

# Assessment of the quality of life of patients with type 2 diabetes mellitus with diabetic foot syndrome after reconstructive surgery

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**Abstract:** Diabetes mellitus (DM) is a paramount and rising medical challenge in both industrial and emerging nations. It represents a serious medical and social problem, which is due not only to its high prevalence, chronic course, which determines the accumulation of a contingent of patients with diabetes, but also to a large number of complications and a high degree of disability.

**Key words:** diabetes mellitus, diabetic foot, hyperglycemia, reconstructive surgery, quality of life.

Diabetes mellitus (DM) is the most common endocrine disease that has already become a non-communicable epidemic worldwide. The number of people with diabetes is doubling every 10-15 years. DM is characterized by early disability and high mortality due to the development of late vascular complications. This circumstance puts DM in a number of socially significant diseases.

More than 70% of diabetic patients develop various complications, including diabetic foot syndrome (DFS), a complex set of anatomical and functional changes in tissues against the background of diabetic micro- and macroangiopathy, neuropathy, and osteoarthropathy. It is generally accepted that the leading factors leading to foot damage in diabetes are peripheral neuropathy, foot deformities with the formation of high pressure zones, and peripheral atherosclerosis of the vessels of the lower extremities. In almost half of patients, SDS is complicated by the development of purulent-necrotic processes on the foot, which in 50–75% of cases leads to amputation at various levels. The frequency of amputations in patients with DM, according to various sources, is 17–45 times higher than in people without DM; up to 30% of patients after the first amputation undergo amputation of the second limb within the next 3 years, and up to 50% within 5 years. The average life expectancy in the postoperative period is 5 years after amputation of one limb and 1 year after amputation of two limbs.

The use of modern diagnostic methods allows the doctor to adopt the correct tactics for the treatment of SDS. So, at present, in addition to the generally accepted types of treatment - surgical debridement, prescription of antibacterial drugs, unloading regimen and conservative correction of arterial blood flow - reconstructive surgeries are used, such as balloon bypass grafting and placement of a stand on the ischemic segment of the vessel.

Despite the fact that today many questions of diabetology have already been answered regarding the tactics of treatment and prevention of complications of the disease, diabetes remains a serious problem, including because it has a pronounced negative impact on the quality of life (QoL) of patients [Glasgow RE et al. al., 1997, Isla Pera P. et al., 2011]. A decrease in QOL in diabetes is associated not only with a deterioration in health due to late complications, but also with various psychopathological conditions (for example, depression), changes in the nature of social contacts and habitual lifestyle [Jacobson AM et al., 1994, Goldney RD et al., 2004, Schram MT et al., 2009, Egede LE et al., 2010, Prolonsky WH., 2002]. Currently, QoL is considered as an important indicator of health, and its improvement is one of the key tasks of public health.

**Purpose of the study:** To assess the quality of life of patients with neuroischemic form of diabetic foot syndrome before and after reconstructive surgery.

**Material and methods:**

The collection of clinical data was carried out on the basis of the Republican Center for Purulent Surgery and Surgical Complications of DFS of the TMA multidisciplinary clinic. 116 people with diabetic foot syndrome were examined. Of these, 87 men and 29 women, mean age 65.2±2.7 years. The control group consisted of 10 healthy individuals (7 women and 3 men). All examined on the basis of anamnesis, results of clinical and laboratory-instrumental research methods were divided into 2 groups: neuropathic (70 patients -60%) and neuroischemic (46 patients -40%). All patients underwent Doppler ultrasound and MSCT of the vessels of the lower extremities.

All patients underwent reconstructive intervention, namely, transluminal balloon angioplasty with stenting. We have studied the data of the survey on the SF36 questionnaire (assessment of the quality of life) in patients with neuroischemic form of DFS.

According to the questionnaire, we evaluated the following indicators.

1. Physical functioning (PF).
2. Role (physical) functioning (RP).
3. Pain (P).
4. General health (GH).
5. Viability (VT).
6. Social functioning (SF).
7. Emotional functioning (RE).
8. Mental health (MH).

**Results and its discussion:**

According to the Fontaine-Lerish-Pokrovsky classification, 27 patients (59%) had stage III circulatory disorders, 19 (41%) had stage IV. All patients were offered reconstructive surgery with balloon bypass grafting. 12 patients refused surgery. They underwent standard drug therapy (hyperglycemic, antibacterial, motor unloading of the foot, vascular therapy, local dressings, detoxification therapy). In both groups, a survey was conducted using the SF36 QoL questionnaire. Before treatment and 3 months after treatment.

Table 1 presents the average values of the results of the questionnaire survey on the SF36 questionnaire before and after reconstructive interventions (after 3 months) in the group of patients with neuroischemic form of DFS. The indicators were compared both with each other and with the control group, which consisted of 10 patients with type 2 diabetes of moderate severity.

**Table 1**  
**Indicators of quality of life parameters before and after reconstructive interventions and drug treatment.**

<b>Indicators</b>	<i>Before reconstructive interventions n=34</i>	<i>Control n=10</i>	<i>After reconstructive interventions n=34</i>	<i>Before medical treatment n=12</i>	<i>After drug treatment n=12</i>
<b>Physical Functioning (PF)</b>	32	79	49	34	40
<b>Role Functioning (RP)</b>	33	64	40*	30	37
<b>Social Functioning (SF)</b>	59	68	68*	59	60
<b>Pain( P)</b>	36	65	56*	35	42

<b>Mental Health (MH)</b>	60	58	62	58	60
<b>Emotional functioning (RE)</b>	37	67	55*	37	50
<b>Viability (VT)</b>	52	56	57*	52	54
<b>General Health (GH)</b>	37	52	45	36	40

Note: \*-  $p \geq 0,001$

As can be seen from the table, the quality of life of patients after direct reconstructive surgery increases in all respects, but does not reach the level of indicators of the control group of a healthy population, except for the factor of social activity, mental health and vitality.

The table shows the indicators of QoL in patients in the group receiving drug treatment.

As can be seen from Table 1, the quality of life indicators have improved in such parameters as PF, RP, P, RE unreliably.

Indicators of social functioning and psychological health remained virtually unchanged.

### Conclusions:

The quality of life of patients with type 2 diabetes mellitus after reconstructive surgery increases in all respects relative to both the control group and the group of patients taking medication.

### Literature:

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