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PECULIARITIES OF THE CLINICAL COURSE OF GASTROINTESTINAL BLEEDING OF ULTRASONIC GENESIS AND COMPENSATIVE RESERVES OF THE ORGANISM OF ELDERLY PATIENTS

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Blood is not just a transport medium that combines various organs and tissues into a single organism. In addition to transporting gases and bioactive substances, quantum information and control, it performs many compensatory functions, immune protection and more. Like all organs and systems of the body, blood is genetically specific, its cellular and biochemical composition is constantly self-reproducing. Blood is the same "native" and irreplaceable to foreign tissues system of the body, as all its other systems and organs. It, like other vital organs and systems, performs many functions. If it is damaged, a decrease in its volume cannot be an isolated damage to any of the blood functions. That is, the artificial restoration of gas transport function of the blood is better than nothing, but still not full compensation of all blood functions [1, 2].

Like other body systems, blood has its own mechanisms of self-compensation, as well as compensatory mechanisms that are inherent in other systems. Damage or reduction in blood volume that is not compensated by its own mechanisms leads to changes in the function of the cardiovascular system, metabolism, etc., aimed at compensating for blood loss. The primary reactions of the body to acute blood loss depend on the rate at which blood volume decreases, and the volume of blood loss, and the previous state of the body [3].

Compensatory reactions that begin under autoregulation are aimed at rapidly restoring blood volume and quality. Compensatory mechanisms are activated in all functional systems of the body, starting with the blood system itself. The amount of reserves of compensatory capabilities of each organism in response to blood loss differs in individual characteristics, which depend not only on the previous functional state of systems and organs, but also on constitutionally established and which must be taken into account when providing care.

Gastrointestinal bleeding as a complication of peptic ulcer and duodenal ulcer is an urgent health problem in the world. Over the past 5 years, their frequency has increased, with postoperative mortality is 7-30%, especially in the elderly. This group consists of patients with chronic pathology of the cardiovascular system, as well as with

acute myocardial infarction and acute coronary syndrome. According to the Dnipro Center for Gastrointestinal Bleeding, level III-IV blood loss (according to the classification of P.L. Marino 1998) was observed in 50% of patients with cardiovascular pathology who received anticoagulant therapy. Despite the development and implementation of modern minimally invasive treatments using endoscopic hemostasis and prevention of recurrence of bleeding, the mortality of patients in this category remains high and is 10-20%, and postoperative reaches 50% [4].

High blood loss leads to significant dysfunction of organs and systems, as well as disorders in the body's immune system, causes significant changes in cytokines. The most active role is played by cytokines of pro-inflammatory and anti-inflammatory direction. To date, it has been determined that most diseases are associated with immune system disorders. Gastrointestinal bleeding, which is a consequence of damage to blood tissue and reflects its severity, is no exception. As a result, an inflammatory reaction is formed on the part of the damaged tissue. In this case, at all stages of the formation of a specific immune response of the organism, the dominant role belongs to cytokines. Increasing the level of cytokines is an important component of the body's adequate response during inflammation. At the same time, overexpression of these mediators causes changes in physiological processes in the body. Studying these changes can help predict the severity of homeostasis, the development of complications and disease outbreaks, and possible changes in treatment tactics. [5, 6].

The purpose of the study. Increase the effectiveness of treatment of elderly patients with ulcerative gastrointestinal bleeding by studying the dynamics of the immune system and their relationship with local endoscopic hemostasis.

Materials and methods of research. An analysis of the treatment of 35 elderly patients (according to the WHO classification - 61-90 years). Of these, men were 19 people (54%), women - 16 people (46%). The average age was 76.3 years. Patients were divided into groups: A - patients who received therapy according to the standard treatment regimen for cardiovascular pathology (n = 20), B - "dual" therapy (n = 15). Five patients with concomitant neurological pathology (acute cerebrovascular accident) and severe endocrine pathology (decompensated diabetes mellitus) were excluded from the study. As a control, a category of 50 people was selected - relatively healthy patients (donors), who by age, sex, method of determining the main indicators were similar to the research group.

The following cytokines were studied: interleukins (IL-4, IL-6) and tumor necrosis factor (TNF α). Processing of laboratory data was performed using laboratory methods, as well as determining the main indicators of the immune system - IL-6, IL-4. In this case, all patients underwent esophagogastroduodenoscopy to determine the location, size of the ulcer defect and the state of local endoscopic hemostasis. The material for the study of immunological parameters was venous blood, which was taken from the ulnar vein during hospitalization, as well as on the third and seventh days of hospital stay at the same time for the correctness of the results. Qualitative determination of the concentration of IL-6, IL-4 in the serum was performed by enzyme-linked immunosorbent assay using test systems of CJSC "Vector-Best" (Novosibirsk) according to the manufacturer's recommendations. The content of these indicators in the experimental samples was determined using calibration curves with the values of optical density of standard samples in the laboratory of the Medical University.

All ascending data obtained during the study, in order to optimize mathematical processing were entered into a database built using Microsoft Excel spreadsheets. Statistical processing of the study results was performed using variation statistics methods implemented by the standard application package Statistica for Windows 6.0.

