Bektashev I.B. student
6 course of the Faculty of General Medicine
YusupovaSh.K. PhD., associate professor.
Head of the Department of Endocrinology and Hospital Therapy
ValievaV.Yu.,
senior lecturer of the department GP №1.
Abduvalieva G.T.,
assistant of the department GP №1.
YaminovaN.Kh.,
assistant of the department GP №1.
Andijan State Medical Institute
Andijan Uzbekistan

COMPLICATIONS OF DIABETES MELLITUS WITH DIABETIC FOOT SYNDROME

Summary. Diabetes mellitus (DM) is one of the most common chronic diseases in the world. Recently, this disease has begun to be studied as a social problem that is becoming more and more urgent. This is due to the fact that there is an increase in the number of people suffering from diabetes mellitus, the chronic nature of the course of the disease, the development of various complications that lead to a decrease in the quality of life and a reduction in its duration.

Key words: Diabetic foot syndrome (SDS), disability, arterial hypertension, dyslipidemia, nephropathy and retinopathy.

Бекташев И.Б. студент
6-курса лечебного факультета
Юсупова Ш.К. к.м.н., доцент.
Заведующий кафедрыэндокринологии и госпитальной терапии
Валиева В.Ю.,
старший преподаватель кафедры ВОП №1.
Абдувалиева Г.Т.,
ассистент кафедры ВОП №1.
Яминова Н.Х.,
ассистент кафедры ВОП №1.
Андижанский государственный медицинский институт
Андижан Узбекистан

ОСЛОЖНЕНИЯ САХАРНОГО ДИАБЕТА СИНДРОМ ДИАБЕТИЧЕСКИЙ СТОПИ

Резюме. Сахарный диабет (СД) входит в число самых распространенных в мире хронических заболеваний. В последнее время эта болезнь стала изучаться как социальная проблема, становящаяся все более актуальной. Это связано с тем, что происходит увеличение количества людей, страдающих сахарным диабетом, хроническим характером течения болезни, развитием разного рода осложнений, которые приводят к снижению качества жизни и сокращению ее продолжительности.

Ключевые слова: Синдром диабетической стопы (СДС), инвалидизации, артериальной гипертонии, дислипидемии, нефропатии и ретинопатии.

Conclusion. Diabetic foot syndrome (DFS) – combines pathological changes in the peripheral nervous system, arterial and microcirculatory bed, bone and joint apparatus of the foot, which pose an immediate threat or the development of ulcerative necrotic processes and gangrene of the foot (2 Ross klinrecom 2019).

DFS leads to purulent-necrotic lesions of the feet with the subsequent loss of the lower extremities – to the highest disability. The final prevalence figures for DFS are currently unknown. Nevertheless, it was found that 15% of patients with DM develop pathological changes in the feet or ankle joint [4]

Diagnosis of neuropathy – assessment of complaints on the TSS and NSS scales (indicators of neuropathic symptomatic counting), study of pain, tactile, vibration and temperature sensitivity (prick with a blunt needle on the back of the big toe, monofilament 10 g, graduated tuning fork, biotesiometry), their assessment on the NDS scale (indicators of neuropathic functional counting), assessment of tendon reflexes, electromyography. Study of autonomic imbalance – Holter monitoring of heart rate and daily monitoring of blood pressure.

Assessment of blood flow and microcirculation – finger examination of the arteries, determination of the shoulder–ankle index, ultrasound dopplerography (USDG) and segmental dopplerometry, ultrasound angioscanning (USAS),

transcutaneous oximetry ($TsrO_2$), laser Doppler flowmetry (LPF), polarography, computed capillaroscopy, radiopaque angiography, magnetic resonance angiography, multispiral computed tomography–angiography (MSCT–angiography), measurement of finger systolic pressure, stress tests (treadmill test), study of endothelium-dependent vasodilation (veno-occlusive plethysmography against the background of acetylcholine and nitroglycerin administration), rheolymphovasography, impedancometry, thermal imaging.

Principles of therapy. According to most authors, the treatment of patients with diabetic foot syndrome should involve a qualified endocrinologist, purulent surgeon, vascular surgeon, orthopedist, specially trained nursing staff, and comprehensive treatment should include general and local methods [5, 10,].

