

The Choice of Method of Surgical Correction of Complicated Forms of Diabetes Type-2

Okhunov AO^{1*}, Azizova P.Kh², Razzakov Sh.R³ and Okhunova DA⁴

¹Doctor of Medical Sciences, Head of the Department of General and Pediatric Surgery

²Associate Professor of the Department of Endocrinology

³Assistant of the Department of General and Pediatric Surgery

⁴Resident Magistracy in Neurology

Type 2 diabetes is a chronic disease. In terms of growth rates, such as disease, AIDS, tuberculosis, and malaria. Frightening diabetes in the young. According to some data, it's estimated that there has been a 20% reduction in the rate of 20%. It is known that the most frequent complications of type 2 diabetes are: 2-4 times increased risk strokes, Coronary heart disease - 80% of patients with diabetes have suffered myocardial infarction, Diabetic nephropathy - the main cause of chronic renal failure diabetic retinopathy main cause of blindness, diabetic angioneuropathy - the main cause of amputation.

The number of limb amputations due to the development and progression of the necrotic process is steadily increasing. It has been proven that the most frequent amputation operations are continuously associated with the development of diabetic foot syndrome. The data of our Republic testify that the most frequent cause of death among patients with diabetes of the second type is the development of chronic heart failure, acute disorders of cerebral circulation, myocardial infarction. As can be seen from the slide, all of them are associated with vascular changes occurring in patients with diabetes mellitus.

In recent years, the growth of diabetes mellitus on the background of obesity, in the form of metabolic syndrome, has been observed more and more in the world. In this case, prognostic information suggests a possible increase in the number of patients suffering from this pathology. Moreover, its growth is observed among women more than men.

In our clinic, over the past 10 years, 1990 patients with various forms of diabetic foot syndrome who were undergoing treatment and examination at the clinic of the Republican Specialized Scientific Practical Medical Center. The prevailing contingent was men with a neuroischemic form of diabetic foot syndrome.

The main period of the duration of diabetes was more than 10 years. In total, 1990 patients were diagnosed with 3258 concomitant diseases. Often these pathologies were combined. The average burden of concomitant diseases per patient was in the order of 1.6 species. The greatest number of systems affected by concomitant

*Corresponding author:

Okhunov AO, Doctor of Medical Sciences, Head of the Department of General and Pediatric Surgery, Tashkent Medical Academy (Tashkent, Republic of Uzbekistan), E-mail: general-surgery@mail.ru

Submitted: 06 June 2019; Accepted: 11 June 2019; Published: 18 June 2019

diseases was from the cardiovascular and urinary systems. The basic principles of conservative treatment consisted in optimizing metabolic control, antibiotic therapy, unloading the affected limb, local wound treatment, and correcting violations of the rheological properties of blood. The correlation analysis of the indicators of the above presented clinical material allowed us to select the most significant criteria, which to a certain extent reflected both the state of the purulent-necrotic process and the prognostic variants of its completion in the form of the probability of hip amputation. We have identified 5 options for the probability of hip amputation in the form of its absence, low, moderate, high, and very high.

Among the most significant indicators selected, 8 were quantitative and were determined at an early diagnostic stage. Their distribution was both direct and inverse correlation. It should be noted that the correlation dependence of quantitative indicators equally reflected a certain level of probability without index deviations. Another 8 indicators were qualitative in nature and were determined both at an early diagnostic stage and in the dynamics of the treatment. Their distribution and correlation supplemented the obviousness of decision making, not only during the initial examination of the patient, but also in assessing the effectiveness of the treatment in the form of positive or negative dynamics.

The developed mathematical models were the basis for creating innovative software modules in the form of copyright evidence on methods for predicting the probability of limb amputation during necrotic necrosis lesions of the neuroischemic and neuropathic forms of diabetic foot syndrome. Under the conditions of a no specialized multidisciplinary medical institution, these methods make it possible to forecast the probability of limb amputation and make the appropriate decision on the further tactics of treating patients.

When analyzing the characteristics of the recurrence of ulcer formation, all patients were divided into the following subgroups: The first subgroup - patients who completed treatment without amputation of toes, the second subgroup - patients who completed treatment with amputation of the first toe, the third subgroup -

patients who completed treatment with amputation of the II-V toes and the fourth subgroup - patients who completed treatment with amputation of all toes. Of the total number of patients who were under observation in the long-term treatment period, the ulcer formation was prevalent with relapse of the ulcer in 4 subgroups.

The analysis of the recurrence of ulcer formation on the affected side in patients with different outcomes of surgical methods for treating diabetic foot syndrome showed a generality of a high incidence of the pathological process on the affected side during non-amputation operations than in cases of finger amputation. Recurrence of ulceration on the contra lateral limb prevailed in patients of 3 and 4 subgroups. This was associated with an increase in the load on the contra lateral limb, subject to amputation of the toes.

