

ANALYSIS OF THE EFFECTIVENESS OF THE TRADITIONAL TREATMENT METHOD

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Abstract: The problem of treating surgical infection of soft tissues against the background of diabetes mellitus remains relevant to the present day. This is due to an increase in the number of patients with diabetes mellitus and an increase in purulent-inflammatory complications in them. It is the development of purulent complications in patients with diabetes mellitus that often cannot be avoided without surgical interventions, the postoperative mortality of which is high - up to 20%.

The course of this pathology against the background of diabetes mellitus negatively affects the outcome of the disease. The purpose of our study was: to analyze the effectiveness of clinical and laboratory features of the course of purulent surgical soft tissues against the background of diabetes mellitus. 166 patients with purulent surgical diseases of soft tissues were studied. Group I consisted of 40 patients with no diabetes mellitus, group II 43 patients were on the background of diabetes mellitus. The results of the study showed: the timing of normalization of the criteria for assessing the wound process and indicators of general intoxication of the organism of groups I and II were 3 days late in patients with purulent surgical diseases of soft tissues against the background of diabetes mellitus than in patients without concomitant disease diabetes mellitus.

Key words: purulent wounds, wound treatment, intoxication, wound healing, diabetes mellitus.



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Relevance. The problem of treating surgical infection of soft tissues against the background of diabetes mellitus remains relevant to the present day. This is due to an increase in the number of patients with diabetes mellitus and an increase in purulent-inflammatory complications in them. It is the development of purulent complications in patients with diabetes mellitus that often cannot be avoided without surgical interventions, the postoperative mortality of which is high - up to 20% [3,5] .

The course of the purulent process in patients with diabetes mellitus is determined by a number of features: a pronounced tendency to rapid local progression and necrosis, the serious condition of patients associated with decompensation of diabetes and general manifestations of surgical infection, the influence of late complications of diabetes and concomitant diseases on the course and outcome of surgical infection. It is believed that diabetes mellitus slows down the course of repair due to a defect in the inflammatory process long-term resorption of necrotic masses in the wound, inhibition of proliferation of connective tissue structures [3,4,6] The problem of stimulating reparative processes and combating pathogenic microflora in a purulent wound in patients with diabetes mellitus remains extremely pressing, despite the variety of means and methods proposed for this purpose. It should be noted that the vast majority of treatment methods are mainly designed for direct effects on the microbial flora.

This approach excludes the assessment of the histo- and organotypic capabilities of tissue structures, including the study of the corrective effects of a number of substances that directly affect reparative histogenesis and stimulate adaptive, protective (ultrastructural, cellular and tissue) capabilities [7,8,9].

Scientists of Uzbekistan are concerned about the insufficient diagnosis and registration of complications of diabetic nephropathy and diabetic retinopathy in Bukhara, Khorezm regions, the Republic of Karakalpakstan, insufficient diagnosis and registration of macroangiopathies in Bukhara,

Navoi, Khorezm regions, and the Republic of Karakalpakstan. There is practically no achievement of target glycemic levels in all regions, intensive insulin therapy is not sufficiently prescribed in all regions, and biguanide preparations among patients with type 2 diabetes in all regions, which contributes to an increased risk of diabetes complications. There is a lack of alertness among doctors regarding macrovascular diabetic complications and the treatment of arterial hypertension; drugs of angiotensin- converting enzyme inhibitors are not sufficiently prescribed (especially in the Khorezm region and the Republic of Karakalpakstan), which help prevent complications of diabetes, and in particular diabetic nephropathy. Analysis of register data for four regions of Uzbekistan showed insufficient work on the diagnosis, treatment and prevention of complications of diabetes mellitus [1,2].

The purpose of this study: to analyze the effectiveness of clinical and laboratory features of the course of purulent surgical soft tissues against the background of diabetes mellitus.

