12. Sait I. Hypothalamic vascular damage in various types of blood loss against the background of acute alcohol intoxication // *European Scientific Review*, 2016. no. 7-8.
13. Suratovich O.F. Morphology of the neuroendocrine-immune system of the jejunum in early postnatal ontogenesis // *European science review*, 2017. no. 1-2.
14. Shamsiev A.M., Oripov F.S., Shamsieva D.A. Clinical and morphologic features of congenital anomalies of small intestine development in regions with different intensity of use of chemical plant protection products.