

## DIABETIC FOOT - A PUBLIC HEALTH PROBLEM

CARMEN NARCISA NATEA<sup>1</sup>

University "Lucian Blaga" of Sibiu

**Keywords:** diabetes mellitus (DM), amputation, education risk factories, prevention

**Abstract:** Diabetes mellitus is a major problem for individ, medicine and societies. Despite the progression made for the prevention and the treatment of diabetic chronic complications, amputations of lower-extremity is still a major health problem, with psychosocial implications and high costs. Diabetic foot is the mirror of diabetic chronic complications and cluster in a different proportions micro- and macroangiopathy, sensory, motor and autonomie neuropathy, osteo-arthritis and skin disorders. Amputations in diabetic patients represent 50% of nontraumatic amputations. The number of major amputations decreased but minor amputations are still frequent. 85% of amputations are preceded of foot ulcers and 15% of diabetic patients develop ulcer during their lifetime. Screening to identify the patients at risk, followed by specific education, good metabolic control and proper footwear play an important role in the prevention of foot ulcer and amputation. For patients with foot ulcer and/or amputation, therapeutic footwear promotes healing and walking (associated with other medical and surgical measures). It seems that among the serious and costly chronic complications of diabetes mellitus, such as cardiac disease, renal failure, and blindness, the complications of the foot are best represented: 40-70% of non-traumatic amputations of lower limbs are due to diabetes. Annually, 2% of diabetic patients will develop foot ulceration, while 15% will develop ulceration during their entire life. Amputation rate varies largely among countries and geographical regions. 15-19% of patients were reported to have undergone amputation with the diagnosis of diabetes mellitus at the time of the surgical intervention. Discussions regarding the complications of the diabetic foot are focussed on two major issues: foot ulceration and lower limb amputation. Combined, these two entities represent the cause of substantial medical effort, contributing at the same time to significant morbidity and mortality in diabetes mellitus. The link between diabetic ulceration and amputation of the lower limbs is unsoluble, taking into account the fact that ulcerations precede 85% of the amputations. Other risk factors for amputations include a very old diabetes mellitus, glycemic imbalance, peripheral neuropathy, peripheral vascular disease, history of ulceration, anterior amputation, retinopathy, and nephropathy.

**Cuvinte cheie:** diabet zaharat, picior diabetic, amputație, factori de risc, prevenire

**Rezumat:** Diabetul zaharat a devenit o problemă de importanță majoră pentru individ, medicină și societate. Cu toate progresele realizate în prevenirea și tratarea complicațiilor cronice ale diabetului, amputațiile membrelor inferioare continuă să reprezinte o problemă majoră de sănătate cu implicații psiho-sociale și costuri ridicate. Piciorul diabetic este oglinda complicațiilor cronice ale diabetului, asociind în proporții variate micro- și macroangiopatie, neuropatie senzitivă, motorie și vegetativă, tulburări tegumentare și osteoarticulare. În Declarația de la St. Vincent din 1989 se propunea o scădere cu 50% a amputațiilor la nivelul membrelor inferioare la pacienții cu diabet zaharat, obiectiv neîndeplinit până în zilele noastre. Complicațiile de la nivelul piciorului dețin cea mai mare pondere: 40-70% din amputațiile membrelor inferioare se datorează diabetului; 85% din amputațiile membrelor inferioare sunt precedate de ulcerare, anual 2% dintre pacienții diabetici pot dezvolta ulcerare, iar 15% din pacienții cu diabet dezvoltă ulcere în timpul vieții. Cei mai importanți factori care conduc la ulcerarea piciorului sunt neuropatia diabetică, traumele minore și deformarea piciorului. Alți factori de risc ai piciorului diabetic includ: vechimea diabetului, dezechilibrul glicemic, boala vasculară, istoricul de ulcerare, amputații anterioare, retinopatia și nefropatia. Rata amputațiilor poate fi redusă cu peste 50% dacă se aplică în mod regulat și corect măsurile de educație igienico-sanitare preventive la pacienții diabetici, prin diagnosticarea precoce a bolii vasculare periferice, abordarea multifactorială și multidisciplinară în cazul unei leziuni a piciorului.

## SCIENTIFIC ARTICLE OF BIBLIOGRAPHIC SYNTESIS

MOTTO: "I marvel that society will pay a surgeon a large sum of money to remove a person's leg, but nothing

to save it." G.B. Shaw

Amputation in diabetic patients is a study in chronic complications, one of the most debated and controversial issues is that of plantar ulcers and amputations default in patients with

<sup>1</sup>Corresponding Author: Carmen Narcisa Natea, Clinical Emergency Hospital Sibiu, Clinic of Diabetes, Nutrition and Metabolic Diseases, 2-4, B-dul Corneliu Coposu street, Cod: 550245, România, e-mail: narcisa\_20@yahoo.com, tel +40-0746979083

Article received on 28.09.2010 and accepted for publication on 21.12.2010

ACTA MEDICA TRANSILVANICA June 2011; 2(2) 266-267

## CLINICAL ASPECTS

diabetes. Foot ulcers and amputation is a major cause of morbidity, disability and costs for people with diabetes, family and society.