Materials and methods. Data from the examination and treatment of 83 patients with purulent soft tissue wounds of various etiologies who were treated in the purulent surgical department of the clinical base of the Bukhara State Institute in 2019-2023 were analyzed.

All patients, depending on the method of treatment, were divided into 2 groups: Group I – patients with purulent surgical diseases of soft tissues without concomitant endocrine diseases. Group II – patients with purulent surgical diseases of soft tissues with concomitant diabetes mellitus.

The general condition of the patients upon admission, in most cases, was of moderate severity. According to clinical and laboratory data, the phenomena of general intoxication prevailed: increased body temperature or persistent low-grade fever, pallor, low mobility, tachycardia against the background of a weak pulse, increased blood ESR, leukocytosis and a shift of the formula to the left.

In parallel with the general symptoms, local manifestations of the disease were expressed: hyperemia, swelling and tissue infiltration in the wound area. Deep painful infiltration was determined by palpation. In patients with postoperative purulent complications, heavy purulent discharge from the wounds was observed when sutures were removed.

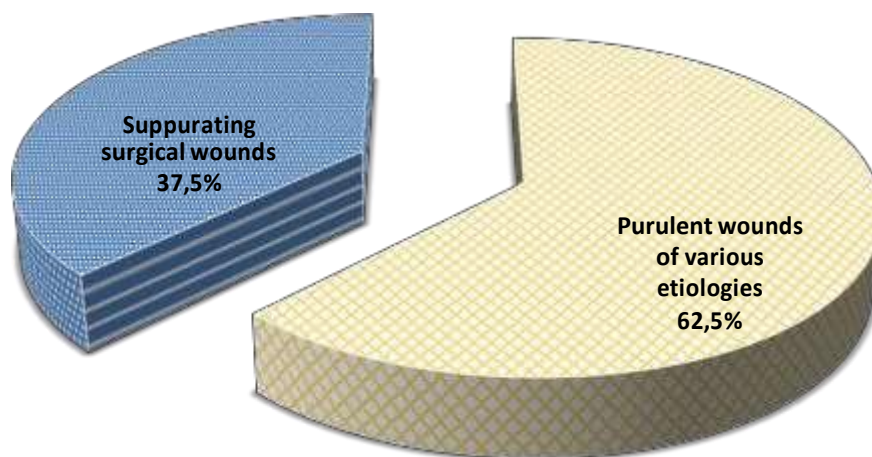
Correction of blood sugar levels in patients of group II was carried out jointly with an endocrinologist.

Clinical, laboratory and instrumental research methods.

An objective assessment of the course of general and local manifestations of the process was carried out according to subjective indicators (the nature of the wound discharge, resorption of the infiltrate, the condition of the wound edges, features of the development of granulation tissue and epithelization) and according to objective signs (body temperature, general clinical blood test, leukocyte index of intoxication, concentration of medium molecular peptides in blood serum).

Results and their discussion.

Group I included 40 patients with purulent diseases of soft tissues. Of these, 25 (62.5%) had purulent wounds of various etiologies, and 15 (37.5%) patients had purulent postoperative wounds



(Figure 1).

Figure 1. Distribution of patients in group I by etiological factors

Of the 15 patients with suppuration of postoperative wounds, in more than 80% of cases, patients were admitted within 3 to 10 days after the onset of the disease. In most of them, purulent wounds were localized in the torso - 8 (53.3%), lower limb - 3 (20%), upper limb - 2 (13.3%), perineum - 2 (13.3%) patients (Figure 2).

