



Efficiency of Lymphatic Therapy in Acute Diffuse Peritonitis in the Postoperative Period

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Abstract: Objective: To improve the outcomes of patients operated on for acute generalized peritonitis by including endomesenteric lymphotropic therapy in the postoperative treatment regimen.

Material and methods: A total of 239 patients with acute generalized peritonitis of various etiologies were analyzed (2014–2025). Patients were divided into 2 groups: control (n=115) — standard postoperative therapy, and main (n=124) — standard therapy plus endomesenteric lymphotropic therapy.

Results: In the main group, intestinal peristalsis resumed on day 2, and gas passage on day 3, compared to days 4–5 in the control group. Leukocytosis decreased significantly by day 3 in the main group, versus day 6 in controls. The average hospital stay was reduced by 3.5 ± 1.5 days.

Conclusion: Endomesenteric lymphotropic therapy accelerates recovery of gastrointestinal function, reduces intoxication, lowers the incidence of complications, and shortens hospital stay in patients with acute generalized peritonitis.

Key words: acute generalized peritonitis, endomesenteric lymphotropic therapy, postoperative period.

Introduction. Despite improvements in diagnostic methods and the quality of treatment, postoperative complications and mortality in acute generalized peritonitis (AGP) remain high. Particularly high mortality is observed in the development of abdominal sepsis with the development of multiple organ failure, reaching from 18 to 37% of cases [1; 6; 10; 15].

The difficulty in solving the problem of peritonitis, along with other reasons, is that during the treatment of ARP, factors such as the fight against sources of intoxication of the body in the postoperative period are not sufficiently corrected [2; 5; 13; 11].

One of the most unfavorable prognostic syndromes of acute intestinal failure is progressive endogenous intoxication of the body, which is associated with a lesion in the abdominal cavity. This process contributes to the development of functional intestinal failure with the translocation of bacterial flora from the intestine into the abdominal cavity. These factors, progressing and involving organs and systems, cause profound metabolic disorders, leading to multiple organ failure and death [4; 5; 14].

At the onset of the disease, the primary source of intoxication plays a key role, often arising from destructive changes in the abdominal organs. Such changes include nonspecific ulcerative colitis (UC), the etiological factors of which remain unknown [3; 12; 13; 14; 15].

A secondary lesion in abdominal surgical pathology is infection of the lymph nodes of the abdominal cavity and retroperitoneal space. This leads to the formation of microabscesses in the lymph nodes, which subsequently leads to increased intoxication of the body. Congestion is also observed in the

lymphatic system of the abdominal organs, which further contributes to increased intoxication. All this has a very negative impact on the intestinal defense mechanisms against infection, which ensure its barrier function [1; 2; 4; 7; 12; 13]. A tertiary focus of intoxication in acute respiratory infections of various origins is a dysfunction of the gastrointestinal tract in the postoperative period, in which, as a result of the development of intoxication of the body, dynamic intestinal obstruction may be observed, which further aggravates the endotoxemia of the body [5; 6; 14].

Despite complete elimination of the primary source of infection, most patients continue to experience deterioration of their condition and increasing levels of intoxication. the advisability of antibacterial therapy, even in such severe cases of acute respiratory infections, remains unresolved [7; 10; 12; 15].

At the same time, it has been proven that one of the ways to increase the effectiveness of antibiotic therapy and correct immunity in ARI is the introduction of drugs into the lymphatic system [10; 12; 13].

The discovery and development of new methods for targeted drug delivery to target organs are pressing issues in modern medicine. One such method is lymphotropic therapy, which ensures the creation of sufficient and stable therapeutic concentrations of drugs in the lymphatic region affected by the pathological process, and consequently, in the target organ.

The purpose of the work — to improve the treatment outcomes of patients with acute diffuse peritonitis using endomesenteric lymphotropic therapy in the postoperative period.

Material and methods: we analyzed the results of surgical treatment of nonspecific ulcerative colitis and acute widespread peritonitis of various origins in patients who were hospitalized at the Andijan State Medical Institute from 2014 to 2024. All patients were divided into two groups: the first, the control group, included patients (n=115) who received traditional treatment methods in the postoperative period, and patients in the second, the main group (n=124) received endomesenteric lymphotropic therapy.

To evaluate the effectiveness of endomesenteric lymphotropic therapy in the postoperative period, we examined the lymph flow in the intestinal mesentery under normal conditions and in our model of acute general peritonitis. This was confirmed by the results of Evans blue absorption from the intestinal mesentery in our experimental peritonitis model before and after lymphatic stimulation.

Table 1. Absorption time of Evans blue from the mesentery and subserous layer of the large intestinal wall in a simulated case of acute diffuse peritonitis.

