

UDC: 616.34-002.4-072

DOI: 10.26697/ijes.2019.2.49

Instrumental Diagnostics in Patients with the Development of Necrobiotic Processes in the Intestinal WallAssociate Professor **Shevchenko A. N.¹**,
Polikov H. O.¹¹ Kharkiv National Medical University, Ukraine**Abstract****Background:**

Surgical care for patients with reduce microcirculation in the intestinal wall remains an urgent problem. The presence of intraoperative overdiagnosis of pathological changes in the intestine can cause unjustified extensive resection of the organ, which further leads to the development of enteral insufficiency. Laser doppler flowmetry (LDF) has been widely developed and spread in the study of microcirculation. The study provides registration of changes in blood flow in the microvasculature - flowmetry. When necrosis of the wall of the ischemic colon microcirculation is not detected.

The aim of the study. Investigating the main parameters for assessing the viability of the intestine with using laser doppler flowmetry to assess the extent of damage to the microvasculature of the intestine.

Methods:

The study is based on the analysis of clinical observations and diagnostics of 40 patients of the "V. T. Zaycev Institute of General Emergency Surgery". The patients were divided into two groups. The main group is represented by 20 patients with impaired microcirculation in the intestinal wall, the average age is 35±4 years. Patients was arrived an urgent directivity in moderate severity. The second (control) group included 20 patients without disturbing the microcirculation in the intestine (10 men, 10 women), the average age was 32±3 years. Evaluation of the microvasculature was carried out on the unchanged part of the intestinal wall during planned abdominal operations. Indicators of non-viability of the small and large intestine were studied intraoperatively, using the instrumental method and the following parameters: microcirculation index (MI), coefficient of variation (Kv), tissue volume filling (Vr), average relative blood saturation of microcirculation of biological tissue (SO₂), perfusion index oxygen saturation in the blood (Sm). At the same time, the indices were removed from the intestinal protruding edge for 5 minutes at an ambient temperature of 20-25°C.

Results:

The perfusion curves from the necrotic section of the intestine were characterized by small fluctuations in the microcirculation system. MI: in the jejunum – 6.24 ± 0.13 perfusion units (p.u), in the ileum – 4.55 ± 1.12 p.u., and the colon – 4.86 ± 0.68 p.u. Kv – ranged from 11.0-17.0%. Vr – have approximately the same values

in the wall of the jejunum and ileum – 21.12 ± 2.45% and 23.12 ± 4.21%. The smallest value was in the wall of the colon – 17.24 ± 2.12%. SO₂ – fluctuated 76.0-54.0%. Sm is the lowest in the ileum 8.12 ± 2.21%/p.u.; in the jejunum 16.12 ± 6.21%/p.u.

Diagnostics of microcirculation of the viable intestine was performed intraoperatively during planned operations. MI – in the ileum 24.32 ± 2.94 p.u., jejunum and colon – 16.23 ± 2.23 p.u. and 15.26 ± 4.31 p.u. Kv – ranged from 21.0-34.0%. Vr – has approximately the same values in the wall of the ileum and colon – 18.32 ± 2.69% and 17.24 ± 3.63%. The greatest value was in the wall of the small intestine 31.12 ± 3.64%. SO₂ – ranged 58.0% -69.0%. Sm – the smallest indicator in the ileum 3.54 ± 0.64%/p.u.; in the jejunum 7.54 ± 2.41%/p.u.

Conclusions:

The use of laser doppler flowmetry can reduce the amount of resection, reduce the incidence of progression of intestinal necrosis in the early postoperative period and improve the results of treatment of patients with acute mesenteric circulation, which affects the function of the intestine and reduces the number of complications.

Information about the authors:

Shevchenko Oleksandr Mykolajovich – Doctor of Philosophy in Medicine, Associate Professor of Department of Surgery No. 1, Kharkiv National Medical University, Kharkiv, Ukraine.

Research interests: education and training, methodology and theory of surgery; <https://orcid.org/0000-0002-1176-1687>.

Polikov Heorhii Olegovych – Kharkiv National Medical University, Kharkiv, Ukraine.

Research interests: education, social pedagogy, theory of surgery, culture of health; <https://orcid.org/0000-0001-9232-4667>.

Corresponding Author:

Shevchenko Oleksandr Mykolajovich

Corresponding Author's Email:

postshevchenko@gmail.com