

Features of Complex Surgical and Infusion Treatment of Sepsis in Diabetes Mellitus

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Annotation: Purulent-necrotic processes in diabetes mellitus are an urgent problem, often leading to sepsis. Sepsis is a pathological condition requires a multi-factorial, multi-component approach to treatment. By interacting with specialists (diabetologists, hematologists, vascular surgeons), their joint work, the use of modern methods of treatment – in particular, infusion therapy (nutritional support) and active surgical intervention can save the lives of patients.

Keywords: sepsis, phlegmon, abscess, infusion, transfusion.

Despite the development of medical science, the problem of surgical infection remains an urgent problem. Sepsis is a response to various bacterial, viral, and fungal infections. The term sepsis was first used by Hippocrates 2,000 years ago. This term refers to the pathological decay of tissues with putrefaction. In recent years, sepsis has begun to increase globally, (more than 50 million people per year), and the death rate is 5.3 million cases¹. According to our data, in

¹ Sayfullo Abdullaev, Abdukhomid Toirov Adkham Akhmedov, Davlatshokh Djalolov. (2020). PROBLEMS OF SURGICAL TACTICS FOR THE TREATMENT OF DIABETIC FOOT SYNDROME. *International Journal of Advanced Science and Technology*, 29(05), 1836 - 1838.

diabetes mellitus, often the foci of sepsis were purulent-inflammatory diseases of the soft tissues, limbs and perineum.

Treatment of sepsis developing against the background of purulent-necrotic processes in diabetes mellitus is one of the most serious problems. In the body of such problems, nutritional deficiencies develop²³. According to the literature, if patients lose 20% of their total weight after surgery, the mortality rate is 33%. In such patients, the postoperative mortality rate decreased by 7% during the provision of adequate nutrition with the use of parenteral nutrient components⁴. The main goal of nutritional care for patients with sepsis is to restore the physiological need for macro-and micronutrients in the body⁵⁶.

Purpose of the research. Improvement of the results of nutritional care and surgical treatment of the purulent-necrotic process in diabetes mellitus complicated by sepsis.

Materials and methods of the research. In 2018-2020, 86 patients with diabetes mellitus with various purulent-necrotic diseases were treated in hospital. The age of the patients was 28-74 years, 54 of them were able-bodied. There were 57 men and 29 women. Localization of inflammatory lesion in the lower limbs and perineum, 53, upper extremities – 15, injection abscesses in the buttocks - 12 and suppuration of postoperative wounds of the anterior abdominal wall in 6 patients. Thus, acute paraproctitis (ileorectal and pelviorectal - 18 patients, cellulitis of the perineum and disease Fournier proliferation on the anterior abdominal wall 18, necrotic phlegmon of the foot 21, comicsonline abscess extending into the forearm of 6, abscess in the region of the shoulder further complication is undoubtedly anaerobic infections - 9, deep injection abscesses buttocks with the complication of anaerobic abscess - 8 and suppuration of the postoperative wound abscess of the anterior abdominal wall (after appendectomy, strangulated ventral hernia) - 6 patients. For a comparative study, we divided the

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² Abdullaev, S.A., Kurbanov, E.Yu., Boymurodov, A.O., & Abdullaeva, L.S. PROBLEMS OF DIAGNOSIS AND TREATMENT OF SEPSIS IN DIABETES MELLITUS. DOCTOR'S BULLETIN, 6.

³ Abdullaev Sayfulla Abdullaevich , Babajanov Axmadjan Sultanbayevich , Kurbanov Erkin Yusufovich , Toirov Abduxomid Suvonkulovich , Abdullaeva Lola Sayfullaevna , Djalolov Davlatshokh Abduvokhidovich , Problems of Sepsis Diagnostic and Treatment in Diabetes Mellitus, *American Journal of Medicine and Medical Sciences*, Vol. 10 No. 3, 2020, pp. 175-178. doi: 10.5923/j.ajmms.20201003.09.

⁴ Kurbanov, E.Yu., Akhmedov, A.I., Babazhanov, A.S., Togaev, K.R., & Toirov, A. S. (2018). DIAGNOSIS AND TREATMENT OF PURULENT-NECROTIC COMPLICATIONS IN PATIENTS WITH DIABETES MELLITUS. In *Youth and Medical Science in the twenty-first century* (pp. 418-419).

⁵ Abdullaev, S.A., Babazhanov, A.S., Khamidov, F.U., & Kurbanov, E.Yu. (2019). SURGICAL TACTICS FOR THE TREATMENT OF SEPSIS IN DIABETES MELLITUS. IN *SCIENCE AND INNOVATION IN THE 21ST CENTURY: CURRENT ISSUES, DISCOVERIES AND ACHIEVEMENTS* (pp. 190-194).