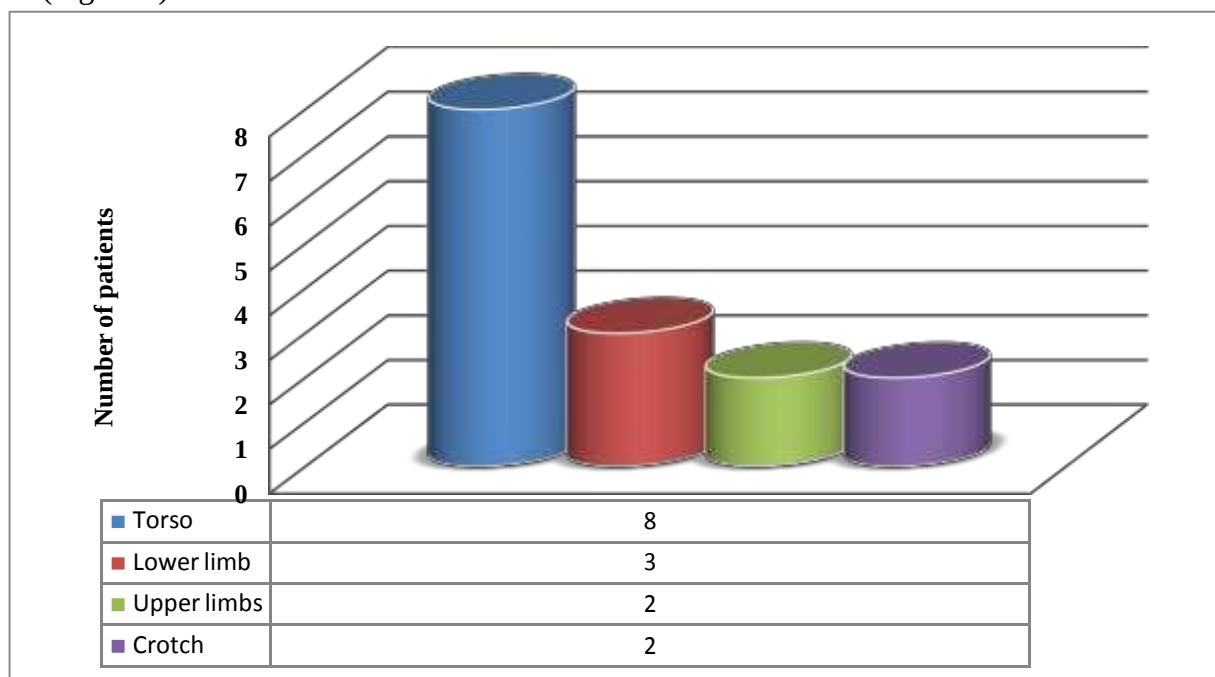


Figure 2. Distribution of patients in comparison group I with purulent wounds according to their location

Analysis of the results of intoxication of the body of patients with purulent diseases of soft tissues of the I– comparison group revealed the following changes (table 1). As can be seen from the table, on the first day of treatment the body temperature of the patients averaged $39.2 \pm 0.080^\circ\text{C}$. The content of blood leukocytes was on average $10.2 \pm 0.62 \times 10^9/\text{l}$. The volume of average molecules averaged 0.254 ± 0.016 units. Similarly, there was an increase in LII and ESR.

Table 1

**Dynamics of intoxication indicators in patients with purulent
soft tissue diseases I – comparison group (n=80)**

Indicators	Observation time				
	day of admission	3 day	5 day	7 day	9-10 day
t ⁰ body	39,20,08	38,60,07***	36,80,04***	36,60,06**	36,60,05
L blood ×10 ⁹ /l	10,20,62	9,50,34**	7,50,42	5,90,37	5,00,44
MSM un.	0,2540,016	0,1520,006***	0,1040,004***	0,0880,005**	0,0560,007***
LII un.	2,90,17	1,90,08***	1,00,08***	0,90,03***	0,80,02
ESR mm/h	54,32,48	42,11,55***	25,31,43***	12,30,87***	8,20,49***

Note:* - the differences relative to the data of the previous day are significant (* - P<0,05, ** - P<0,01, *** - P<0,001)

On the third day of treatment, a slight decrease in body temperature was noted to 38.6 ± 0.07 , the number of blood leukocytes decreased to an average of $9.5 \pm 0.34 \times 10^9/l$. The volume of average molecules averaged 0.152 ± 0.006 units. There was a decrease in LII and ESR to 1.9 ± 0.08 and 42.1 ± 1.55 , respectively.

