Archives of the Balkan Medical Union
vol. 52, no. 3, pp. 310-315
September 2017

ORIGINAL PAPER

COMPARATIVE ANALYSIS OF THE RISK OF MALNUTRITION BY NUTRITION DAY 2016 DATA

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Abstract

The aim of study was to realize a comparative analysis of nutritional risk through auditing the Nutrition Day 2016 – 23/02/2017 data in different groups of hospitalized patients in the University Hospital "Tsaritsa Yoanna – ISUL", Sofia, Bulgaria.
Materials and methods. A group of 113 patients (54 men with an average age of 60.84 ± 15.27 years and 59 women with an average age of 59.90 ± 15,07 years), hospitalized in the Clinic of Gastroenterology, the Clinic of Metabolic Diseases, Endocrinology and Dietetics, the Clinic of Oncology and Radiotherapy and the Clinic of Oto-Rhino-Laryngology of the University Hospital "Tsaritsa Yoanna-ISUL" was included in the study. In these patients, a survey was conducted, with updated standardized questionnaire from Nutrition Day 2016, to assess the current nutritional status, food intake particularities, health status self-assessment and hospitalization length. Within the survey, patients underwent clinical examinations in order to build up the history and the current clinical data on morbidity. The anthropometric measurements and laboratory routine hematological and biochemical parameters were performed. The risk of malnutrition was evaluated in all patients through the Malnutrition Universal Screening Tool (MUST).
Results. 33.33% of the patients had high Malnutrition Universal Screening Tool (MUST) risk of

Résumé

Analyse comparative des risques de la malnutrition de données de Nutrition Day 2016

Objectif de l'étude. Une analyse comparée portant sur le risque nutritionnel, par des verifications effectuées pendant la journée de la nutrition 2016 – 23/02/2017 à des différents groupes de patients hospitalisés au CHU "Tsaritsa Yoanna- ISUL" Sofia, Bulgarie.
Matériel et méthodes. Dans un groupe de 113 patients (53 hommes avec un âge moyen de 60,84 ± 15,27 et 59 femmes avec un âge moyen de 59,90 ± 15,07), tous hospitalisés dans les cliniques de: gastroentérologie, maladies métaboliques, endocrinologie, oncologie et de radiothérapie et la clinique d'ORL au sein de l'hôpital universitaire « Tsaritsa Yoanna –ISUL ». Nous avons réalisé un questionnaire classique pendant la NutritionDay 2016 afin d'évaluer l'état nutritionnel, les caractéristiques de l'apport alimentaire, l'auto-évaluation de l'état de santé, la durée de séjour à l'hôpital etc. des patients. Nous avons soumis les patients à un examen clinique afin de recueillir l'anamnèse des maladies ainsi que des données cliniques actuelles sur la morbidité. Ensuite nous avons étudié les paramètres anthropométriques et hématologiques de routine en laboratoire. Nous avons constaté un risque de

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malnutrition, 15.38% moderate risk and the remaining – low risk. The lowest MUST risk was attributed to patients with compensated chronic liver disease, diabetes mellitus and metabolic syndrome, whereas the highest was to patients with inflammatory bowel disease, oncological diseases, and chronic pancreatitis. The appetite of 58.97% of the patients was estimated normal, while 41.03% reported to be decreased. The dietary intake during the week prior to hospitalization corresponded to normal in 66.69% of the cases. All of the following were found to have thorough impact on the nutritional status: age, gender, associated diseases, health status, appetite, quantity of food intakes and dietary requirements.

Conclusion. The risk of malnutrition is common and significant among hospitalized patients, requiring a systematic diagnostic approach for early detection, with subsequent adequate therapeutic treatment.

Key words: malnutrition, Nutrition Day, MUST risk, hospitalized patients.

malnutrition élevé chez tous les patients, grâce à l'outil de dépistage universel de la malnutrition (MUST).

Résultats. 33,33% des patients montrent un MUST risque élevé de malnutrition, 15,38% –montrent un risque modéré, tandis que pour les autres – le risque est diminué. Le plus bas MUST risque a été retrouvé chez les patients présentant une maladie hépatique chronique compensée, le diabète et le syndrome métabolique, et le plus élevé – chez les patients souffrant d'une maladie inflammatoire de l'intestin, le cancer, la pancréatite chronique. L'appétit semble normal chez 58,97%, et réduit chez 41,03%. L'apport alimentaire était normal à 66,69% des patients au cours de la dernière semaine avant l'hospitalisation. L'âge, le sexe, les comorbidités, l'état de santé, l'appétit, l'apport alimentaire, le respect des exigences alimentaires ont un impact significatif sur l'état nutritionnel.

