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WAYS TO IMPROVE THE COMPREHENSIVE TREATMENT OF PURULENT DISEASES IN DIABETES MELLITUS

Resume: Currently, the question of the most effective treatment of purulent diseases in patients with diabetes mellitus (DM) continues to arouse great interest both in scientific terms and in terms of practical surgery. This is due to the growing prevalence of diabetes, the high frequency and difficulties in treating purulent diseases in these patients. Every second DM patient undergoes one or more surgical interventions during his life, while the main place is occupied by patients with purulent surgical infection. Purulent infection develops in 10-25% of DM patients. Surgical interventions for purulent diseases in patients with DIABETES account for 7 to 25% of the total number of surgical interventions.

Keywords:application sorption, biologically active substances, fibrous activated carbons, intravascular coagulation, purulent-necrotic foot lesions, hemosorption, diabetic foot.

Relevance. Treatment of purulent-inflammatory diseases of soft tissues in patients with diabetes remains a difficult task. The combination of diabetes and surgical infection forms a vicious circle in which the infection negatively affects metabolic processes, exacerbating insulin deficiency and increasing acidosis, and metabolic and microcirculation disorders worsen the course of reparative processes in the lesion (Farkhatov M.A. et al., 2008; Mukhamedova F.A. et al., 2000; Tenscher A.et.al.,2008). The combination of these diseases worsens the prognosis, as there is a risk of infection spreading, on the one hand, and a continuous increase in ketoacidosis up to the development of diabetic coma, on the other (Krauser F.M. et.al .,2012; Di Mauro M. et.al .,2006). However, researchers, based on clinical and experimental observations, are unanimous in stating the fact of a sharp deterioration in the purulent process in patients with diabetes, which significantly affects the regeneration of purulent wounds, prolonging its duration and disrupting the phase of this process (Kuleshov E.V. et al., 2006; Rubinstein A. et. al., 2004). At the same time, a more severe course of infection is noted in the acute period: frequent septic complications, rapid development of purulent complications in soft tissues against the background of often occurring high hyperglycemia, glucosuria, and even precomatous state. In addition, an areactive course of the purulent process is often observed with anatomical changes in the affected organ or a sluggish, prolonged course of wound infection after acute symptoms are removed (Guryeva I.V. et al., 2010; Deventer S.J.H., 2008). Inhibition of the regeneration process was found to be 1.5 times with compensated and 2.5 times with decompensated DM (Izmailov G.A. et al., 2004). The violation of the phase of the wound process in DM is based on the prolongation of the time of inflammation and regeneration. The time of scar reorganization and epithelialization is also increasing. The reason for this is insulin deficiency, which causes metabolic acidosis, water-electrolyte and protein imbalances, and microcirculation disorders (Home P.D. et.al .,2011; Huse D.M.et.al .,2010). In patients with diabetes, circulatory disorders of the lower extremities as a result of atherosclerosis are observed 15 times more often than in people without diabetes (Genyk S.N. et al., 2012; Anderson J.W. et.al .,2012; Horobin D.F.,2004). With diabetes due to concomitant neuropathy, due to the complete absence of microtrauma sensitivity, purulent-necrotic

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processes are not always detected in time by patients (Antonenko I.V. et al., 2000; Buidina T.A. et al., 2000; Baus H et.al .,2008; Ward J.D., 2010). Deep disorders of carbohydrate metabolism in 80% of diabetic patients lead to vascular injuries of the lower extremities - diabetic angiopathies with the possible development of purulent-necrotic lesions of the feet (Khaidarova F.A. et al., 2006; Komelyagina E.Yu.,2004; Godine J.E. 2011). In the complex of pathological changes in diabetic gangrene, systemic damage to the microcirculatory pathways of the arteriovenous basin by type of diabetic microangiopathy (Mammadgasanov R.M. et al., 2002; Karimov Sh.I. et al., 2006; Boulton A.J.M., 2009). The clinical picture of purulent-necrotic complications of diabetic angiopathy is characterized by an atypical course. A feature of the disease is a significant lag between local changes and general manifestations. Often, the progression of purulent-necrotic changes is expressed in a sharp deterioration in the general condition with minor local changes in the extremities.(KucherOAsky O.Yu. et al., 2010) The atypism of purulent wounds in patients with diabetes is to some extent associated with their high bacterial contamination, which is significantly higher than in patients without diabetes (Makhmudov A.M. et al., 2008) and in more frequent generalization. Gangrene of the lower extremities in patients with diabetes is 2.2 times more likely to be complicated by sepsis (Segava I. et.al .,2008).