By the fifth day of treatment, patients in the comparison group with purulent diseases of the soft tissues remained slightly subfebrile ($36.8 \pm 0.040^\circ C$). At the same time, for all indicators of body intoxication: L, MSM, LII and blood ESR, their further decrease was noted, that is, there was a tendency towards normalization - $7.5 \pm 0.42 \times 10^9$; 0.104 ± 0.004 ; 1.0 ± 0.08 ; 25.3 ± 1.43 respectively.

With further treatment and observation, by the tenth day, all analyzed indicators of intoxication, except for blood ESR, were within normal limits.

Dynamic control of the level of microbial contamination of purulent wounds in patients of this subgroup revealed the following: at the time of admission, microbial contamination, on average, was 108 mb/g, on the next day after surgical treatment of the wound with the application of an ointment dressing, its value was 105 mb/g. By the 4th day of complex treatment in these patients, the degree of microbial contamination was below the critical level and amounted to 102 mb/g of tissue.

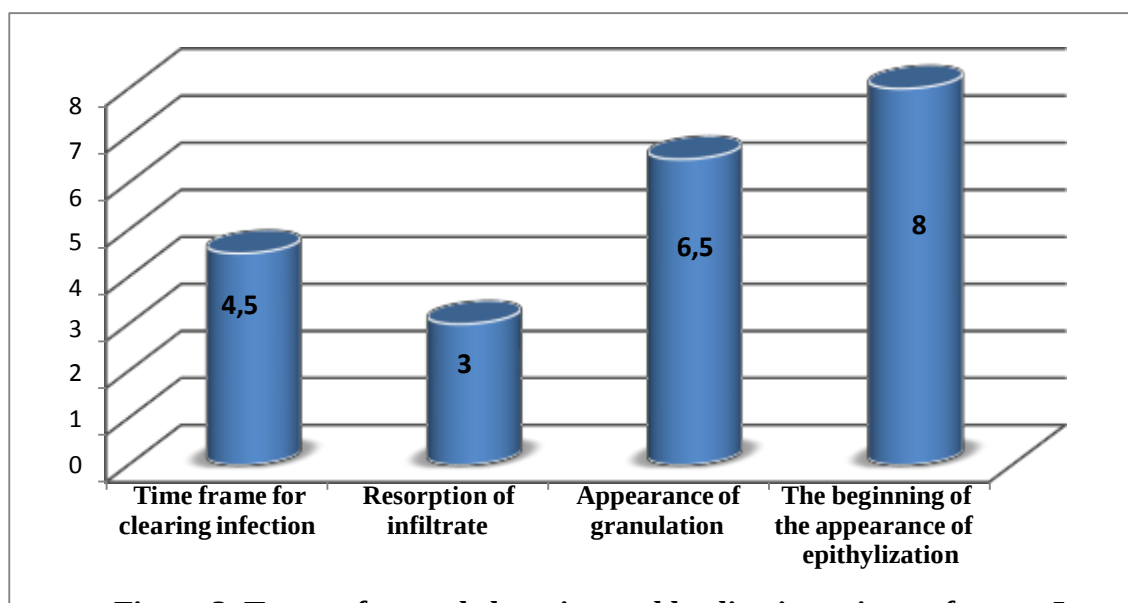


Figure 3. Terms of wound cleansing and healing in patients of group I comparisons with purulent-necrotic diseases (n=40)

The data shown in figure 3 indicate that in patients in the analyzed group, wounds were cleared of infection on average by 5.5 ± 0.8 days. By the third day, resorption of infiltrates was noted. The beginning of the appearance of granulations was noted, on average, on the fifth or sixth day. These data were confirmed by cytological studies. Thus, on the third day, in cytological preparations a large number of destructive and degeneratively changed leukocytes were determined, mainly with an incomplete and perverted type of phagocytosis.