Conclusion. Le risque de la malnutrition est fréquent et important chez les patients hospitalisés. Le problème exige une approche diagnostique systématique pour la détection précoce et le traitement thérapeutique ultérieur approprié.

Mots-clés: malnutrition, jour de la nutrition, des patients hospitalisés, risque MUST

Introduction

Nutrition Day Worldwide is a global initiative to combat malnutrition in health care institutions through an annual multi-site audit that provides an opportunity to assess available and potential nutritional risk factors. Each year, this initiative contributes to the practical implementation of the Council of Europe's 2003 Policy on Food and Nutrition in Hospitals, which takes into account the high incidence of malnutrition, ranging from 15 to 40% of all hospitalized patients[1]. Usually, contemporary healthcare focuses on the growing overweight and obesity epidemics, but malnutrition-related illness is also widespread in medical practice[2].

Malnutrition is socially important being a contemporary issue. However, despite the progressive development of medicine, the problem still remains non-diagnosed and neglected by individuals, health and social institutions and governments. As a result, malnutrition incurs enormous health care costs, longer hospital stays and deteriorated patient prognosis[3].

Therefore, according to this European political resolution, the problem of malnutrition must be confronted at all levels – from governments, health/social institutions and professionals to the individuals themselves. "Nutrition day" contributes to the practical implementation of the resolution in European hospitals and nursing homes[4].

The project "Nutrition Day" is headquartered in Vienna, Austria and is supported by and in partnership with the European Society of Parenteral and Enteral Nutrition and Metabolism (ESPEN), the Vienna University of Medicine (MUW), the Austrian Scientific Society for Clinical Nutrition (ACE), the European Intensive Care Research Network (EC-CRN), the European Federation of Dietary Associations (EFAD) and the Canadian Dietetic Association. The project is concerned with increasing the patients" safety and quality of care by raising awareness and knowledge of malnutrition-related illnesses[4,5].

Each year, in a specific day, in 63 countries around the world, data are collected online in more than 30 languages from all participating centers and wards through an annual renewal of a special poll created by the Coordination Center. Data collection for each structure (clinic) is done by filling in the forms of hospitalized patients enrolled in the voluntary survey. These include a list of physical status and weight control, motor capacity and psychosocial and emotional status, and a diet sheet. Separate oncology sheets for the available oncology patients in the ward are filled in. The collected data are entered

into the online platform of the initiative within 24 hours. Subsequently, the data from the pre-encrypted data are processed completely anonymously, analyzed and can be compared to the data obtained from all departments of the same specialty or compared in the compartment itself with previous years. After a certain period of time (3 and 6 months), tracking is again performed. Thus, anonymous, comparable and varied data on the nutritional status of risky patients are collected relatively easily and quickly. Collection of data and receipt of reports provide the opportunity for benchmarking and provide an objective tool for assessing quality of activity and certification[6].

The characteristic of Nutrition Day includes the following attributes:

- One day – data collection takes place on a single day in 63 countries around the world.
- Easy – no special knowledge is required to implement the project. All necessary documents are provided by the Coordination Center.
- Diversity – questionnaires are in over 30 languages, so the project can include minority groups of patients (e.g. immigrants, people with other native language).
- Anonymity – the names and data of the participating centers and compartments are coded, which guarantees the anonymous processing and analysis of all compartments.
- Comparability – each unit compares its results with the data obtained from all departments of the same specialty and allows multiple comparisons to be made.

Nutrition Day project, in fact, is a one-day audit evaluation. Questionnaires can become a standard tool of assessment and allow to conduct comparative analysis with similar institutions at World level. The project implementation optimizes and improves hospital nutrition by increasing knowledge, awareness, monitoring and benchmarking of feeding patients, creating an active partnership between patients, medical professionals and public institutions. It provides a basis for action to minimize malnutrition-related malnutrition and nutritional disorders in patients[7,8].

Since 2010, the Clinic of Metabolic-Endocrine Diseases and Dietetics in Bulgaria, University Hospital "Tsaritsa Yoanna-ISUL", Medical University – Sofia joins the Global Nutrition Day initiative by collecting and providing data on the nutritional status of hospitalized patients and thus annually performs a nutrition audit of the patients in the clinic and in the clinics of gastroenterology, otorhinolaryngology, radiation and oncology at the University Hospital "Queen Joanna-ISUL" with questionnaires Nutrition day.

