

DIABETIC FOOT SYNDROME HOSPITALIZATION COSTS IN POLAND

Lasocha Pawel, Kasprowicz Monika, Macioch Tomasz, Hermanowski Tomasz, Cichowlas Andrzej, Wawer Iwona, Karnafel Waldemar, Sobol Elzbieta, Krakowiecki Arkadiusz

BACKGROUND

Diabetes is one of the most common chronic diseases worldwide. International Diabetes Federation (IDF) estimates that 366 million people had diabetes in 2011 and by 2030 this number will have risen to 552 million. In Poland, according to Central Statistical Office (CSO) 1.7 million people have diabetes (data from 2009), whereas IDF estimates are 2 - 2.5 million. Diabetes is one of the main causes of death in the general population - approximately 5% of all deaths, including 6% to 27% among people aged 35-64 years [Roglic et al 2005]. The diabetic population is also at high risk of disability - which is estimated as 2-3 fold higher compared to the general population [Songer TJ. 1995]. The main causes of premature death and disability are diabetic complications such as: cardio-vascular disease, stroke, kidney disease, blindness and amputations of lower limbs [Roglic et al 2005]. Lower limb amputations among patients suffering from diabetes are usually the result of the diabetic foot syndrome (ulcers, infections and/or destruction of deep tissue, located in the lower limbs below the ankle). It is estimated that approximately 15% of people with diabetes will develop diabetic foot syndrome during their lifetime [Reiber et al, 1995; McIntosh et al, 2003]. In the community-based studies in UK, Netherlands and Greece estimated prevalence of diabetic foot syndrome varied from 1.4% to 4.8%. In central Europe the accurate data on diabetic foot ulcers comes from Slovakia where prevalence has been estimated at 2.5% [Vozar et al, 1997]. In Poland there are no detailed statistics on morbidity of diabetic foot syndrome, although according to rough estimates, the prevalence can reach over 50 thousand patients.

AIM

Diabetic foot syndrome (DFS) is a common cause of hospitalization and a major reason of lower limb amputations in the population of diabetic patients [Dang and Boulton, 2003]. In fact, diabetes is the leading cause of nontraumatic amputations. Risk of lower limb amputation in diabetic population is significantly higher than in general population [Johannesson et al, 2009]. Foot ulcers and lower limb amputations are a major cause of disability and contribute to emotional and physical burden to people with diabetes. The annual costs of diabetic foot ulcer care in the US are estimated at \$5 billion of direct and \$400 million of indirect costs. Poland belongs to countries with the high rate of amputations. Presumably, it is caused by higher costs of DFS treatment comparing to costs of amputation. To answer the question whether the cost of DFS hospital treatment is overestimated this study evaluates diabetic foot syndrome hospitalization costs based on data collected in one of the leading DFS treatment centers.

METHODS

Data on hospitalization costs were analyzed retrospectively, based on the disease documentation of all patients treated for DFS in the Department of Gastroenterology and Metabolic Diseases of the Medical University of Warsaw in 2010. Cost data comprising duration of hospitalization, pharmacotherapy, dressings, surgical treatment, microbiological tests, specialist consultations, diagnostic imaging, laboratory tests and additional medical services (i.e. vacuum therapy) were collected. Values are presented in Euros (exchange rate: 1 EUR=4.20 PLN).

RESULTS

Data on 37 patients (23 male and 14 female) were collected. Demographic data are presented in Table 1. In two cases diabetes was diagnosed on admission to the hospital. The average duration of hospitalization was 18.7 days, which is significantly longer than the average on internal ward in Poland (6.5 days according to the Central Statistical Office, 2009). The total cost of hospitalization per patient was estimated at the amount of 1864 EUR and is almost 2-times higher than reimbursement rate provided by the National Health Funds (NHF).

