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MORPHO-FUNCTIONAL FEATURES OF DIRECT RHEOINTESTINOGRAPHY TO ASSESS DECOMPENSATED ENTEROPATHY

Slonetskyi B.

Doctor of Sci(Med), Professor
Department of surgery of dentistry faculty
BOGOMOLETS NATIONAL MEDICAL UNIVERSITY
Kiev, Ukraine

Tutchenko M.

Doctor of Sci(Med), Professor
Department of surgery of dentistry faculty
BOGOMOLETS NATIONAL MEDICAL UNIVERSITY
Kiev, Ukraine

Kotsiubenko V.

Surgeon
Surgical department №1
Kiev City Emergency Hospital
Kiev, Ukraine

Besedinsky M.

Assistant
Department of surgery of dentistry faculty
BOGOMOLETS NATIONAL MEDICAL UNIVERSITY
Kiev, Ukraine

Verbytskyi I.

PhD(Med), Assistant of Professor of Department of emergency
Shupyk National Healthcare University of Ukraine
Kiev, Ukraine

The choice of medical management in patients with urgent diseases of the abdominal cavity, despite a number of modern equipment, continues to be based on the development of new and applied clinical and instrumental research methods [1,2,3]. After all, the volume of surgical procedure and its consequences completely depend on the rapid and pathogenetically substantiated intra-abdominal assessment of the occurrence and progression of acute enteropathy [4, 5].

The aim of the study was to investigate the effectiveness of using direct rheointestinography to assess the degree of decompensation of acute enteropathy.

Materials and methods of research. The work is based on the results of experimental studies (24 white rats), which were performed in strict compliance with

general ethical standards and principles of animal experiments. To study the effectiveness of direct rheointestigraphy to assess the degree of decompensation of acute enteropathy in experimental animals. Acute segmental occlusive vascular insufficiency of the small bowel was modeled. Studies of the destructive process in the segment of the small intestine were carried out after 1, 2, 4 hours. Laboratory, instrumental, morphometric and statistical research methods were used.

Results of the research. The course of acute segmental vascular occlusion of the small bowel in experimental animals after 60 minutes of modeling the pathological process was characterized by the presence of significant reserves of the mucosa, which was reflected in reduced crypts from 166 ± 9.14 to 145 ± 6.92 , separately reduced mucosal height from $521 \pm 39.42 \mu\text{m}$ to $492 \pm 34.37 \mu\text{m}$ while preserving the epithelium by $96 \pm 0.52\%$. After 2 hours, the preservation of $85 \pm 7.68\%$ of the epithelium of the mucous membrane was observed in conditions of reducing the number of crypts to 128 ± 6.83 and reducing the height of the mucosa to $434 \pm 22.36 \mu\text{m}$. Simulation of four-hour acute occlusive vascular insufficiency of small bowel leads to irreversible damage to the mucous membrane and was characterized by preservation of the epithelium of the mucous membrane by only $36 \pm 0.32\%$, reducing the number of crypts to 58 ± 4.39 and significantly reducing mucus height $258 \pm 19.53 \mu\text{m}$.

The use of direct rheointestigraphy has also revealed objective changes depending on the duration of acute segmental occlusive vascular insufficiency of the small bowel. After 1 hour from the moment of modeling, a decrease in the amplitude of the rheointestigram from $0.41 \pm 0.03 \text{ Ohm}$ to $0.36 \pm 0.03 \text{ Ohm}$ and the rheological index from 2.64 ± 0.19 to 2.38 ± 0.14 and an increase in vascular tone of the intestinal wall from $12.08 \pm 1.09\%$ to $13.66 \pm 1.19\%$ and the index of peripheral resistance from $25.61 \pm 2.03\%$ to $28.36 \pm 2.09\%$. Two-hour ischemia of the small bowel is characterized by a significant decrease in the rheographic index to 2.09 ± 0.18 and an increase in the index of peripheral resistance to $31.94 \pm 2.34\%$. At four-hour ischemia, a progressive deepening of the destructive process in the segment of the small bowel was observed, which was characterized by a sharp decrease in the amplitude of the rheointestigram to $0.08 \pm 0.006 \text{ Ohm}$ and rheological index to 0.43 ± 0.03 and an increase in peripheral resistance index of 3 to $48.382 \pm$ against the background of increasing the rate of vascular tone of the small bowel wall to $22.92 \pm 1.49\%$.

Conclusion.

1. The use of direct rheointestigraphy allows to objectify the negative trends in the course of acute segmental vascular occlusion of the small bowel.

2. A sharp decrease in the amplitude of the rheointestigram to $0.08 \pm 0.006 \text{ Ohm}$ and the rheological index to 0.43 ± 0.03 and an increase in the index of peripheral resistance to $48.382 \pm 3.26\%$ against the background of increasing the rate of vascular tone of the intestinal wall to $22.92 \pm 1.49\%$ indicates the irreversibility of acute segmental enteropathy.

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