The aim of this study is to conduct a comparative analysis of the nutrition risk by conducting audits within the Nutrition Day 2016 – 2/23/2017 at different groups of patients hospitalized at University Hospital "Tsaritsa Yoanna- ISUL".

The subject of the study was a randomized group of 113 patients (54 males with an average age of 60.84 ± 15.27 years. and 59 women with an average age of 59.90 ± 15.07 years), hospitalized in the clinics of gastroenterology, metabolic-endocrine diseases and dietetics, oncology and radiotherapy, and the clinic of otorhinolaryngology of University Hospital "Tsaritsa Yoanna-ISUL" with a survey using the updated Nutrition Day 2016 questionnaires to assess nutritional status, dietary profile, self-assessment of the health status, length of hospital stay, etc.

Material and methods of the study are: specially developed Nutrition day worldwide questionnaires, clinical examination, anthropometric measurements (height in m, body weight in kg, body mass index (BMI) in kg/m^2), performing a nutritional risk screening. We have performed a clinical examination to collect the history and current clinical data on morbidity and we tested routine laboratory hematological and biochemical parameters. The malnutrition risk was evaluated with the Malnutrition Universal Screening Tool (MUST) in all patients[9,10].

Results

Screening of the patients placed in the "malnutrition risk" category is a key point in the structured approach to removing nutritional status. Through the survey data from the attached Nutrition Day questionnaires, the following MUST risk distribution (shown in Fig. 1) was found:

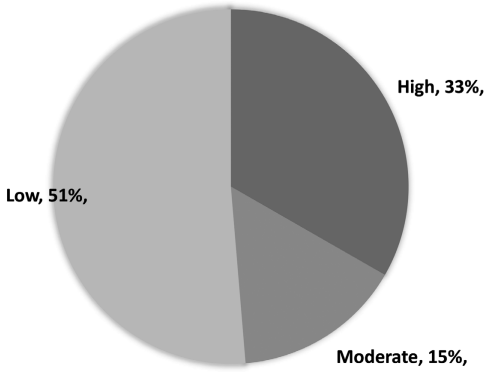

Figure.1. Distribution of the investigated hospitalized patients to MUST risk for the Nutrition Day 2016 (n = 113)

The gender is a factor which influences the degree of malnutrition due to a change in body composition

occurring in men and women in different age phases. In the group of patients with moderate and high MUST risk – 38.46% are women – or MUST risk is predominantly high in the female gender[11].

Accompanying pathology also correlates with MUST risk, with 21% of the surveyed patients having an oncological disease, 43% of whom have high MUST risk and have a weight reduction over the last 3 months – between 5 and 15 kg.

43.6% of surveyed patients have arterial hypertension, of which 7.69% are at high MUST risk level. 17.94% of the group have diabetes mellitus, of which only one is at high MUST risk level (with underlying disease chronic pancreatitis).

The current assessment of patients' appetite is presented in Fig. 2:

In the group of patients with low appetite, 20.5% have a high MUST risk level, 10.25% are at moderate MUST risk level and 28.2% have low MUST risk. As the predominant reason for the reduced appetite, the surveyed oncological patients reported frequent nausea and vomiting and general fatigue, while non-oncological patients leading causes of loss of appetite are reduced quantity of hospital food, and the frequency of blood tests and treatments.

Shared data for food intake on the day of the survey showed that more than half do not have quantitatively reduced food (Fig. 3). Others have reduced dietary intake, with 33.31% of all- oncological and non-oncological patients having reduced dietary intake by half and less than half, of which all or 100% have a high MUST risk level. Consuming whole portion is associated with moderate or low risk MUST.

The implementation of worldwide audit initiative Nutrition Day 2016, the malnutrition risk screening and the collection of basic laboratory parameters of the hospitalized 113 patients allowed to make a correlated evaluation of the relation on hemoglobin level and the calculated MUST risk[12].

Figure 4 presents the relationship between hemoglobin and malnutrition risk.

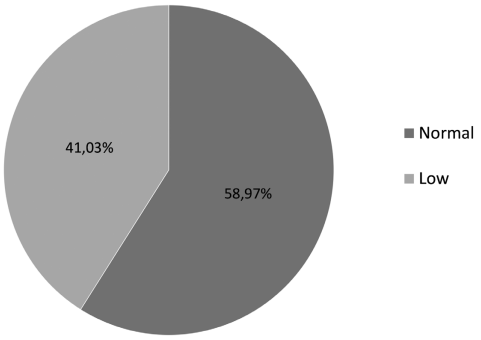

Figure 2. Distribution of the assessment of the appetite of the investigated hospitalized patients for the Nutrition Day 2016.

