Relevance

Based on changes in bacterial translocation biomarkers in the blood serum, it's suggested that patients with researched pathology can be stratified according to the risk level of developing infectious and inflammatory complications. It will be possible to take preventive measures to reduce the frequency and severity of these complications and mortality. This method will be a reliable, quick and less expensive, without need for invasive collection of Mesenteric lymph nodes and detection of 16s rRNA. It will be possible to revise the criteria for the diagnosis "sepsis" in these patients: a high level of bacterial translocation biomarkers, the presence of systemic inflammatory response syndrome and organ dysfunction, will allow early diagnosis of sepsis even without an obvious focus of infection.

The purpose of the program: The aim is to determine the diagnostic and prognostic significance of bacterial translocation as the complications development's predictor in patients with acute bowel obstruction of tumor and non-tumor origin by assessing the relationship of LBP, sCD-14 in the systemic circulation with the detection of microorganism genes in mesenteric lymph nodes.

Expected results

New information will be obtained on the mechanisms of the bacterial translocation development in patients with colon tumors, the effectiveness of tests for the detection of bacterial translocation will be established, ways of their rational use for scientific and practical purposes will be proposed, innovative methods will be introduced in scientific research, practical health care, and medical education.

Research group

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Results achieved

Standard procedures have been developed for the collection, transportation and storage of biological material, as well as for ELISA and PCR diagnostics of bacterial translocation markers.

A technique for isolating bacterial DNA in mesenteric lymph nodes using PCR diagnostics has been developed and tested.

A sampling of material (venous blood and mesenteric lymph nodes) was carried out to determine the bacterial translocation biomarkers in 60 patients operated on for colon tumors without ABO (the first group of patients).

Enzyme immunoassay and PCR diagnostics of the markers under study in the first group (colon tumors without ABO) were carried out.

A statistical assessment of the significance of differences in the concentration of markers in dynamics in the study group was carried out.

Information for potential users

Applicability of the obtained scientific results: the proposed methods for detecting biomarkers will allow further studies of bacterial translocation. Some of diagnostic methods can be used in practical health care. Improving the image of Collective Use Laboratory will help to attract investment and conduct research by the scientific groups of Kazakhstan and foreign partners. The development of modern high-tech research methods will create the prospect of commercialization in the form of creating a learning platform (master classes, advanced training, specialization in the workplace, etc.).

Target consumers of results: researchers, doctors; patients with complications of bacterial translocation.

Scientific publications within the framework of the project

1. Shakeyev K.T., Kabildina N.A., Ogizbayeva A.V., Turgunov Y.M., Zhumakaev A.M., Elubayuly A.E., Muratuly A.M. Dynamics of lipopolysaccharide-binding protein (LBP) in operated colorectal cancer patients // Proceedings of the VIII Congress of Oncologists and Radiologists of Kazakhstan with international participation / Turkestan, (October 14-16, 2021). / Oncology and radiology of Kazakhstan. - Special edition. - 2021. - P. 108.

2. Ogizbayeva A.V., Savazova K.S., Shakeyev K.T., Turgunov Y.M. Dynamics of presepsin (sCD14) in operated colorectal cancer patients // VII Congress of surgeons of Kazakhstan with international participation "SURGERY: YESTERDAY, TODAY, TOMORROW" dedicated to the 75th anniversary of the founding of the National Scientific Center of Surgery named after A.N. Syzganova / Almaty (September 30 - October 1, 2021) / Bulletin of Surgery of Kazakhstan. - 2021. - Special. issue № 1. - P. 176-177.