Results of Evans blue absorption in a created peritonitis model				
Evans Blue injection points and absorption time	Closer to the root of the mesentery	Absorption time without lymphatic stimulation	Absorption time after lymphatic stimulation	Acceleration of absorption in %
		6 min. 39 cek. ±10 cek.	4 min. 02 sec. ±10 sec.	36,2±1,4
	Middle part of the mesentery	7 min. 21cek. ± 21cek.	4 min. 32 sec. ±7 sec.	40,1±2,8
	The marginal part of the mesentery (closer to the intestinal wall)	8 min.35 cek. ±13 cek.	5 min.02 sec. ±14 sec .	39,9±1,3

The table shows that after lymphatic stimulation, lymph flow in the intestinal mesentery improves, thereby eliminating lymphostasis in the “lymphatic collector,” which develops against the background of the inflammatory process.



The causes of peritonitis in the main group of patients who received endomesenteric lymphotropic therapy were: acute destructive appendicitis in 35 patients (28.2%), perforated gastric ulcer and duodenal ulcer in 18 patients (14.5%), destructive cholecystitis in 17 patients (13.7%), gynecological destructive diseases in 14 patients (11.3%), acute intestinal obstruction in 22 patients (17.7%). This main group also included 18 patients with ulcerative colitis (14.5%).

The presence of large changes in the retroperitoneal space in patients with various forms of peritonitis in the form of infiltration, edema, swelling, hyperemia, purulent-inflammatory changes, were an indication for the inclusion of endomesenteric lymphotropic therapy in the complex treatment.

All patients in the main group, after completion of the main stage of the operation, had a polyvinyl chloride catheter inserted endomesenterically into the intestinal mesentery for lymphotropic therapy in the postoperative period and secured in the intestinal mesentery using thin catgut.

The outer end of the catheter was brought out of the abdominal cavity through the counter-opening and fixed to the skin of the anterior abdominal wall with a silk thread.

In patients with peritonitis, the primary focus was on combating the microbial factor. Therefore, in the postoperative period, lymphotropic administration of broad-spectrum antibiotics was initiated via a catheter inserted into the intestinal mesentery immediately after lymphatic stimulation. The sensitivity of the abdominal microflora to antibacterial agents was also determined. A study of the abdominal microflora revealed *Escherichia coli*, *Staphylococcus aureus*, and *Pseudomonas aeruginosa* in 84.5% of patients. In the remaining patients with acute peritonitis, cultures revealed a combination of microorganisms.

The highest sensitivity of the peritoneal microflora was found to cephalosporins: ceftriaxone and cefazolin (84.7%) in patients with acute peritonitis. As soon as antibiotic sensitivity was established, the drug to which the microbes were susceptible was immediately used for endomesenteric lymphotropic therapy.

Lymphotropic therapy for peritonitis was carried out depending on the severity of the disease and the patient's condition once or twice a day for 4-5 days.

Results. The results of treatment using lymphotropic therapy in the postoperative period were compared with the results of the control group of patients.

Following comprehensive postoperative therapy with lymphotropic therapy, patients in the study group experienced a return of intestinal peristalsis on the second day, and gas passage was noted on the third day. In patients in the control group, weak intestinal peristalsis reappeared on the third day after surgery. Gastrointestinal function in this group of patients was restored only on the fourth to fifth day.

Compared with traditional treatments for acute peritonitis, leukocytosis in the blood of patients in the study group significantly decreased by day 3, while in patients in the control group, a decrease was observed by day 6 postoperatively. The LII returned to normal by day 4 postoperatively in patients in the study group and by day 7 in the control group. A decrease in ESR was also observed starting on day 4 in patients in the study group and by days 6-7 in patients in the control group.

As a result of lymphotropic therapy carried out in the complex treatment in the postoperative period, the amount of fluid released from the abdominal cavity in patients of the main group began to decrease compared to the control group starting from the 2nd day after the operation (Table 2).

Table 2. Dynamics of exudate release from the abdominal cavity (ml) in the postoperative period with endomesenteric lymphotropic therapy and traditional treatment method

Treatment method	1 day	2 day	3 day	4 day
Traditional treatment	117,2±10,1	100,4±7,9	77,1±5,8	38,4±6,9*
Endomesenteric lymphotropic therapy	108,4±9,2	60,3±9,6*	20,2±4,1*	5,7±1,3*

* - reliability of the difference compared to the original data ($P < 0,05$).

Thus, in the complex treatment of acute diffuse peritonitis, endomesenteric lymphotropic therapy used in the complex treatment of patients in the postoperative period has a positive effect on the restorative function of the body, preventing complications from the underlying disease, reducing the cost of medications and the average patient stay in hospital by 3.5 ± 1.5 days.

Conclusions:

The use of endomesenteric lymphatic therapy in postoperative complex treatment of acute diffuse peritonitis contributes to:

1. Through the lymphatic system, antibiotics directly affect the microflora in the lymph nodes and lymphatic vessels, where high drug concentrations are created.
2. With lymphotropic administration, the presence of drugs at therapeutic concentrations in the abdominal lymphatic system has been observed to be prolonged.
3. As a result, the use of lymphatic therapy in the postoperative period for acute diffuse peritonitis significantly reduces the average hospital stay compared to the control group.
4. Lymphatic therapy significantly reduces the percentage of complications and mortality in the postoperative period.

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