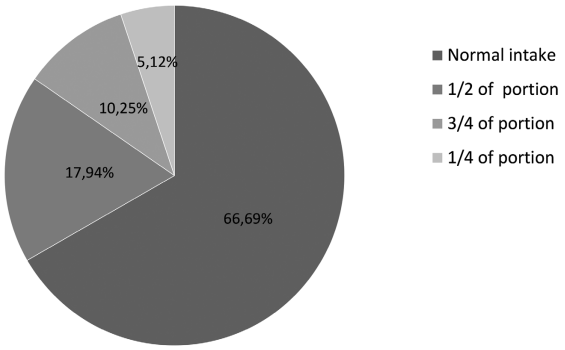

Figure 3. Dietary intake during hospitalization of the studied hospitalized patients for the Nutrition Day 2016 (n = 113).

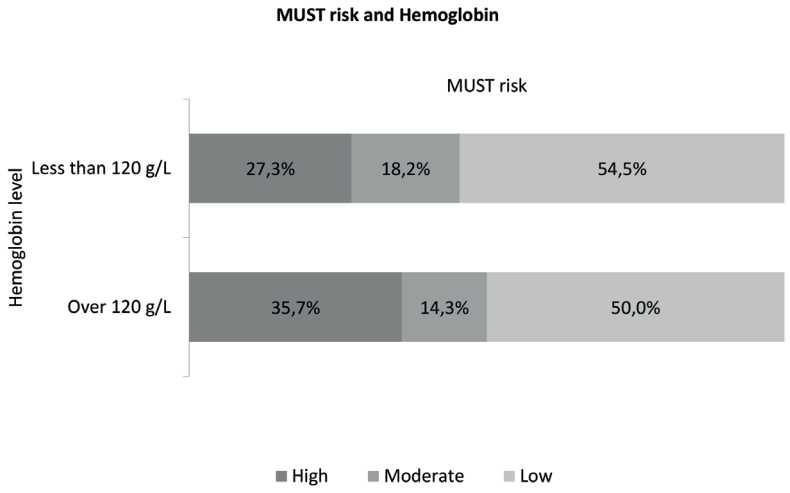

Figure 4. Relationship between hemoglobin values and calculated MUST risk of studied hospitalized patients on Nutrition Day 2016 (n = 113).

The collected health self-assessment data (scale from 1 to 5) of each patient on the day of the worldwide survey show that in patients with "excellent" health notes, the risk of malnutrition is predominantly low and increases sensibly in patients with satisfactory or poor assessment notes (Fig.5).

The data on the eating habits of the interviewed patients and their relationship with MUST risk are presented in the figure 6. It can be clearly seen that, in the group of patients with no special dietary habits, the risk of malnutrition is predominantly higher as compared to patients with nutritional specificities.

Nutrition Day focuses on oncology patients through special questionnaires, targeted specifically for these patients. Questionnaire data collected from cancer patients in our study showed that 54.3% of them have body reduction from the beginning of the disease. Realized body reduction is from 0.5 to 15 kg (avg. 6.01 kg). In all patients, the body reduction is unintentional. Physical capacity analysis, based on the history and clinical review, found that all patients with chronic onco-malnutrition were physically impaired, generally having the ability to self-handle and exercise light physical effort, and 1/3 needed the help of another person in everyday life. Subjective complaints of pain, depression, fatigue and anorexia have a different frequency. More than half of the cancer patients surveyed (55.4%)

