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MORPHOFUNCTIONAL CHARACTERISTICS OF THE SMALL INTESTINE IN THE NEPHROTOXICITY OF CYTOSTATICS UNDER CONDITIONS OF PHYTOBIOCORRECTION

S.T. Bakhronov

Bukhara State Medical Institute named after Abu Ali ibn Sino

ABSTRACT: *In recent years, more and more attention has been paid to the use of biocorrecting agents of plant origin aimed at reducing the severity of the toxic effects of cytostatic therapy. Dandelion root is considered as a potential source of biologically active compounds with antioxidant, anti-inflammatory and metabolic modulating properties, as well as capable of stimulating reparative processes in tissues. However, data on its effect on the morphological state of the small intestine in conditions of chemotherapeutically induced renal failure remain limited and require further experimental study.*

Keywords: *chemotherapy, kidney failure, dandelion root, small intestine, morphology, morphometry.*

Introduction

One of the most vulnerable structures in these pathological changes is the digestive tract. The mucous membrane of the small intestine, characterized by a high rate of renewal of cellular elements and active metabolic processes, is particularly sensitive to toxic and metabolic effects[1,2]. In conditions of renal dysfunction, microcirculatory disorders form, inflammatory reactions and oxidative stress increase, which can lead to impaired epithelial regeneration and disorganization of the villous-crypt architecture of the intestinal wall[3,4].

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MATERIALS AND METHODS

The study was conducted under experimental conditions on 6-month-old white mongrel rats. A total of 201 experimental animals were selected, which were kept in standard vivarium conditions (room temperature 20-24 °C, humidity 60%). The animals were provided with a balanced diet and free water. The experiments were conducted in accordance with the rules of biological safety and the ethical requirements of working with laboratory animals.

The experimental animals were divided into 5 groups: I - control group (n=40); II and III groups - groups in which chemotherapy drugs (cisplatin and carboplatin) were used; IV and V groups - groups in which biocorrection was applied against the background of chemotherapy. In order to form an experimental model, a skin tumor model was induced using the carcinogen 7,12-dimethylbenzanthracene (DMBA). During chemotherapy, cisplatin was administered intravenously at a dose of 0.4 mg/kg and carboplatin at a dose of 3 mg/kg. In the control group, 0.7 ml of distilled water was intragastrically administered for 21 days.

Results

A comparative analysis of the morphological and morphometric parameters of the small intestine with a normal condition after correction with dandelion root as an alternative drug in conditions of renal failure resulting from chemotherapy was performed. Also, as a result of alcian blue staining, it was found that the mucinous septum had reformed along the arch and papillary margin, indicating that the protective function of the intestine had begun to recover. The continuous and uniform distribution of the mucin layer indicates an improvement in epithelial regeneration and secretory function (Figure 2). In general, the morphological changes observed after correction confirm the partial normalization of the structures of the small intestine and

Conclusion

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The use of dandelion root biocorrection was accompanied by an increase in villi height to 240.8 ± 7.95 microns, normalization of crypt depth to 213.6 ± 6.42 microns, and restoration of enterocyte abundance to 71.0 ± 3.6 , indicating activation of regenerative mechanisms and partial restoration of the morphofunctional state of the small intestine mucosa.

REFERENCES

1. Pabla N., Dong Z. Cisplatin nephrotoxicity: mechanisms and renoprotective strategies // *Kidney International*. – 2008. – Vol.73(9). – P. 994–1007.
2. Miller R.P., Tadagavadi R.K., Ramesh G., Reeves W.B. Mechanisms of cisplatin nephrotoxicity // *Toxicology*. – 2010. – Vol. 276(2). – P. 75–81.
3. Perazella M.A. Onco-nephrology: renal toxicities of chemotherapeutic agents // *Clinical Journal of the American Society of Nephrology*. – 2012. – Vol.7(10). – P. 1713–1721.
4. Van Vliet M.J., Tissing W.J.E., Dun C.A.J. et al. Chemotherapy treatment in children and gastrointestinal mucosal barrier injury // *Pediatric Blood & Cancer*. – 2010. – Vol.54(7). – P. 1184–1191.