The results of the study of group II patients revealed the following: of the 43 patients examined, 24 (55.8%) had purulent wounds of various etiologies, and 19 (44.2%) patients had purulent postoperative wounds (figure 4). Upon admission, all the patient's wounds were in phase I of the wound process. All patients with purulent diseases of soft tissues had the purulent focus opened on the day of admission, as in the previous group.

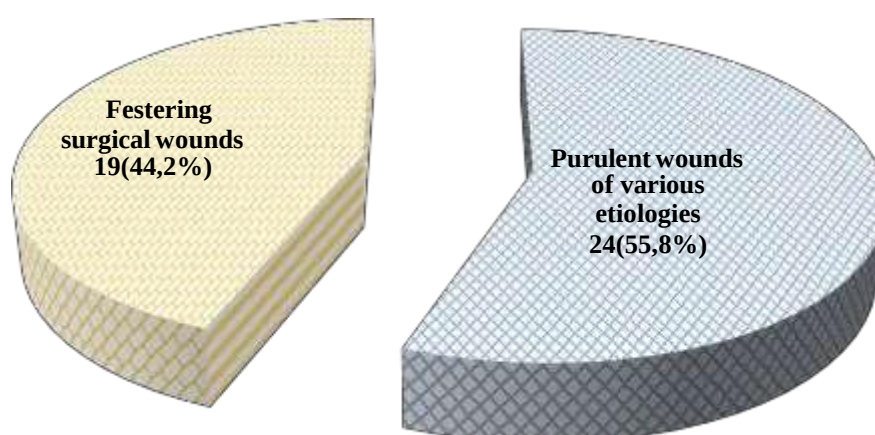


Figure 4. Distribution of patients in group II by etiological factors (n=43)

Analysis of the localization of purulent wounds showed that in the majority of the examined patients,

purulent wounds were localized in the torso - 14 (32.5%), lower extremities - 21 (48.9%), upper extremities - 5 (11.7%), perineum – in 3 (6.9%) patients (Fig. 5).

