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MORPHOLOGICAL ASPECTS OF PROTECTIVE INFLUENCE OF CARBONIC ENTEROSORBENT AND GRANULOCYTE COLONY STIMULATING FACTOR ON SMALL INTESTINE IN CASE OF MELPHALAN ADMINISTRATION

The study was performed as a part of research work "Development and optimization of technologies for bone marrow protection from cytostatic myelodepression on the basis of complex use of mass fraction carbonic enterosorbents and granulocytic colony-stimulating factor".

Key words: small intestine, melphalan, carbonic enterosorbent, granulocyte colony stimulating factor.

ABSTRACT. Background. High toxicity of anti-cancer drugs limits the efficacy of the treatment of malignant tumors. The most frequent side effects are the injury of highly proliferative cell and tissues: hematologic and gastrointestinal toxicity. Our previous study showed high myeloprotective activity of combination of carbonic enterosorbent and granulocyte colony stimulating factor. The **objective** of this investigation is to study the morphologic characteristic of small intestine in case of melphalan injection and pharmacocorrection with carbonic granulated enterosorbent C2 and filgrastim. **Methods.** Histologic structure of jejunum of healthy male inbred rats, after the melphalan injection (4 mg/kg) and its correction with enterosorption and filgrastim apart, and in combination was investigated. **Results.** Cytostatic melphalan caused the dilation of microcirculatory vessels and expressed perivasal edema leading to enlargement of intestinal villi. It was revealed a large amount of lymphocytes and histiocytes in stroma and signs of increasing secretory activity of glandular cells. Dystrophic changes of the epithelium were seen. The enteral sorptive therapy showed prominent improvement of morphologic characteristic of jejunum. But sighs of increased mucus production were still seen. The granulocyte colony stimulating factor has no effects on small intestine structures. The combination of carbonic enterosorbent and filgrastim improved the histologic picture maximally. **Conclusion**. Combination of enterosorption and granulocyte colony stimulating factor is a prospective approach to diminish the gastrointestinal toxicity of cytostatic therapy.

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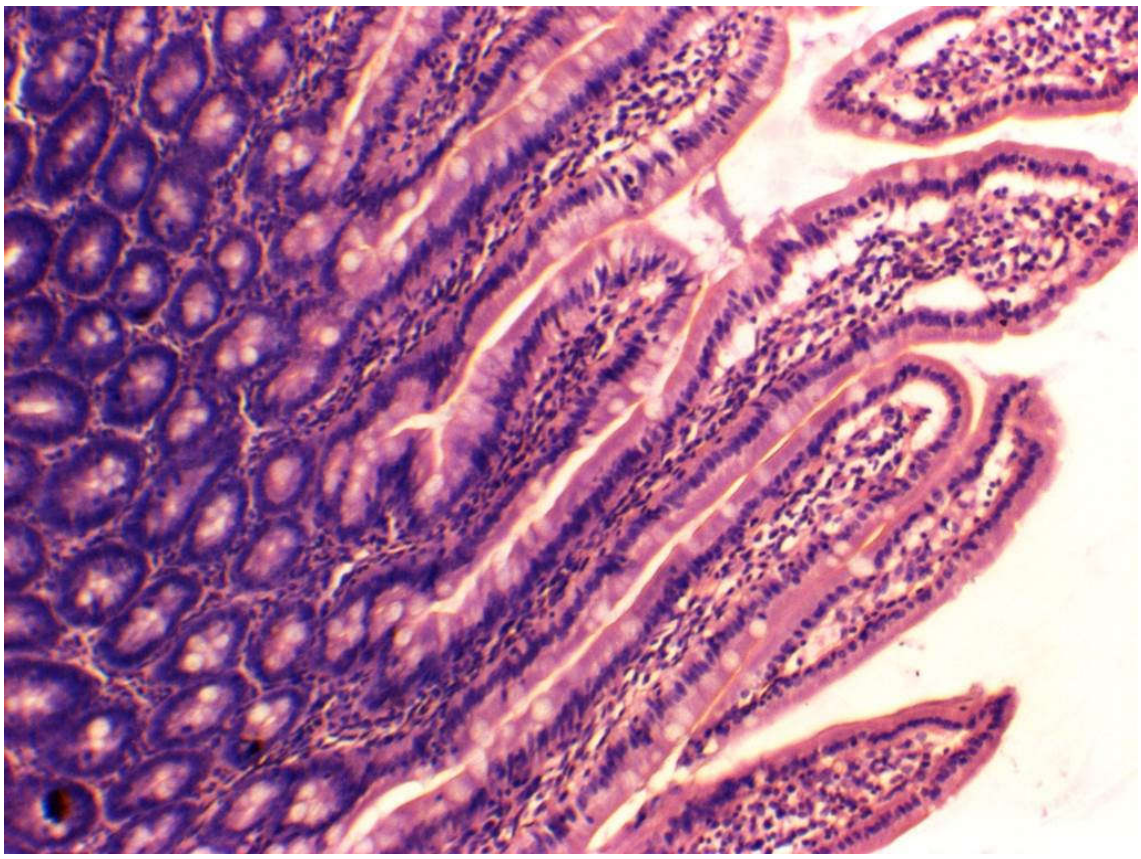