In the treatment of purulent-necrotic forms of DFS, all patients with DM of any type should be transferred to short-acting insulin therapy at least 4 (6) times/day. to stabilize the blood glucose level within 6-10 mmol/l (fasting glycemia 6-7 mmol/l, 2 hours after eating 9-10 mmol/l) or to the scheme of administration of prolonged insulin in the morning and evening and short-acting during the day. In the ischemic form, first of all, the question of the need and possibility of reconstructive vascular surgery is solved. In severe cases of diabetic gangrene, due to the risk of developing sepsis, extended surgical intervention is indicated at the earliest possible time, up to amputation.

Conservative therapy. In the treatment of diabetic neuropathy, preparations of a–lipoic acid are used – improving the trophy of neurons, regulating lipid and carbohydrate metabolism, antioxidant, hepatoprotective and detoxifying effects; tolperizone-a central-acting muscle relaxant that enhances peripheral blood flow; preparations of B vitamins, antidepressants, anticonvulsants, neuroleptics, aldoreductase inhibitors.

Treatment of disorders of the coagulation system and vasodilating effects (angioprotectors, disaggregants and rheological preparations) – acetylsalicylic acid, pentoxifylline, dipyridamole, clopidogrel, prostaglandins E1, heparin, low molecular weight heparins that do not require constant laboratory monitoring, heparin–sulfates –

lomoporan, sulodexide, reopoliglukin; antispasmodics – papaverine, drotaverine, nikoshpan.

Complex and step-by-step use of the drug Actovegin (parenteral, oral, local forms) allows you to maintain the continuity of treatment and achieve excellent results [8], but you should also remember about the dose dependence of the effect: according to many domestic and foreign authors, the daily dose of Actovegin should be at least 1000 mg. Actovegin effectively reduces the severity of neuropathic symptoms, improves the threshold of vibration sensitivity and the level of mental health in patients with DM, and also has an insulin-like effect, which leads to increased glucose consumption with a direct effect on cellular metabolism and energy balance in various cellular systems.

Antibacterial therapy. Taking into account the polymicrobial associative nature of the microflora of infected foci on the diabetic foot with the participation of several aerobic and anaerobic pathogens, in all cases, empirical antibacterial therapy with broad-spectrum antibiotics (cephalosporins, fluoroquinolones, lincosamides) is indicated, and when receiving the results of a bacteriological study, the prescriptions are corrected. Clinically and economically, it is also advisable to adhere to the step-by-step principle of therapy – the transition from the parenteral route of administration of the drug to the enteral one. The duration of antibacterial therapy in patients with extensive purulent–necrotic processes on the background of surgical treatment can be up to 10 weeks., the inadequacy of the choice of the drug, dose and duration of treatment can lead to the development of relapse or superinfection. The use of aminoglycosides in patients with DM should be avoided due to their nephrotoxicity and the risk of progression of nephropathy [9, 10,].

Against the background of DM, in addition to microbial associations, wounds are usually contaminated with fungi, more often with yeast (various types of Candida), so it is necessary to verify them and prescribe the appropriate antimycotic (fluconazole, voriconazole, caspofungin, etc.).

The purpose of the surgical manual for DFS is to preserve the patient's life, preserve the limb and its function. Surgical tactics are determined not only by the

severity and volume of the purulent-necrotic focus, but also by the form of the process. Surgical intervention should be timely, meet the principle of reasonable sufficiency (careful treatment of tissues, maximum preservation of foot function), should be carried out against the background of stabilization of the general condition of the patient, unloading of the affected limb, correction of carbohydrate metabolism disorders, antibacterial and pathogenetic therapy. It should be noted that the level of initial glycemia affects the result of the surgical aid. Emergency operations are performed only in the case of wet gangrene of the limb.

Conclusion. DM is a serious disease that can lead to severe socio-economic and demographic consequences. The impact of DFS on the quality of life remains poorly understood. The long-term costs associated with treating recurrent ulcers, performing repeated amputations, and increasing social care costs are unknown.

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