The purpose of the study. Improving the results of surgical treatment of purulent diseases in DM by including new pathogenetically proven methods of ES and AS with polyphepan in the complex of therapeutic measures.

Materials and methods of research. To solve these tasks, we studied the results of treatment of 159 patients with purulent-septic diseases on the background of diabetes. Depending on the methods of detoxification, the fight against surgical infection and the effect on the purulent wound, the studied patients were divided into 2 clinical groups (Table.1.): the first group 107 consisted of patients who underwent ES and AS with polyphepan; the results were compared with the control (2) group of 52 patients treated with conventional, traditional methods of therapy.

The results of the study and their discussion. A study of the general condition of patients showed that with conventional treatment, the detoxification effect was clinically manifested starting from 5-6 days and was expressed in an improvement in general condition, a decrease in pain intensity, a disappearance of thirst, an improvement in appetite, the appearance of vivacity and normalization of sleep. Pain relief was noted at 4.81±0.74 days, normalization of body temperature - at 5.07± 0.53 days, relief of edema - at 8.92± 0.50 days. In patients with moderate diabetes, pallor of the skin was noted upon admission, in some cases pallor was combined with acrocyanosis. As many patients had dry tongue. Moderate tachycardia, (107.84±1.64 beats/min,) it was accompanied by minor hypertension - systolic blood pressure reached 138.96±3.87 mmHg, diastolic -83.52±1.90 mmHg. Dyspnea did not exceed 23.4± 0.5 breath/min. There was a decrease in daily diuresis to 780.5±41.3 ml. The positive effect of traditional therapy in this group of patients was clinically manifested starting from 7-8 days. Acrocyanosis decreased, the skin acquired a pink hue, dry tongue, tachycardia, shortness of breath passed, hemodynamics stabilized, diuresis returned to normal. There was cheerfulness, appetite, improved mood and sleep. Relief of pain and edema was noted at 6.60±1.00 and 10.58±1.13 days. Normalization of body temperature was observed on 7.10±0.92 days. Patients with severe diabetes were admitted in serious and extremely serious condition. They were sluggish, adynamic, and inhibited. Pallor was combined with acrocyanosis, marbled skin, and sweating, which indicated significant microcirculation disorders. Most of the patients were admitted with a subfebrile fever.

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Severe tachycardia (124.36±3.1 beats/min) with an increase in temperature by 40-50 beats/min, low pulse rate were combined with frequent, shallow breathing of 30.1±1.2 breaths/min. Hypotension was noted - the average values of systolic and diastolic blood pressure were low - 84.69±2.98 mmHg and 59.48±3.21 mmHg. Dry tongue and oliguria (392.7±64.3 ml) complemented the clinical picture of EI. 6 patients developed a delirious state against the background of severe intoxication. Jaundice of the skin and sclera, liver enlargement were detected in 19 patients. There was flatulence, lethargy or absence of peristaltic noises, vomiting. As a result of the treatment in patients of this group, starting from 10-12 days, a positive trend in the course of the disease was observed. Consciousness became clearer, activity appeared, acrocyanosis and marbled skin pattern decreased, and sweating. Hemodynamics has relatively stabilized.