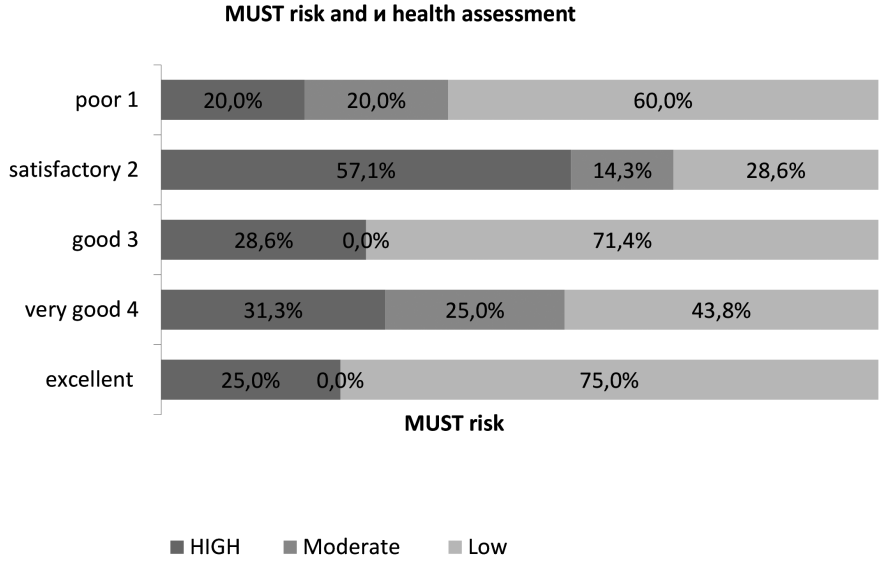

Figure 5. The relationship between MUST risk and the health assessment of the investigated hospitalized patients for the Nutrition Day 2016 (N = 113)

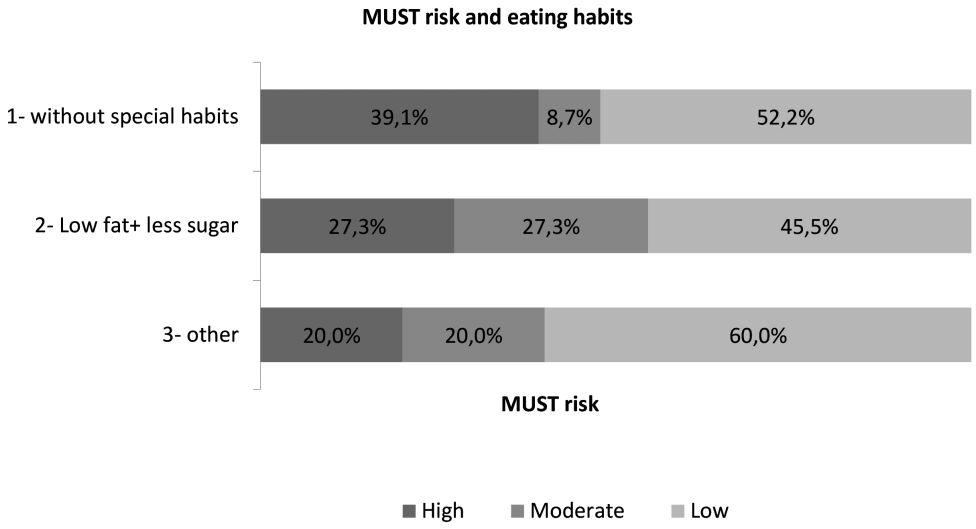

Figure 6. Relationship between MUST risk and eating habits of studied hospitalized patients on Nutrition Day 2016 (n = 113).

stated their willingness to include clinical nutrition in therapy[10].

The conduction of Nutrition Day helps to focus on improving the nutrition of patients and creates preconditions and systemic arguments for building effective nutrition therapy with enteral nutrition, partial or total parenteral nutrition, oral high protein and high energy formulated supplements, optimizing hospital food[4,13]. Personalized nutritional support was performed in a very small proportion of oncological patients (5 patients or 4.5%) and 11.3% of non-oncological patients with predominantly oral formulations[14].

Conclusions

1. The Nutrition Day application identifies a nutritional risk for the majority of hospitalized patients, inconsistency of normal hospital nutrition with nutritional needs, and lack of systemic assessment and nutritional therapy.
2. The risk of malnutrition is common and significant among hospitalized patients and requires a systematic diagnostic approach for early detection with subsequent adequate therapeutic treatment.
3. Chronic malnutrition is present in ½ (48%) of the patients surveyed.
4. The risk of malnutrition, assessed by MUST risk, impaired appetite, inadequate food intake, weight loss, co-morbidity are identified as risk factors associated with longer hospital stay.
5. About ½ of the oncological patients believe that implementation of clinical nutrition will help treat their underlying disease.

This study shows the association between anthropometric data, nutritional parameters, laboratory data, the causes of hospitalization, and the nutritional status of studied group of patients hospitalized in five clinics of the University Hospital "Queen Yoanna – ISUL" within the framework of the global initiative Nutrition Day 2016. Nutrition day worldwide contributes to assess the nutrition of hospitalized patients and creates an objective basis for analysis and overcoming malnutrition.

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