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ANALYSIS OF PREDICTORS OF LOWER EXTREMITY AMPUTATION IN PATIENTS WITH DIABETIC FOOT SYNDROME

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Relevance. Diabetic foot syndrome (DFS) is a severe complication of diabetes mellitus (DM) and the leading cause of non-traumatic lower limb amputations worldwide. Early detection of patients at high risk of amputations on an outpatient basis can prevent delays in referral to a doctor and reduce the frequency of such operations.

Aim: the main goal of this study is to identify clinical, laboratory, and organizational predictors associated with lower extremity amputation in patients with Diabetic Foot Syndrome.

Materials and methods. The research was carried out at the polyclinic № 34 in Minsk, Belarus. We analysed the medical records of 26 patients with a confirmed diagnosis of type 2 diabetes mellitus who underwent lower extremity amputation or reamputation procedures during the period from 2021 to 2025. All patients were on insulin therapy with a confirmed diagnosis of diabetic foot.

Results and their discussion. The study included 26 patients with diabetic foot syndrome who underwent lower extremity amputation. Gender distribution showed a predominance of men: 21 patients (80.7%) versus 5 women (19.3%). During the study period, 35 amputations were performed: 19 amputations of the toes (54.3%), 4 amputations of the foot (11.4%), 10 amputations below the knee (transtibial) (28.6%), 2 amputations above the knee (transfemoral) (5.7%). Primary amputation was performed in 23 cases (88.5%), secondary amputation in 10 cases (38.5%), and tertiary amputation in 2 cases (7.7%), indicating disease progression and insufficient effectiveness of initial treatment. Diabetic distal neuropathy was diagnosed in 100% of patients. Only 9 out of 26 patients (34.6%) received alpha-lipoic acid preparations 6–12 months prior to amputation, indicating inadequate use of neuroprotective therapy in this high-risk group. Low adherence to therapy, glycemic control, and dietary recommendations was noted in 16 patients (61.5%) according to endocrinologists' records. Foot examination by medical staff using a standardized protocol was performed in only 5 cases before the appearance of initial signs of diabetes decompensation (toe pain, wounds, numbness, etc.), indicating insufficient screening for diabetic foot syndrome. Only 16 patients (61.5%) had an appointment with an endocrinologist within 6 months prior to amputation; all 16 patients underwent therapy correction, but only 6 patients (23% of the total sample) were referred to a surgeon with a diabetic foot. Vascular surgeon consultation was prescribed to only 7 patients, despite the confirmed obliterating atherosclerosis of the vessels of the lower extremities in 24 patients (92.3%). Ultrasound Dopplerography of the lower extremity arteries was performed in only 10 patients (38.5%) 6–12 months before amputation: stenosis 80–90% — in 5 patients, stenosis 50–75% — in 5 patients. Vascular therapy in the day care unit and in the hospital, setting was administered to 12 patients (46.2%) within 6 months prior to amputation. In 3 cases (11.5%), glycated hemoglobin was lower than 7.0%, in 22 cases (84.6%) it was higher than 7.0%, and in 10 cases (38.5%) glycated hemoglobin was not controlled 6 months before amputation. The glucose level in 6 cases (23.1%) before surgery was 5.6–8.0 mmol/L, in 21 cases (80.8%) 9.0–15.0 mmol/L, and in 8 cases (30.8%) more than 15.0 mmol/L. Coronary artery disease (CAD) and arterial hypertension were diagnosed in 100% of patients. Diabetic nephropathy was identified in 6 patients prior to amputation: stage C3A3 — 3 patients, C3B — 1 patient, C4 — 2 patients.

Conclusion. Amputation predictors include severe comorbidities, poor glycaemic control (HbA1c >7%), low treatment adherence, lack of neuroprotective therapy, inadequate vascular diagnostics, and low specialist referrals. High repeat amputation rates demand secondary prevention: annual foot exams, glucose monitoring, alpha-lipoic acid, ultrasound, and surgeon consultations.