Fig. 1. Small intestine structure, intact rat. Hematoxylin&Eosin staining. ×100.

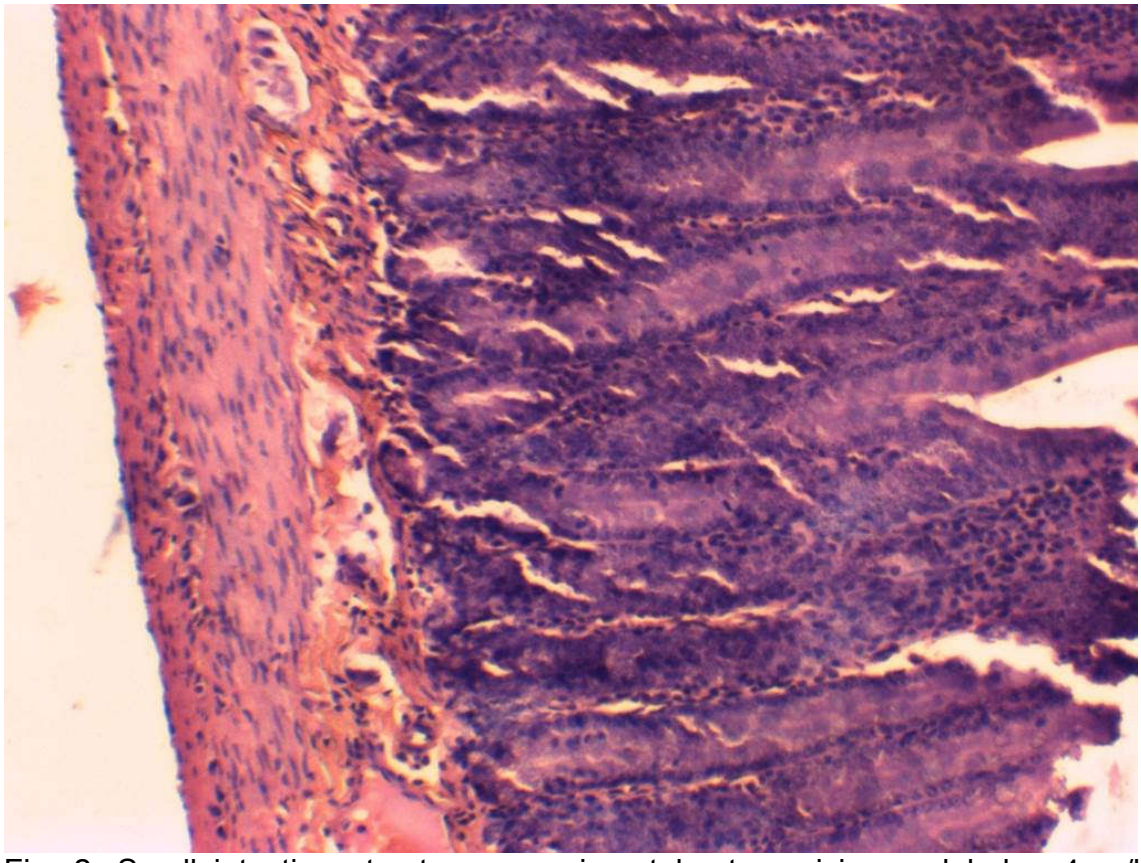

Fig. 2. Small intestine structure, experimental rat receiving melphalan 4mg/kg. Hematoxylin&Eosin staining. ×100.