Research results and their discussion. A number of many studies have shown that elevated IL-6 levels are more important in prognostic value compared to C-reactive protein for cardiovascular death and other cardiovascular complications. There was a significant increase in the levels of IL-2, IL-4, IL-6, IL-12 and IL-18 in patients with coronary heart disease compared with healthy individuals, and the level of IL-6 was even higher in patients with myocardial infarction. Increased concentrations of IL-6 have been observed in exacerbations of peptic ulcer disease, pancreatitis, gluten enteropathy, Crohn's disease, nonspecific ulcerative colitis, viral hepatitis, primary biliary cirrhosis. TNF α has mainly immunomodulatory and anti-inflammatory effects. The concentration of circulating marker TNF α is usually very low, but it increases significantly (maximum 1.5 hours) if an acute situation occurs. Determination of TNF α and IL-6 levels plays a significant role in the diagnosis of congestive heart failure. During periods of exacerbation, the amount of IL-4 increases almost 3 times compared to normal, and during remission its level decreases, especially against the background of the duration of treatment.

As a result of TNF release, capillary permeability increases, vascular endothelium is damaged, and intravascular thrombosis occurs. The concentration of circulating TNF α is usually very low (<5 pg / ml), but it increases sharply (maximum 90 minutes) after the introduction of LPS and returns to normal within 4 hours. High levels of TNF α (> 300 pg / ml) are determined during septic shock. Maintaining high levels indicates the possibility of adverse effects.

In our studies, it was determined that IL-6, depending on the state of local endoscopic hemostasis at the time of hospitalization was higher than the control group, but no greater difference between the indicators was found. In the case of a high risk of recurrence of bleeding (Forest II) on the 7th day of normalization was not determined. In patients with stable hemostasis (Forest III), IL-6 was close to normal ($p > 0.05$). There was a sharp increase in IL-6 depending on the state of local endoscopic hemostasis, especially during active bleeding (Forest I) to 36.54 ± 1.61 and also at high risk of recurrence of bleeding (Forest II) - up to $33.87 \pm 2,01$ with a gradual decrease to 7 days, but normalization was not observed ($p < 0,01$).

IL-4 behaves somewhat differently. There was a sharp decrease in IL-4 content at high risk of recurrence of bleeding in conditions of stable hemostasis, which was not normalized on the 7th day of the patient's stay in the hospital ($p > 0.05$). In addition, a reduced level of IL = 4 was observed during active bleeding (Forest I). Under conditions of high risk of recurrence of bleeding (Forest II) also noted a decrease in its level to 2.34 ± 0.47 and 2.23 ± 0.5 , followed by a decrease to 2.02 ± 0.32 and 1.67 ± 0.26 on the first and seventh days, respectively ($p > 0.05$).

Analysis of the results of the study showed that patients in group B showed an increase in serum IL-6 in 6 times during active bleeding and 5 times - at high risk of recurrence of bleeding ($p > 0.05$). Another situation was observed in the case of IL-4 levels. The latter was reduced almost 3 times in group A and 4 times in group B compared with the observation group ($p < 0.01$).

High levels of pro-inflammatory cytokines IL-6 and low activity of the anti-inflammatory mediator IL-4 determine the activity of the process, their prolonged circulation in patients with ulcerative hemorrhage from the upper gastrointestinal tract is associated with an unfavorable prognosis. At imbalance of pro - and anti-inflammatory mediators towards the first the risk of recurrence of bleeding in the second group increases. Changes in the amount of pro-inflammatory cytokines IL-6 in the peripheral blood should be the cause and one of the mechanisms of recurrence of bleeding.

The considered patients belong to the group of high operative risk. Therefore, radical and conditionally radical methods of surgical interventions should not be used

because of the possible decompensation of cardiovascular pathology in both intra- and postoperative periods.

In 2020, the own method of surgical treatment of hemorrhagic ulcers of the pylorobulbar stomach was modified and put into practice and a patent for a utility model № 139011 was obtained [7]. The distinguishing feature is that after determining the location of the ulcer and the crater with the bleeding vessel, the mucous membrane is prepared next to the crater, followed by submucosal horizontal mattress sutures through the ulcer crater, thus performing tamponade, the mucosa is attached to the periphery. Using this method of surgical treatment reduces the duration of surgery by 40-60 minutes, which makes sense in elderly patients with cardiovascular disease.

Conclusions. An important aspect in the choice of treatment and diagnostic tactics and method of surgery is the presence of patients with pathology of the cardiovascular system. Certain changes in the cytokine profile allow for a qualitative analysis of local hemostasis and to determine adequate treatment tactics for this category of patients.

The analysis of local endoscopic hemostasis showed that the rate of unstable hemostasis with a high risk of recurrence of bleeding in patients of group A is higher than group B by 17% due to an increase in the number of patients with active bleeding in the latter. The rate of stable hemostasis F III in group A - 30%, not observed in group B ($p < 0,05$). These results play an important role in the choice of treatment tactics. As for active bleeding, it was absent in group A, and in group B it was 47% ($p < 0,05$). In the group of patients who had a recurrence of bleeding and who received "double therapy", the rate of immunoreactivity of the body compared with the group of patients who received standard antihypertensive therapy and had a lower rate of recurrence of bleeding, indicate more pronounced immunosuppression.

Modifications in the surgical treatment of ulcerative gastrointestinal bleeding in patients with acute cardiovascular pathology make it possible to perform operations with elements of radicalism, while reducing the duration of the operation and the development of postoperative complications and postoperative mortality.

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