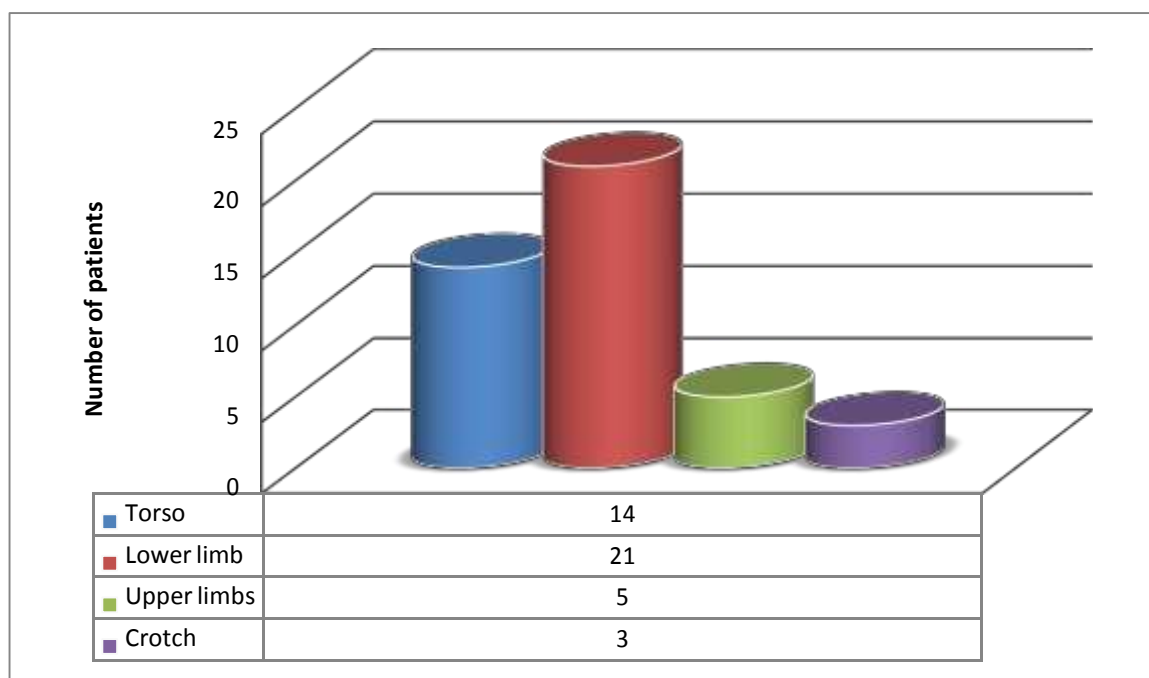


Figure 5. Distribution of comparison group II patients with purulent wounds according to their location (n=43)

Most patients 41 (95.3%) had type II diabetes mellitus, 2 (4.7%) patients had type I diabetes mellitus.

On the day of initial admission, the blood sugar level of patients in group II averaged 13.9 ± 1.4 mmol/l. In the process of complex treatment with specific therapy for diabetes mellitus with the participation of an endocrinologist, the blood sugar level in dynamics by 5-6 days decreased to 6.9 ± 0.8 mmol/l. Insulin therapy was carried out taking into account the individual characteristics of each patient.

As can be seen from the table, on the first day of treatment the body temperature of the patients averaged $38.4 \pm 0.420^\circ\text{C}$. The content of blood leukocytes was on average $9.1 \pm 0.29 \times 10^9/\text{l}$. The volume of average molecules averaged 0.201 ± 0.007 units. Similarly, there was an increase in LII and ESR.

Table 2

Dynamics of intoxication indicators in patients with purulent soft tissue diseases II – comparison group (n=43)

Indicators	Observation time				
	day of admission	3 day	5 day	7 day	9-10 day
t^0 body	38,40,42	38,10,17*	37,70,19*	37,20,11	36,70,12*
L blood $\times 10^9/\text{l}$	9,10,29	8,80,41*	8,20,36	7,90,35	7,10,11
MSM un.	0,2010,007	0,1780,007**	0,1510,004	0,1410,002*	0,1320,006**
LII un.	2,40,07	2,10,06*	1,80,07	1,60,06	1,30,06***
ESR mm/h	51,22,12	42,41,51*	34,71,52*	28,7 $\pm$ 1,14***	22,50,72***

Note: * - the differences relative to the data of the previous day are significant (* - $P < 0,05$, ** - $P < 0,01$, *** - $P < 0,001$)

On the third day of treatment, a slight decrease in body temperature was noted to 38.1 ± 0.17 , the number of blood leukocytes decreased to an average of $8.8 \pm 0.41 \times 10^9/l$. The volume of average molecules averaged 0.178 ± 0.007 units. There was a decrease in LII and ESR to 2.1 ± 0.06 and 42.4 ± 1.51 , respectively.

By the fifth day of treatment, patients in the comparison group with purulent diseases of the soft tissues remained slightly subfebrile ($37.7 \pm 0.190^\circ\text{C}$). At the same time, for all indicators of body intoxication: L, MSM, LII and blood ESR, their further decrease was noted, that is, there was a tendency towards normalization - $8.2 \pm 0.36 \times 10^9$; 0.151 ± 0.004 ; 1.8 ± 0.07 ; 34.7 ± 1.52 respectively. By the seventh day of treatment, these figures, although they tended to further decrease, remained above normal.

With further treatment and observation, by the tenth day, all analyzed indicators of intoxication, except for blood ESR, were within normal limits.

