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Original article

Economy matters to fight against malnutrition: Results from a multicenter survey

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SUMMARY

Background and aim: Malnutrition represents a serious health care threat, as it increases morbidity, mortality and health care cost. The effective screening and treatment with enteral (EN) or parenteral (PN) nutrition are the key elements of the policy called Optimal Nutrition Care for All (ONCA). The study tried to analyze the impact of the state's economy on the implementation of EN and PN to define its role in ONCA.

Material and methods: an international survey in twenty two European countries was performed between January and December 2014. An electronic questionnaire was distributed to 22 representatives of clinical nutrition (PEN) societies. The questionnaire comprised questions regarding country economy, reimbursement, education and the use EN and PN. Return rate was 90.1% (n = 20).

Results: EN and PN were used in all countries surveyed (100%), but to different extent. The country's income significantly influenced the reimbursement for EN and PN ($p < 0.05$). It was also associated with

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the overall use of tube feeding and PN ($p = 0.05$), but not with the use of oral nutritional supplements ($p = 0.165$). The use of both, EN and PN at hospitals was not depended on the economy ($p > 0.05$). Education was actively carried out in all countries, however the teaching at the pre-graduate level was the least widespread, and also correlated with the country income ($p = 0.042$).

Conclusions: Results indicated that economic situation influences all aspects of ONCA, including education and treatment. The reimbursement for EN and PN seemed to be the key factor of effective campaign against malnutrition.

1. Introduction

Malnutrition (also: disease-related malnutrition, DRM) is undoubtedly a serious public health issue worldwide [1,2]. It increases morbidity, mortality, the length of hospital stay, and health-care costs [1–3]. The prevalence of malnutrition differs depending on the patient's population, country, clinical settings, yet it can be diagnosed in 7–16% of outpatients and in 20–60% patients at admission to hospital [3–8]. The criteria for that diagnostic varied significantly among authors, but in most of cases the body mass index (BMI) of <18.5 kg/m^2 and unintentional body weight loss >10% last 3–6 months, were applied [3–8]. Unfortunately, the problem of malnutrition is often unnoticed, undiagnosed or untreated, while it generates more costs than overnutrition or obesity, according to British Society for Enteral and Parenteral Nutrition (BAPEN) [9].

The European Society for Clinical Nutrition and Metabolism (ESPEN) recognized DRM as a grave problem more than thirty years ago. Since then, the society has undertaken many actions to change this situation. At the beginning, those activities were called the Fight Against Malnutrition (FAM) [1]. In 2014 FAM became a part of a campaign called Optimal Nutrition Care for All (ONCA) [10]. ONCA's aim is to facilitate screening for risk of disease-related malnutrition/undernutrition and nutritional care implementation across Europe [10]. ONCA includes, among others, the worldwide 'NutritionDay' survey, many local and international events (including ONCA conferences in Brussels, Prague, Vienna, Warsaw and Zagreb), scientific and research grants, scientific and educational symposia, workshops and trainings. This activity is administered by European Nutrition for Health Alliance (ENHS), an association of stakeholders, in which ESPEN is the strategic partner. Therefore, it is possible to perform all actions in a close cooperation with national scientific societies for enteral and parenteral nutrition (or clinical nutrition) societies, so-called 'PEN' societies. Those activities increased awareness, improved screening, amplified the use of enteral (EN) and parenteral nutrition (PN), representing two types of clinical nutrition support (CN), hence, improved the situation. Results differed, however, among countries. The question what are the key elements of efficient ONCA emerged and remained unanswered. Therefore, the purpose of the study was to answer that query by assessing the situation in European countries. Following aspects were analyzed: the presence of the reimbursement for each type of clinical nutrition (CN); the level of education for CN and the real use of EN and PN in various short- and long term settings.

2. Methods

An European survey was performed using an electronic questionnaire [Table 1]. The whole project was accomplished within 12 months, between January and December 2014, due to questionnaires distribution, local surveys and further data collecting. The questionnaire was circulated to representatives of twenty-two PEN societies. Participants were supposed to answer all questions, including the prevalence of malnutrition, using recent, already collected, data or new survey performed for the purpose of the study. The diagnostic criteria for malnutrition were (either of the following):

- body mass index (BMI) of <18.5 kg/m^2
- and unintentional body weight loss >10% last 3–6 months.

For the purpose of financial analysis, all participating countries were categorized by their economic status according to the World Bank criteria for national income [9], and by tertiles of the average health care expenditure per head for 2012 [9].

On the basis of the national income, three categories were selected:

a. lower middle income countries: Ukraine
b. upper middle income countries: Serbia, Turkey
c. high income: Croatia, Czech Republic, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Netherlands, Norway, Poland, Russia, Spain, Switzerland, UK

On the basis of annual healthcare expenditure, three tertiles were named:

a. 1st tertile (293–908 US Dollars/per person): Croatia, Latvia, Poland, Russia, Serbia, Turkey, Ukraine
b. 2nd tertile (1010–3708 USD/per person): Czech Republic, Estonia, Greece, Ireland, Italy, Spain, UK
c. 3rd tertile (4232–9055 USD/per person): Finland, France, Germany, Netherlands, Norway, Switzerland

The following parameters were analyzed for each participating country:

- prevalence of malnutrition
- institution responsible for health care regulations
- presence and type of insurance company (public/private/both)
- use of EN and PN at various settings (hospitals, home, chronic care facilities)
- presence of the reimbursement for EN and PN
- presence and type of education in the field of CN

The term 'hospital settings' referred to all in-patients, 'home' to all out-patients staying at home along/with family/other caregivers, but without any additional chronic care provided at his/her household level, chronic care and palliative care centers

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