Indicators of nutritional status and patient needs in cardiac rehabilitation

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ABSTRACT

Background: The prevalence and incidence of cardiovascular diseases significantly increase with age, and it is well-known that nutritional status affects the prognosis and treatment of these diseases. Therefore, evaluating nutritional status is essential for maintaining/regaining health. It is crucial to identify nutritional risk early, prevent and/or treat protein-energy malnutrition, and promote the modification of inappropriate dietary habits.

Methods: Nutritional screening represents the first step of access to the Nutrition Care Process (NCP) adopted and managed by the dietitian; this tool must be simple, inexpensive, accessible, accurate, efficient, and validated. A globally accepted standardized definition of malnutrition is necessary, and for this reason, the Global Leadership Initiative on Malnutrition (GLIM) criteria have been recently introduced.

The GLIM criteria, after confirming nutritional risk through screening, include both phenotypic and etiological criteria: to diagnose malnutrition, at least one of these must be present.

A less commonly performed phenotypic criterion is the assessment of muscle mass, which should be studied as a significant component of sarcopenia.

Conclusion: Greater attention to the identification and treatment of malnutrition would bring benefits to patients and ensure a saving in healthcare expenditure, but for this purpose, an implementation of clinical nutrition services is necessary.

Promoting appropriate dietary choices in the field of Cardiovascular Rehabilitation (CR) is a fundamental and indispensable component of the care plan, as recommended by national and international guidelines developed by major scientific societies.

Nutritional status, a condition resulting from the intake, absorption, and utilization of nutrients, indeed influences the prognosis and treatment of disease in cardiac patients.

To assess nutritional status, it is necessary to investigate three closely related entities: body composition, energy balance, and bodily function. Nutritional status and health status are closely related, hence their assessment is essential. The prevalence and incidence of cardiovascular diseases significantly increase with age, consequently, older individuals represent the majority of patients requiring CR.

The intervention of a dietitian during CR is essential in order to:

1. Identify nutritional risk early;
2. Prevent and/or treat protein-energy malnutrition;
3. Encourage the modification of inappropriate dietary habits, paying attention to sustainability and the resources of the patient [1].

Malnutrition is a highly prevalent condition among the elderly due to physiological decline related to age, reduced access to nutritious foods, and comorbidities. Malnutrition is prevalent in many diseases, especially in hospitalized patients, institutionalized elderly, and chronic patients.

For a systematic approach, the assessment of nutritional risk should be the first step in addressing the issue of malnutrition in hospitals through screening that needs to be simple, inexpensive, accessible, accurate, efficient, validated, and administered within the first 24–48 h after admission. Screening represents the first step of access to the Nutrition Care Process (NCP). The NCP, adopted and managed by the dietitian, accurately describes the phases of nutritional care (assessment, diagnosis, intervention, monitoring, and reevaluation) and uses the language of international dietetics and nutrition terminology to ensure safe, effective, and high-quality nutritional care for the patient.

A systematic review on nutritional risk screening by the Academy of Nutrition and Dietetics (2022) identified the Malnutrition Screening Tool (MST) the instrument for identifying adults at risk of malnutrition in all contexts regardless of their age or clinical history.

The MST is a quick and simple screening that can also be replicated remotely to identify people who may have a diagnosis of malnutrition.

Dietitians active in the partnership of the Scientific Association for

Food, Nutrition and Dietetics (ASAND) and the Italian Alliance for Cardiovascular Rehabilitation and Prevention (ITACARE-P) have included it in the electronic nutritional record developed for teleconsultation.

The prevalence of malnutrition in patients with heart failure varies between 16 % and 90 % in studies. The wide spectrum of malnutrition rates is due to differences in the medical characteristics of patients and the various definitions of malnutrition. The prevalence of malnutrition strongly depends on the instrument used, varying from 8 % for the Prognostic Nutritional Index (PNI) to 54 % for the Controlling Nutritional Status (CONUT) in the same cohort of patients [2].

A globally accepted standardized definition of malnutrition is mandatory, and for this reason, the Global Leadership Initiative on Malnutrition (GLIM) criteria were recently introduced [2]. After using a validated screening tool to ascertain and confirm the existence of nutritional risk, an evaluation for the diagnosis of malnutrition and its severity must follow. The GLIM criteria include three phenotypic criteria (involuntary weight loss, low body mass index, and reduced muscle mass) and two etiological criteria (reduced food intake or assimilation and inflammation or disease burden). To diagnose malnutrition, at least one phenotypic and one etiological criterion must be present in the patient. To classify the severity of malnutrition as moderate or severe, phenotypic parameters are used. Available online at: https://www.espen.org/files/GLIM-2-page-Infographic.pdf (accessed on January 2, 2024).

The GLIM Criteria reflect the necessary elements for a correct assessment of nutritional status. Among the phenotypic criteria, the assessment of muscle mass is the one performed less commonly, and in this regard, the GLIM consortium has provided a guide for the assessment of skeletal muscle mass [3].

Once malnutrition is diagnosed, skeletal muscle function should be studied as a relevant component of sarcopenia. Malnutrition can indeed be a key factor contributing to sarcopenia, and both conditions can coexist.

"Malnutrition, defined according to GLIM criteria, is associated with reduced physical functionality and an increased risk of mortality in patients with cardiovascular diseases (CVD), and therefore the GLIM criteria are useful for predicting the prognosis of patients with CVD" [4].

These criteria are detected in the nutritional record during the assessment phase that begins with an interview with the patient, preferably in the presence of a family member or caregiver. The collected data are structured into five categories (patient/client history, food and diet history, anthropometric measures, biochemical clinical and metabolic tests, nutritional physical examination) and must be compared for interpretation and decision-making with international standards, criteria, and national parameters. They are documented in the nutritional diagnosis that indicates the detected problem.

An appropriate nutritional intervention is essential in the treatment of malnutrition: a crucial factor is the adequacy of both caloric and protein intake, which should be evaluated and personalized based on the patient's characteristics. A meta-analysis by the Italian Society of Artificial Nutrition and Metabolism (SINPE) reveals that in Italy, about 50 % of hospitalized adult patients and 30 % of pediatric patients suffer from malnutrition due to a disease or its treatments. Treating malnutrition results in savings on healthcare and in better outcomes both in the community and in hospital settings, including fewer complications, shorter hospital stays, improved quality of life, and a reduced 30-day mortality rate.

Greater attention to this issue would undoubtedly require the implementation of clinical nutrition services [5] that, together with the components of the cardiology team, operate in synergy to achieve the desired nutritional goals.

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Declaration of competing interest

The author declare they have no conflict of interest.

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