⁶ Kurbanov, E.Yu., Abdullaev, S.A., Gapparov, A.T., Akhmedov, A.I., & Aslamov, Zh.K. DISADVANTAGES AND WAYS OF IMPROVEMENT IN THE DIAGNOSIS AND SURGICAL TREATMENT OF DIABETIC FOOT SYNDROME. DOCTOR'S BULLETIN, 15.

patients into two groups. The first group included 41 patients with moderate type 2 diabetes mellitus, who were diagnosed with sepsis. The second group included 45 patients with severe diabetes mellitus with purulent-necrotic processes with complicated fasciitis, who were diagnosed with severe sepsis and septic shock. The causes of soft tissue infection were diabetic foot syndrome, phlegmon of the lower extremities, acute paraproctitis, postoperative wound suppuration, and post-injection abscesses⁷⁸.

In the principle of general treatment of sepsis, it is very important to pay attention to the infectious process in the area of primary tissue damage - this is the cause of the inflammatory process⁹¹⁰. Of great importance is the size of the focus, the type of microflora, its pathogenicity and virulence, the presence of a premorbid background in the patient, i.e. factors that directly affect the spread of body reactions. In the control group of patients who received infusion-transfusion treatment with the use of antibiotics, the average duration of $23 \pm 1,3$ bed days, and in the second group where intensive therapy was established with the use of enteral and parenteral nutrition with nutritional support (2-3 doses of Nutriflex, with transfusion of single-size plasma, red blood cell mass, immunocorrectors), the average duration of bed days was $20 \pm 1,2$ days. The leukocyte intoxication index was studied in both groups of patients. In the second group, in the course of treatment, rapid cleansing of the wound from necrotic tissue, restoration of all biochemical parameters (the number of red blood cells, lymphocytes, hemoglobin, total protein, blood enzymes) was noted.

All our patients were promptly subjected to surgical treatment, that is, paraproctitis was opened with wide incisions, phlegmons of the thigh, perineum, and lower leg were opened with long wide incisions, and necrotic tissues were removed. In the postoperative period underwent stage necrosectomy.

Results and discussion of the research. In the severe form of diabetes mellitus with purulent-necrotic phlegmon, sepsis often occurs. The main cause of this process is not only a violation of the metabolism of carbohydrates in diabetes, but also the metabolism of proteins and fats. Currently, science has confirmed that

⁷ Abdullaev, S.A., & Djalolov, D. A. (2020). Features of the course of Fournier's disease in diabetes mellitus. *Science in the Modern World: Development Priorities*, (1), 9-11.

⁸ Trevelin, S. C., Carlos, D., Beretta, M., da Silva, J. S., & Cunha, F. Q. (2017). Diabetes mellitus and sepsis: a challenging association. *Shock: Injury, Inflammation, and Sepsis: Laboratory and Clinical Approaches*, 47(3), 276-287.

⁹ Iskandar Shonazarov; Sardor Murodullaev; Sunnatillokhon Kamoliddinov; Adkham Akhmedov; Davlatshokh Djalolov. "DIAGNOSIS AND TREATMENT OF ADHESIVE SMALL BOWEL OBSTRUCTION WITH USING LAPAROSCOPIC METHOD". *European Journal of Molecular & Clinical Medicine*, 7, 3, 2020, 3192-3198.

¹⁰ Brent, A. J. (2017). Sepsis. *Medicine*, 45(10), 649-653.

with a lack of nutrients, with purulent-necrotic diseases, the protective function of the body weakens and a severe complication of sepsis develops. In sepsis, due to the disruption of metabolic changes in the body, the natural way of nutrition can not fully meet the nutrient requirement of the body. Given these data, patients with sepsis need full support for enteral and parenteral nutrition. The purpose of infusion therapy for sepsis is to ensure adequate blood circulation in the body tissues. In the treatment of sepsis, this is achieved with an infusion of crystalloid and colloidal solutions.

In conditions of sepsis, the body's need for energy increases to 50-60 kcal/kg, in proteins-up to 2-3 g/kg per day, the average daily loss of nitrogen reaches up to 30-35 g/day. This is equal to the equivalent of 185-200 g of protein. If this process is not restored in time, then it loses 25 g of muscle mass daily to restore nitrogen. In an organism with no reduced nitrogen content, the use of a mixture of amino acids increases nitrogen retention and prevents severe metabolic disorders. Therefore, in daily practice, infusions of full-fledged colloidal and crystalloid mixtures were widely used to restore microcirculation in tissues. In sepsis, the minimum hemoglobin content in the blood should be at least 70-80 g/l. Given these data, we used more transfusions and blood components.

In recent years, there have been various approaches to the use of antibiotics for the treatment of sepsis. If the infectious process is localized on the lower extremities, perineum, buttock areas, then the main pathogens are gram-negative sticks. This circumstance should be taken into account when conducting antibiotic therapy. The success of antibiotic therapy depends on the radical secondary surgical treatment of the wound.