An analysis of the level of microbial contamination of purulent wounds in patients of this group revealed the following: at the time of admission, the microbial contamination, on average, was 108 mt/g; on the next day after surgical treatment of the wound with the application of an ointment dressing, its value was 105 mb/g. By the 7-8th day of complex treatment in these patients, the degree of microbial contamination was below the critical level and amounted to 102 mb/g of tissue.

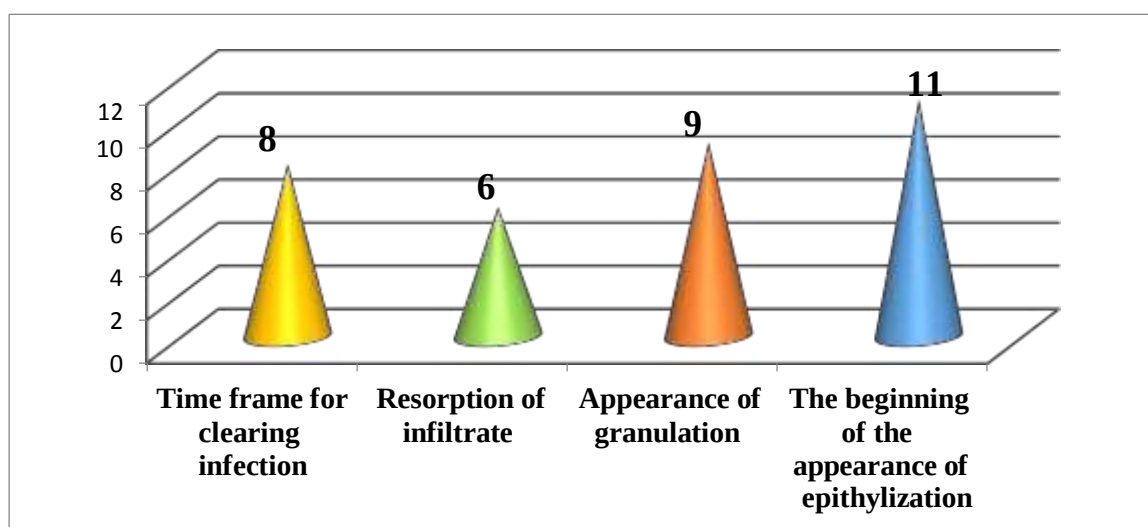


Figure 6. Terms of wound cleansing and healing in patients of group II comparisons with purulent-necrotic diseases (n=43)

The results of the analysis of the terms of wound cleansing and healing in patients of group II, shown in Figure 6, indicate that in patients of the analyzed group, wound cleansing from infection occurred on average by 8.0 ± 0.5 days. By the sixth day, resorption of infiltrates was noted.

In this case, the beginning of the appearance of granulations was noted, on average, on the seventh or eighth day.

Thus, our study of patients with purulent-necrotic diseases of soft tissues revealed the following features of the course of the wound process with the traditional method of treatment against the background of diabetes mellitus: the blood sugar level on the day of admission averages 12.8 ± 1.1 , the transition of the wound process to The 3rd phase begins on the 7-8th day of treatment; all these indicators during the treatment process with positive dynamics have a certain correlation with each other.

A comparative analysis of the terms of normalization, criteria for assessing the wound process and indicators of general intoxication of the body of group I and group II revealed that patients with purulent surgical diseases of soft tissues on the background of diabetes were 3 days later than patients without

concomitant endocrine diseases.

CONCLUSIONS:

1. The course of the wound process in patients with purulent surgical diseases of soft tissues against the background of diabetes mellitus has its own characteristics.
2. Indicators of general intoxication of the body: body temperature, blood leukocytes, average molecular weight of blood and ESR are one of the main criteria for assessing the difference between purulent surgical diseases of soft tissues against the background of diabetes mellitus and without concomitant diseases.
3. Normalization of indicators of general intoxication of the body and the timing of cleansing and healing of the wound with the traditional method of treatment against the background of diabetes mellitus recedes by 3 days, which requires continued research in this direction.

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