



Sepsis in Abdominal Surgery in the Intensive Care Unit

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ABSTRACT

The cause of a systemic inflammatory reaction may be lesions of various organs: distal esophagus, stomach, duodenum, bile ducts, various parts of the small and large intestine, appendix, liver, spleen, pancreas (including parapancreatic abscesses and infected pseudocysts of the gland), as well as inflammatory diseases of the pelvic organs in women. To date, it is known that the severity of the systemic inflammatory reaction in secondary peritonitis determines the severity of the patient's condition and prognosis. Thus, a promising scientific study is to assess the significance of biomarkers of inflammation in order to control the effectiveness of therapeutic measures and predict possible outcomes of the disease at the early stages of hospitalization.

Keywords:

sepsis, biomarkers of inflammation, complex treatment, abdominal surgery.

Introduction.

Predisposing factors to an increase in the number of patients with sepsis are also long-term use of immunosuppressive and cytostatic drugs, antibiotics without proper bacteriological control, and immunomodulators.

Simultaneous consideration of certain prognostic scales, as well as individual criteria and factors in patients with secondary peritonitis complicated by severe sepsis and septic shock, would make it possible to predict the course and outcome of the disease both in each individual case and in identifying different groups of patients, distributed according to severity [1]. The introduction of new medical technologies has improved the results of treatment in a number of critical conditions. This improvement is accompanied by a change in the course of the pathological process. The decrease in mortality in the acute period is combined with an increase in infectious complications at further stages of treatment [2]. The steady growth of resistance

of hospital microflora to antimicrobials is a global problem. Sepsis is a classic example of a patient's critical condition, in which violations of physiological functions and impaired activity of organs and systems cannot be spontaneously corrected through self-regulation and require partial or complete prosthetics in intensive care. According to modern concepts, the main pathogenetic mechanisms of sepsis are mitochondrial dysfunction, apoptosis, and immunosuppression [3]. Effective treatment of sepsis is achieved by a combination of methods to reduce the pathogen load - rational and timely etiotropic antibiotic therapy with methods of direct (surgical) impact on the primary infectious focus and limiting the activity of the systemic inflammatory response against the background of organ prosthetic therapy [4]. Methods of extracorporeal detoxification - filtration, sorption, separation of plasma - are generally recognized means that can influence the pro-inflammatory activity in sepsis. The problem in the tactics of choosing

intensive complex treatment is the basis for conducting scientific research to address the above issues. In this study, for the first time, pathogenetically substantiated therapy is planned with an impact on all links of the septic process in such patients [5].

Despite extensive research, sepsis remains a fatal, debilitating, and costly disease. Fortunately, hospital mortality has declined significantly over the past decade as evidence-based interventions are rapidly introduced [2–4]. Abdominal infections are the most common cause of sepsis in the intensive care unit (ICU), and their management is largely the responsibility of surgeons [6]. While short-term outcomes have been well described, long-term outcomes remain poorly defined. Abdominal infections are also unique in that they involve invasive intervention (either for source control or caused by a complication after surgery), which may further contribute to poor long-term outcomes [6]. Patients who develop chronic critical illness will have biomarker evidence of immune and metabolic disorders with a high rate of adverse outcomes over subsequent years.

Target. Improving treatment outcomes and reducing mortality in patients with sepsis in abdominal surgery by optimizing complex intensive care.

Materials and Methods: Analysis of conducted studies and research literature published in scientific publications.

Materials and methods of research: for the period from 2021-2023, 53 patients were diagnosed in the general resuscitation department of the Bukhara branch of the RSCMC. Of these, 23 patients had impaired function of the respiratory system. Of these, 32 (63) women, 21 men (37). The age of the patients ranged from 23 to 70 years. According to the Glasgow scale, it was more than 13 points in 24 (48.7) patients, less than 12 points in 13 (51.3%) patients, in 9 patients the points were 9, and in 7 remaining patients less than 8 points. Patients were hospitalized after abdominal interventions in the intensive care unit: with a

fulminant form of the course - 5, with a progressive form - 23, with a subacute course - 11 and a chronic course - 14. To determine the frequency of sepsis in abdominal surgery, the etiological structure of sepsis in patients with surgical pathology of the abdominal cavity and to determine the composition and characteristics of multiple organ failure that develops in severe sepsis and septic shock in terms of systemic inflammation, we analyzed the laboratory index of pro-inflammatory cytokines and features of procalcitonin biomarkers. (Table 1).

Tab. 1. Changes in blood markers over time

Markers	At the time of admission	3rd day	7th day	At the time of release
IL – 6	201,3 pg/ml	187,6 pg/ml	112,6 pg/ml	26 pg/ml
IL – 8	280,3 pg/ml	230 pg/ml	135,5 pg/ml	34 pg/ml
Procalcitonin	8,2 ng/ml	5,3 ng/ml	2,6 ng/ml	0,06 ng/ml

Discussion

A significant percentage of survival in sepsis is the main task of modern research. In contrast to the historical data reporting 40-60% in-hospital mortality in septic shock, more recent evidence-based studies that included the rigorous use of protocol-based resuscitation have reported mortality rates of 18% to 30%. However, both mortality and morbidity remain unacceptably high. Long-term morbidity leads to significant functional disability, mental disorders, which ultimately affects the high rates of hospitalization in intensive care units of medical institutions. Future studies should evaluate the impact of injury control surgery on survival in patients with intra-abdominal sepsis. New diagnostic tools, such as biomarker assays and PCR-based microbial detection methods, will speed up the identification of complications after surgical treatment and allow healthcare professionals to rapidly initiate individualized antimicrobial therapy in the future. Sepsis recognition and therapy require daily

reassessment of the patient's condition during interdisciplinary rounds.

Conclusion

1. It has been found that patients with abdominal sepsis who have exacerbated chronic diseases are older, have more comorbidities and a more severe course (with worse physiological disturbances and a higher likelihood of septic shock) than patients who recover quickly.

2. It was found that the immunological and metabolic response in patients with chronic diseases after undergoing abdominal surgery had higher stable biomarkers of pro-inflammatory (IL-6, IL8), and metabolic disorders.

3. It was found that patients with abdominal sepsis in the stage of exacerbation of chronic diseases undergo more surgical interventions and have a higher incidence of organ dysfunction, which sometimes does not return to the initial level, and have a consistently poor prognosis during the study period compared to those who recovers quickly.

4. Patients with abdominal sepsis had a significantly higher need for a ventilator and its duration, there was a significant dysfunction of other organs.

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