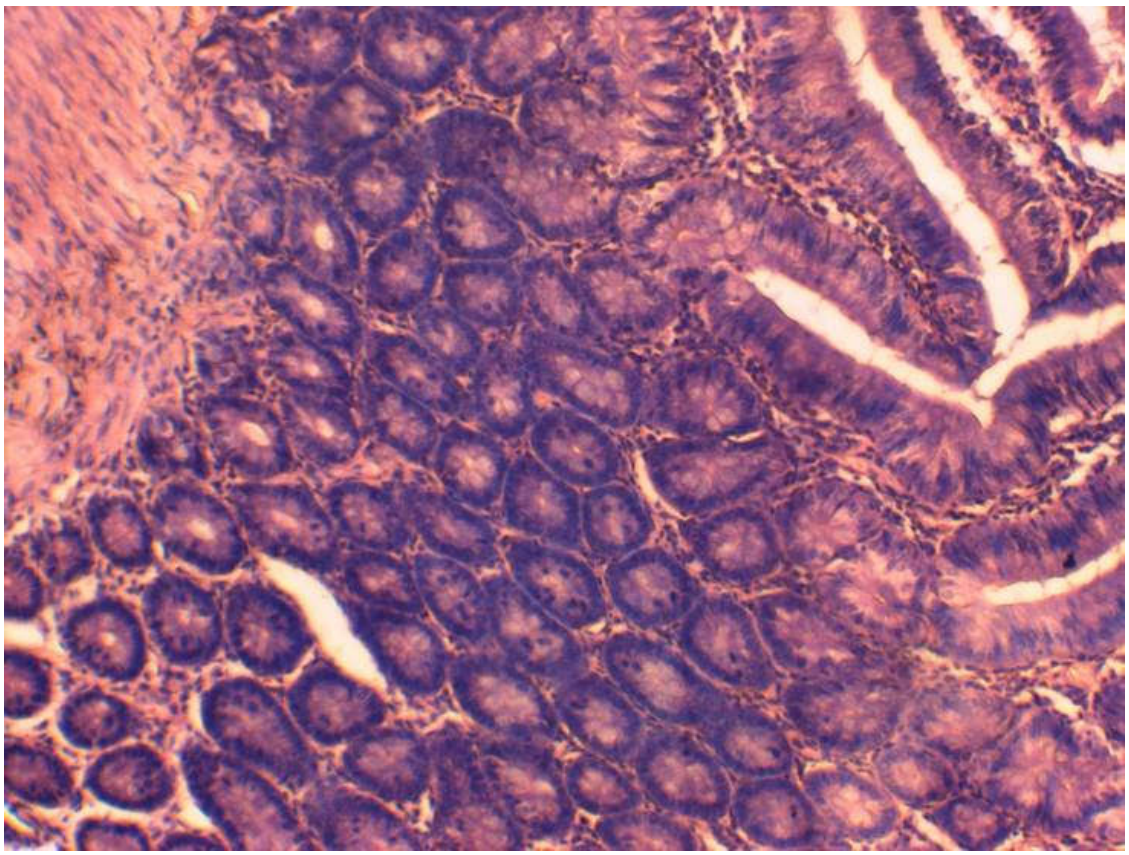

Fig. 3. Small intestine structure, experimental rat of group L-PAM + C2. Hematoxylin&Eosin staining. ×100.