The question should be:

- We did enough to prevent injuries and amputations in the lower limbs in patients with diabetes?

Answer 1: A prospective study involving 93 surgical centers  $\rightarrow$  gie shows that 72% of all amputations performed was almost double mortality in diabetics (13% in diabetic vs. nondiabetic 7%) (2). In Romania, a study of amputations in patients with diabetes do not demonstrate decreased their periods analyzed (1986-1990 vs. 1991-1995), the authors conclude the need for "improvements" to fund cultural, educational and socio-economic status of patients with diabetes (2).

Answer 2: Diabetes UK Information Service Benchmarking Analysis showed partial effectiveness of "training" short-term medical doctors on specific aspects of tracking patients with diabetes. The study was conducted on a 02 979 patients, assessment of foot inspection, determination of HbA1c, weight, back of the eye, blood pressure or cholesterol in patients with myocardial infarction have been made before, immediately and 2 months after training. The assessment revealed minor effect of short-term training!

It is absolutely necessary: the organization and creating the necessary structures complications continuous screening and implementation of education for both medical staff and patient. Therapeutic education is the process of facilitating the formation and development of new physical, intellectual, sensory-motor and emotional of a person. Therapeutic education is carried out by members of the medical team were trained in education, so they can give the patient and / or family's ability to - adapt their condition and treatment to prevent complications of acute or chronic, while maintaining or improving quality of life (8).

It is in fact the process by which one can acquire a choice of health documented as an alternative to the automatic execution of uniformed and professional advice and adherence to conventional medicine. Two aspects are emphasized in the therapeutic education: a) patient it takes time to acquire theoretical knowledge and "skills", b) the patient has his own subjective and objective needs. Unfortunately in Romania there is an assessment of plantar ulcers and amputations on society or financially.

What should I do when there?

Answer 1:

- Training of teacher assistants (partially solved);
- Training support chiropodistă (at least one in each county);
- Formulation of therapeutic education programs for patients with no risk and another curriculum for those at high risk;
- Evaluation, publication of data and appropriate modification programs.

Therapeutic education programs will have to take into account the cultural, social and education of the population in our country especially now will be modified according to the results obtained.

Answer 2:

- Formulating a strategy based on evidence and current treatment options of materials to prevent amputations plantar ulcers that can serve all involved in the treatment specilităților leg injuries.

Answer 3:

- The importance sevizarea health organizers "therapeutic education" in preventing amputations in our country based on data analysis and presentation of cost efficiency in order to ram  $\rightarrow$  bursării by House Insurance medical services incurred in

preventing amputations;

Answer 4:

- Develop a logistic support for training factors that may make suitable changes in leg Footwear, shoes that are partially reimbursed.

Patients should be aware of the possibility of chronic complications and practical training on how  $\rightarrow$  symptoms and their monitoring. Patients at increased risk for injuries to the legs must understand the importance of: a) loss of sensitivity protection, b) daily examination of the leg c) accurate and daily care of the foot:  $\rightarrow$  nails and skin: d) choosing a suitable footwear. It is absolutely necessary to check understanding of these concepts and the real possibilities of patient care right leg -  $\rightarrow$  visual acuity patients, changes in mobility or cognitive impairment will be given into the care of a family member or person will also be trained.

Prophylaxis and treatment of lower limb injuries depend on:

- a. degree of patient training regimen;
- b. lesion severity;
- c. coexistence of other complications;
- d. local opportunities and patient care team;
- e. individual conditions of care: outpatient or hospitalization.

To achieve those exposed to: motivation and patience.

## REFERENCES

1. Jurnalul Român de Diabet, Nutriție și Boli Metabolice- vol. 8, nr. 2/2000, edit. Ilex.
2. Jurnalul Român de Diabet, Nutriție și Boli Metabolice- vol. 12, nr. 3/2005, edit. Ilex.
3. Jaap A. J., Tooke J.E.- Is Microvascular Disease Important in the Diabetic Foot?- The Foot In Diabetes, Chichester, 1994.
4. Sing N., Armstong D., Lipsky B.- Preventing Foot Ulcers in Patients with Diabetes- Jama Ro, 2005, 293: 217-228.
5. Robert J. Ferry, Amir E. Harari, Michael D. Rush – Diabetic Foot Care, 2008.
6. Preventive foot care in people with diabetes. Diabetes Care 2000, 23, suppl 1, S 55.