For the purpose of immunocorrection in severe sepsis and septic shock, intravenous administration of immunoglobulins at a dose of 3 ml/kg/day for 3-5 days was used. Patients with severe sepsis and septic shock were hospitalized in the intensive care unit or in the intensive care unit. The main task of intensive care is to improve the timely transport of oxygen to the cells. All of the above categories of patients received intensive care in the intensive care unit. Of the 86 patients with type 2 diabetes mellitus with severe sepsis and septic shock, which was complicated by multiple organ failure, 8 died.

Scientific novelty of the research: In order to improve metabolism in sepsis, we first used Nutriflex as a nutritional support for the body, which contains all the components of homeostasis. In the group of patients where we used Nutriflex (in one bottle of 2 liters), there was a marked improvement in the condition of the patients, the body mass index began to rise, the wound began to be cleared of necrotic masses faster, and the appetite improved. In a laboratory study, a decrease in the number of white blood cells was noted, thus the leukocyte

intoxication index decreased, the amount of albumin and total protein increased.

Conclusions. Timely complex infusion, transfusion, active, adequate surgical treatment is the most optimal way to treat sepsis in diabetes mellitus.

References:

1. Sayfullo Abdullaev, Abdukhomid Toirov Adkham Akhmedov, Davlatshokh Djalolov. (2020). PROBLEMS OF SURGICAL TACTICS FOR THE TREATMENT OF DIABETIC FOOT SYNDROME. *International Journal of Advanced Science and Technology*, 29(05), 1836 - 1838. Retrieved from <http://sersc.org/journals/index.php/IJAST/article/view/10340>
2. Abdullaev, S.A., Kurbanov, E.Yu., Boymurodov, A.O., & Abdullaeva, L.S. PROBLEMS OF DIAGNOSIS AND TREATMENT OF SEPSIS IN DIABETES MELLITUS. DOCTOR'S BULLETIN, 6.
3. Abdullaev Sayfulla Abdullaevich , Babajanov Axmadjan Sultanbayevich , Kurbanov Erkin Yusufovich , Toirov Abduxomid Suvonkulovich , Abdullaeva Lola Sayfullaevna , Djalolov Davlatshokh Abduvokhidovich , Problems of Sepsis Diagnostic and Treatment in Diabetes Mellitus, *American Journal of Medicine and Medical Sciences*, Vol. 10 No. 3, 2020, pp. 175-178. doi: 10.5923/j.ajmms.20201003.09.
4. Kurbanov, E.Yu., Akhmedov, A.I., Babazhanov, A.S., Togaev, K.R., & Toirov, A. S. (2018). DIAGNOSIS AND TREATMENT OF PURULENT-NECROTIC COMPLICATIONS IN PATIENTS WITH DIABETES MELLITUS. In *Youth and Medical Science in the twenty-first century* (pp. 418-419).
5. Abdullaev, S.A., Babazhanov, A.S., Khamidov, F.U., & Kurbanov, E.Yu. (2019). SURGICAL TACTICS FOR THE TREATMENT OF SEPSIS IN DIABETES MELLITUS. IN *SCIENCE AND INNOVATION IN THE 21ST CENTURY: CURRENT ISSUES, DISCOVERIES AND ACHIEVEMENTS* (pp. 190-194).
6. Kurbanov, E.Yu., Abdullaev, S.A., Gapparov, A.T., Akhmedov, A.I., & Aslamov, Zh.K. DISADVANTAGES AND WAYS OF IMPROVEMENT IN THE DIAGNOSIS AND SURGICAL TREATMENT OF DIABETIC FOOT SYNDROME. DOCTOR'S BULLETIN, 15.
7. Abdullaev, S.A., & Djalolov, D. A. (2020). Features of the course of Fournier's disease in diabetes mellitus. *Science in the Modern World: Development Priorities*, (1), 9-11.
8. Trevelin, S. C., Carlos, D., Beretta, M., da Silva, J. S., & Cunha, F. Q. (2017). Diabetes mellitus and sepsis: a challenging association. *Shock: Injury, Inflammation, and Sepsis: Laboratory and Clinical Approaches*, 47(3), 276-287.

9. Iskandar Shonazarov; Sardor Murodullaev; Sunnatillokhon Kamoliddinov; Adkham Akhmedov; Davlatshokh Djalolov. "DIAGNOSIS AND TREATMENT OF ADHESIVE SMALL BOWEL OBSTRUCTION WITH USING LAPAROSCOPIC METHOD". *European Journal of Molecular & Clinical Medicine*, 7, 3, 2020, 3192-3198.
10. Brent, A. J. (2017). Sepsis. *Medicine*, 45(10), 649-653.