In the long-term treatment period, the recurrence of ulcer formation on both limbs acquires ability to form in patients with amputated fingers and a lower probability in patients under the condition of treatment without amputations. Thus, studies have shown that among the factors affecting the quality of life and, accordingly, the course of the disease, in the long-term follow-up of patients are the most impressive:

1. Ulcer formation,
2. Its depth and microbial contamination,
3. Degree of limb ischemia,
4. The presence and appearance of a common purulent-septic complication,
5. Type of inflammatory process.

These factors must be considered when optimizing the tactics of surgical methods of treatment of various clinical and pathogenetic forms of diabetic foot syndrome. In this aspect, the use of pedobarographic diagnosis and, accordingly, the use of corrective measures or algorithms affecting the baromechanics of the support function of the foot, in our opinion, can reduce the risk of recurrence of ulcer formation and improve the quality of life of patients.

The second half of the last century was marked by the beginning of the development of bariatric surgery. Studies in this area have revealed the possibility of compensation for type 2 diabetes and hyperlipidemia. The observed beneficial effect of bariatric surgeries in disorders of carbohydrate and lipid metabolism allowed H. Buchwald and R. Varco in their 1978 «Metabolic Surgery» monograph to formulate the concept of metabolic surgery «as a surgical control of a normal organ or system in order to achieve a biological result of improved health». However, a focused Assessment of the effectiveness of bariatric operations in the treatment of type 2 diabetes mellitus was made by W. Pories.

In April 2019, at the 4th World Congress on Interventional Methods for the Treatment of Type 2 Diabetes, global clinical guidelines for the surgical treatment of diabetes were developed. The main life-motive of the conclusions was based on the widespread introduction of operations intended previously as exclusively bariatric. These recommendations were made on the basis of a large number of biological and clinical research results, including numerous randomized clinical trials, controlled long-term clinical observations, mechanistic studies and economic analysis. It was also recommended when determining indications for bariatric operations to carefully study and evaluate the role of factors that may predispose

to decomposition of type 2 diabetes in the long term, for example, the history of diabetes history, the duration of insulin therapy, the role of lipid disorders, the optimal level of C-peptide, which determines long-term forecast, etc.

Considering the above, the purpose of our study: to determine the influence frequency of various variants of metabolic surgical interventions on the course of the ulcerative-necrotic process of the lower extremities in patients with type 2 diabetes. The results of the examination and treatment of 85 patients with ulcerative necrotic lesions of the lower extremities who underwent various metabolic surgical procedures were analyzed. Among the men surveyed there were 32 (37.6%), women - 53 (62.4%). The average age ranged from 46 ± 12.5 years. The average history of the diagnosis of diabetes was 12 ± 2.5 years.

Pre-operation survey of patients

1. General clinical blood test (with platelets) and urinalysis
2. Glycated hemoglobin, C-peptide, the conclusion of the endocrinologist
3. Coagulogram (APTT, thrombin time, fibrinogen, INR), blood type and Rh factor
4. RW, hepatitis B and hepatitis C, HIV, according to indications, consultation of a dermatologist and infectious disease specialist
5. ECG, according to indications - echocardiography
6. Conclusion of x-ray of the chest
7. Biochemical analysis of blood (Glucose, Bilirubin, Creatinine, Urea, Uric Acid, High-Density Lipoproteins, Triglycerides, ALT, AST)
8. Ultrasound examination of the abdominal cavity and veins of the lower extremities, for women - pelvic ultrasound
9. Gastroscopy
10. Blood type, Rh factor

58 (68.2%) patients underwent «Ileal Interposition» operations, and 27 (31.8%) patients had «transit bipartition». Such an approach for the choice of surgical intervention made it possible to avoid the development of malabsorption syndrome. As you know, this frees patients from lifelong intake of biological supplements in the form of vitamins and minerals. The glycemic efficiency of the performed operations showed the achievement of the results of remission as the most frequent options for completing the treatment of patients.

In the postoperative period, 78 (92%) patients achieved complete control of the blood glucose level. Only 4 patients (4.7%) used only 1, and 2.3% - 2 ant hyperglycemic agents to ensure control of blood glucose levels. One patient required the use of a daily single dose of insulin. In the long-term postoperative periods, the regression of the necrotizing process was characterized by positive dynamics in the form of a decrease of manifestation process degree or completes scarring of the latter.

It should be noted that as early as 10 days after the operation, necrotic processes of the 3rd degree we did not meet. Also progressively decreased 2 degrees of damage. On the 30th day after «ileal interposition» was performed, 68.5% of patients were marked against the background of remission of diabetes mellitus of the ulcer-necrotic process.

After performing the «transit bipartition» operation, this indicator was slightly lower and amounted to 55.3%. However, nevertheless,

as in the above case, patients with grade 3 of the ulcerative-necrotic process were already eliminated on the 10th day of the postoperative period.

Thus, clinical data demonstrate that surgery can be considered as an alternative to drug therapy for type 2 diabetes. According to the

mechanism of action, it is close to the effects of drugs of groups of incretin-mimetics, including glucagon-like hormone-1 receptor agonists and dipeptidyl peptidase inhibitors. This option in milder forms of ulcerative-necrotic complications diabetic foot syndrome also contributes to the achievement of the desired results.

Copyright: ©2019 Okhunov AO. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.