The pulse rate was 88.27±2.94 beats/min, systolic and diastolic blood pressure were 130.14±3.81 and 90.35±3.58 mmHg, respectively. Breathing became free - up to 24.63±2.79 per minute. The dryness of the tongue and thirst decreased, the daily diuresis increased to 1200.58±69.71 ml. Flatulence decreased, intestinal motility improved, and vomiting stopped. At the same time, the jaundice of the skin and sclera, although decreased, did not completely disappear. Relief of pain and edema was observed at 9.68±0.83 and 14.33±0.80 days, respectively, and body temperature returned to normal at 12.81±0.72 days. Maintaining subfebrile temperature for such a long time despite the therapy indicated a decrease in body reactivity in this category of patients and indicated a sluggish and prolonged inflammatory process. The state of carbohydrate metabolism had a significant effect on the course of the purulent-septic process in DM patients.

In patients with mild diabetes in the control group, the blood sugar level at admission reached an average of 8.63±0.76 mmol/L. Under the influence of insulin therapy, it gradually began to decrease from the first days. On day 5, it decreased by 6%, on day 7 - by 12%, reaching normal values only on day 10 - 5.23±0.51 mmol/l (Fig.1), which is 39% lower than the initial data ($p<0.001$). In patients with moderate diabetes, the blood sugar content reached 14.25±0.81 mmol/l upon admission to the hospital. A significant decrease was noted on day 5 - 12.15±0.61 mmol/l, which is 15% less ($p<0.05$) than the initial data (Fig.1.). In the following days, the tendency to decrease blood sugar remained. If on day 10 it was in the range of 10.60±0.47 mmol/l, then on day 14 it did not exceed 10.12±0.37 mmol/l, which is 26% and 29% lower, respectively, than on admission ($p<0.001$), but still significantly exceeded the normal values. In patients with severe diabetes, the blood sugar content at admission was high and reached 17.83±0.92 mmol/L.

In the early days, despite the treatment, it remained almost unchanged (Fig.1). On day 5 alone, blood sugar levels decreased by 15% below baseline ($p<0.05$). On day 7, this difference was 20% ($p<0.01$), and on day 10, it was 28% ($p<0.001$). On day 14, although it decreased 1.5 times than at admission ($p<0.001$), it still significantly exceeded normal values and reached 11.62±0.69 mmol/L.

Conclusions. 1. A feature of the course of purulent processes of soft tissues in DM is the rapid progression of the necrotic process, prolonged cleansing of the wound from dead tissues, sluggish granulations, increased duration of inflammation and wound healing, a tendency to spread the purulent process, accompanied by high bacterial contamination, pronounced tissue acidosis, dysproteinemia, severe EI and activation of the coagulation system.

2. The inclusion of polyphepan in the complex treatment of purulent diseases in patients with DM ES and AS significantly reduces blood sugar levels, restores blood lymph flow and microcirculation, has a pronounced general and local detoxifying effect, creates favorable conditions for reparative processes in the wound.

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3. The combination of ES with AS polyphepan is the most rational and effective treatment method, which, having a high sorption capacity, prevents the absorption of the wound discharge, ensures its outflow from the bottom, removing microbial bodies and toxins from the wound surface, prevents the development of superinfection in the wound, eliminates tissue acidosis, which reduces the degree of tissue destruction. It has a pronounced decongestant, necrolytic, analgesic effect and creates conditions for active regeneration.

List of literature:

1. Abdumazhidov A.S. The state of immunity in patients with purulent-inflammatory diseases of soft tissues on the background of diabetes mellitus // International Congress of Diabetologists of Central Asia. Collection of abstracts. Tashkent, 2006, p. 55.
2. Abikenova F.S. Hypoglycemic and antidiabetic properties of geraine // II-International Congress of Diabetologists of Central Asia. Collection of abstracts. Tashkent, 2006, p. 17.
3. Avdeeva T.V., Varshaevsky I.M., Shabanov I.Ya., Boklin A.A. Analysis of the results of surgical treatment of diabetic foot // Problems of endocrinology. -2010. - C. 6. - pp.13-16.
4. Agzamkhodzhaev S.M., Keinova I.E., Khusainov Yu.U. Magnetic therapy of purulent diseases in diabetes mellitus //Medical Journal of Uzbekistan. 2009. | N4.- pp. 32-34.
5. Agzamkhodzhaev S.M., Rakhmanov R.K., Yanbaeva T.A. Treatment of purulent wounds with adsorbents // Republican conference with international participation "Wounds and wound infection". Collection of abstracts. - Andijan. - 2008. - p. 34.
6. Adamyan A.A., Dobysh S.V., Kochergina L.D., Glossitsev S.P. Sorption and application therapy of the wounded in the conditions of medical care during disasters //International conference. "Disaster Medicine". Collection of abstracts. - Moscow. - 2003. - p. 155.
7. Adamyan A.A., Lizanets M.N., Dobysh S.V. and others. Laboratory results of powdered medical sorbents and prospects for their use in surgery //Bulletin of Surgery. -2002. - N 7-8. - pp. 37-41.
8. Adamyan A.A., Muradyan R.G., Kochergin L.D. Modern means of local wound treatment that stimulate reparative processes //Surgery. - 2004. - No. 1.-pp. 57-60.-184.
9. Adamyan A.A., Dobysh S.V., Glossev S.P. and others. Treatment of purulent wounds with gelatin and biologically active draining sorbents //Surgery. -2004. - No. 8.-pp. 28-31.
10. Azizov G.A., Yulchiev A.K., Jalilova F.M. Lymphatic therapy in the complex treatment of purulent-inflammatory complications of soft tissues in postthrombophlebitic syndrome //Republican conference with international participation "Wounds and wound infection". Collection of abstracts. - Andijan, 2008, pp. 30-11.
11. Akmatov B.A., Rafibekov D.S., Zholdoshbekov E.Zh., Shabdanaliev A.Sh. The use of sorption methods and laser irradiation in the combined treatment of purulent wounds in patients with diabetes mellitus // II -International Congress of Diabetologists of Central Asia. Collection of abstracts. Tashkent, 2006, p. 55.
12. Alekseev A. A., Buyanov V.M., RadzikhOAsky A.P., Shimanko I.I. Lymphogenic detoxification. - Kiev, Naukova dumka, 1988. - 232 p.

eISSN: 2349-5715 pISSN: 2349-5707

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13. Aliev M.A., Popov T.A., Albazarov B.S. Application of sodium hypochlorite in purulent surgery //Republican conference with international participation "Wounds and wound infection". Collection of abstracts - Andijan - 2008.-p. 35.
14. Alimov A.T., Nurmukhammedov M.E., Babajanov A.B., Mukhammadiev D.D. Clinical and bacteriological analysis of purulent-septic diseases in diabetes mellitus //Republican conference with international participation "Wounds and wound infection". Collection of abstracts. - Andijan. - 2008. - p. 24.
15. Andreychik M.L., Gebesh V.V., Gnatyuk M.S. and others. Enterosorption: achievements, problems, prospects //Medical business. -2002. - N9. - pp. 12-19.
16. Ancipovich E.A., Molchanov V.F., Kadyshev Yu.G., Brusnitsina M.A. Selective intraarterial use of small doses of thienam and vasaprostan in the treatment of purulent foot diseases in patients with diabetes mellitus //Bulletin of Surgery. 2004. No. 1. pp. 76-78.
17. Antsiferov M.B. Complications of diabetes mellitus (clinic, diagnosis, treatment, prevention). - M., Medicine, 2008. - pp. 44-50.
18. Aripov U. A., Asamov R.E., Jamalov S.I. New perspectives in the treatment of diabetic foot // Scientific and practical conference “Modern aspects of diagnosis, treatment, and prevention of lower limb lesions in patients with diabetes mellitus.” Collection of abstracts. Moscow, 2006. pp. 15-17
19. Aripov U.A., Asamov R.E., Jamalov S.I., Imamov A.A. Transplantation of pancreatic islets in the complex treatment of diabetic foot syndrome //Surgery of Uzbekistan. - 2010. - No. 2. - pp. 22-25.
20. Asamov R.E., Jamalov S.I., Shukurov B.I. Modern tactics of treatment of patients with “diabetic foot”//International Conference "Surgery-2000". Collection of abstracts. - Moscow. - 2000. - pp. 487-48