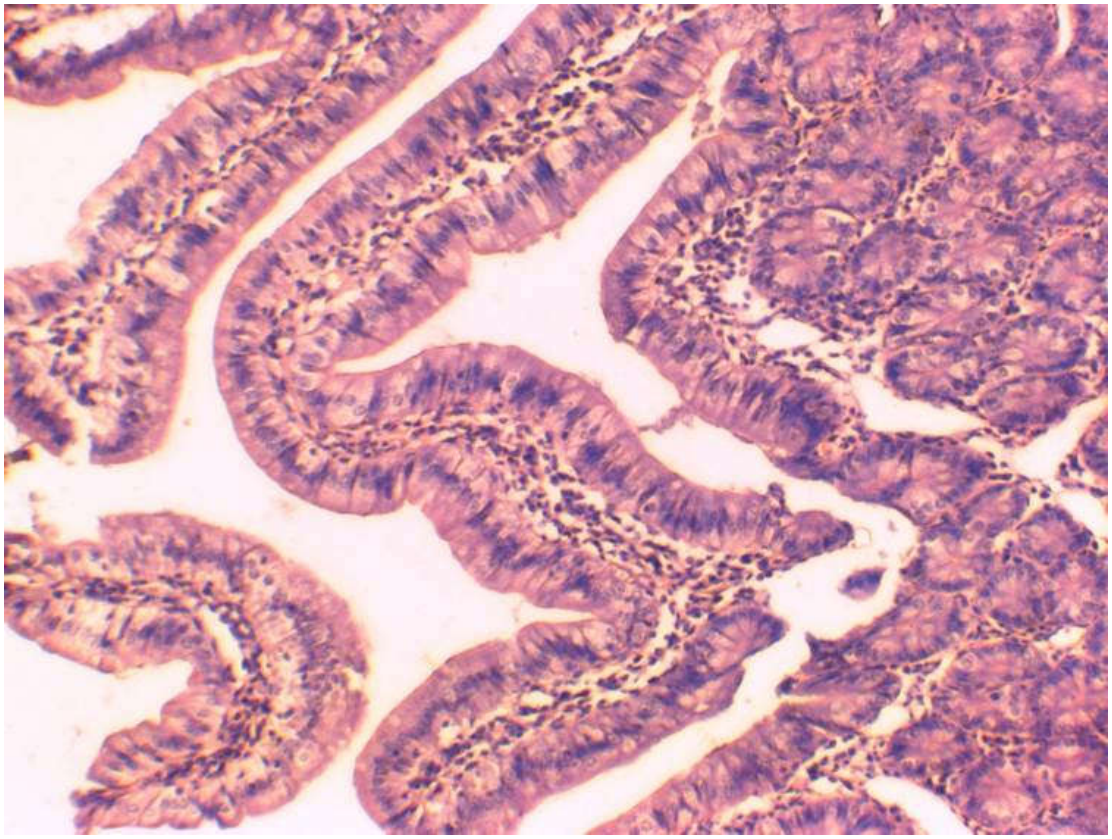

Fig. 4. Small intestine structure, experimental rat of group L-PAM + filgrastim. Hematoxylin&Eosin staining. ×100

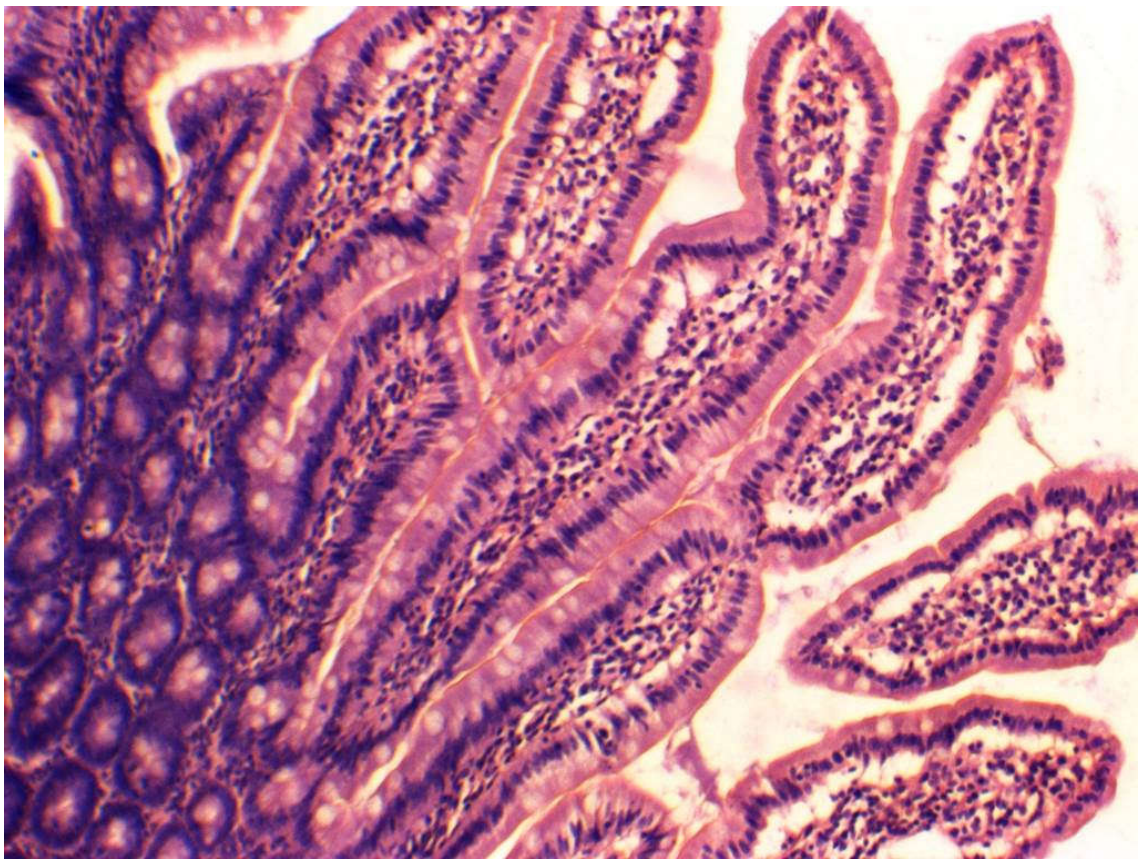

Fig. 5. Small intestine structure, experimental rat of group L-PAM + C2 + filgrastim. Hematoxylin&Eosin staining. ×100

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