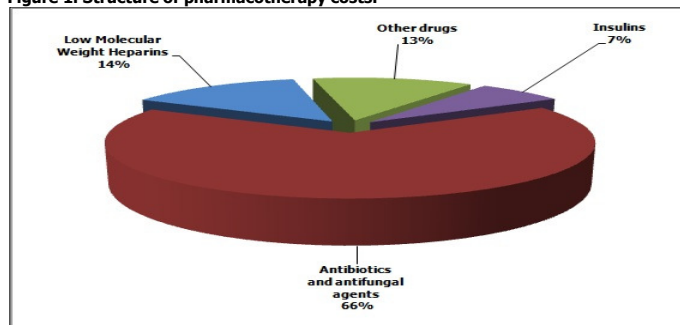
Table 1. Demographics of included population.

Male [n(%)]	23 (62.2%)
Age (years) [median (range)]	60 (23-86)
Diabetes type [n(%)]	
• Type 1	10 (27.0%)
• Type 2	26 (70.3%)
• Other	1 (2.7%)
Average hospitalization time (days) [mean (SD)]	18,7 (12,0)
DFS presentation [n(%)]	
• Neuropathic	15 (40.6%)
• Ischemic	7 (18.9%)
• Mixed	10 (27.0%)
• Undefined or no data	5 (13.5%)

The majority of costs (72%) were related to hospital bed costs which included: staff salaries, small medical equipment, food, cleaning, electricity, water and others. However, based on provided data, we were unable to identify the amount of costs attributed to each of mentioned categories.

Pharmacotherapy accounted for 9.5% of total costs. Most of the drug costs were related to antibiotics and antifungal agents (66%), which were significantly higher than the cost of insulins (7%), low molecular weight heparins (14%) and other drugs (13%) – see Figure 1. However, cost data provided for some insulins were biased due to enormously low cost (supplied by pharmaceutical companies directly to the hospital on preference prices).

Figure 1. Structure of pharmacotherapy costs.



Dressings and surgical treatment accounted for 6 and 5% of the total costs, respectively. Other costs like microbiological tests, specialist consultations, diagnostic imaging, laboratory tests and additional medical services (i.e. vacuum therapy) corresponded for less than 2% each of the total costs – see Figure 2. Structure of the total costs is presented on Figure 3.

Figure 2. Hospitalization cost categories [EUR].

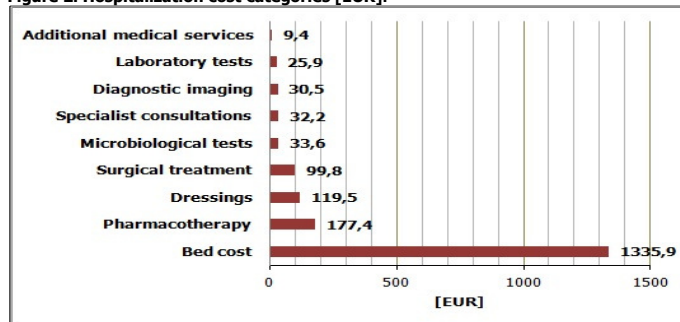
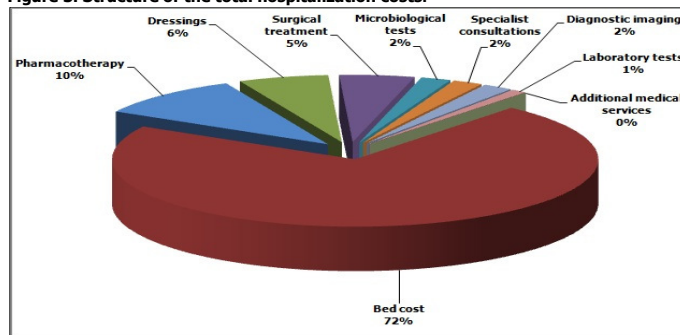


Figure 3. Structure of the total hospitalization costs.



CONCLUSIONS

The reimbursement of diabetic foot syndrome treatment seems to be rather underestimated than overestimated. Moreover, we suppose that cost data provided by the hospital are underestimated especially on costs of diagnostic procedures and dressings.

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