Nutritional Issues of Older People in Primary Care

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Abstract

Nutritional problems are common in older people. In particular, malnutrition is very frequent and associated with several negative health outcomes. Therefore, the screening of malnutrition through validated tools is mandatory in this population. Weight loss is another common condition in older people and may indicate reversible or not reversible causes: the early diagnosis of weight loss is mandatory for starting the correct diagnostic pathways. The first treatment of weight loss is to treat the cause, if possible. Then, the use of dietary recommendations and nutritional supplementations is of importance. In this chapter, we will discuss how nutritional status should be assessed in older adults, the management of malnutrition, the most common treatments of weight loss, obesity in older individuals, and the role of general practitioners (GPs) in nutritional issues affecting older people.

Keywords

Malnutrition · Weight loss · Older people · Obesity · Nutrition

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4.1 Introduction

Nutritional problems are common in older people. Aging itself, in fact, is characterized by diminished organ system reserves and loss/decrease in homeostatic controls [1]. Indeed, nutritional needs in older people are determined by multiple factors, including specific medical conditions (such as diabetes and dementia), an individuals' level of physical activity, energy expenditure, and caloric requirements, but also the presence of disability and personal food preferences.

In this chapter, we will discuss how nutritional status should be assessed in older adults, the management of malnutrition, the most common treatments of weight loss, obesity in older individuals, and the role of general practitioners (GPs) in nutritional issues affecting older people.

4.2 Malnutrition in Older People

4.2.1 Identification of Malnutrition

To identify malnutrition is of pivotal importance in geriatric medicine. The diagnosis of malnutrition could be made using some validated criteria, as reported in Box 4.1.

Box 4.1 Common Criteria for the Diagnosis of Malnutrition

Academy of Nutrition and Dietetics and the American Society for Parenteral and Enteral Nutrition (ASPEN) Criteria [2]

At least two of the following six criteria:

1. Insufficient energy intake
2. Weight loss
3. Loss of muscle mass
4. Loss of subcutaneous fat
5. Localized or generalized fluid accumulation that may mask weight loss
6. Diminished functional status as measured by handgrip strength

Global Leadership Initiative on Malnutrition (GLIM) [3]

Combination of at least one phenotype and one etiologic criteria

Phenotype criteria—Non-volitional weight loss, low body mass index (BMI), or reduced muscle mass

Etiologic criteria—Reduced food intake or absorption or underlying inflammation due to acute disease/injury or chronic disease

4.2.2 Screening for Nutritional Status in Older People

Screening of nutritional status is, in our opinion, mandatory in all older people. The most common tools used for this task could be measuring weight, calculating weight loss, and utilizing screening tools.

Weight: Serial measurements of body weight offer the most used and the most obvious screen for nutritional status in older people. However, obtaining periodic body weights may be difficult, particularly in frail and bedridden subjects [1]. For definition, low body weight is defined as <80% of the ideal body weight [1, 2].

Weight loss: Several studies have indicated that weight loss in older adults, especially if unintentional, is a significant predictor of mortality [4–7]. A great debate is still undergoing regarding the amount of weight loss that can increase the risk of mortality and other negative outcomes in older people. In this regard, some studies have reported that a weight loss <5% compared to baseline values is a significant predictor of mortality [7, 8]. Another important topic of discussion is weight loss in overweight/obese older people.

Briefly, weight loss could be considered of clinical importance in the case of [1, 9]:

- ≥2% decrease of baseline body weight in 1 month
- ≥5% decrease in 3 months
- ≥10% in 6 months.

Screening tools: Some screening tools have been developed in order to identify older adults at risk for malnutrition.

- The Nutritional Risk Screening (NRS) 2002 has two parts: a screening assessment for malnutrition and a part for disease severity. Undernutrition is estimated using three parameters: BMI, percent recent weight loss, and change in food intake [10]. Disease severity may range from 0 (for those with chronic illnesses or a hip fracture) to 3 (for those in the intensive care unit with an APACHE score of 10).
- The Simplified Nutrition Assessment Questionnaire (SNAQ), a four-item tool, was tested in community-dwelling older adults and long-term care residents [11]. In those populations, it had a good sensitivity and specificity for the identification of older individuals at risk for 5% or 10% weight loss, respectively.
- SCREEN II (Seniors in the Community: Risk Evaluation for Eating and Nutrition) is a 17-item instrument that evaluates nutritional risk through evaluating food intake, physiological barriers to eating (difficulty with chewing or swallowing), weight change, and social/functional barriers to eating. The tool has excellent sensitivity and specificity, as well as interrater and test/retest reliability [12]. This tool has also an abbreviated version, based on eight questions [12].
- The Malnutrition Universal Screening Tool (MUST) includes BMI, weight loss in 3–6 months, and anorexia for 5 days due to disease. When neither height nor weight is available, the midarm circumference and subjective assessment of physical characteristics, such as very thin, can be used instead. This tool is particularly sensitive for recognition of protein energy undernutrition in hospitalized older patients [13].

- The Malnutrition Screening Tool (MST) was developed for being used in hospitalized patients but also validated in cancer patients [14]. This tool is based on two simple questions: "Have you been eating poorly because of a decreased appetite?" and "Have you lost weight recently without trying?" Even if short, this tool has a good sensitivity and specificity in predicting malnutrition in older people.
- The Mini Nutritional Assessment (MNA) consists of a global assessment and subjective perception of health, as well as questions specific to diet, and a series of body measurements [15]. This tool has been widely validated and translated in several languages and is predictive of poor outcomes [16]. One of the advantage of this tool is that it could be used for the screening and for the diagnosis of malnutrition (also including indicate people at risk of malnutrition) but could be long to do. For this reason, the Mini Nutritional Assessment-Short Form (MNA-SF) uses six questions from the full MNA and can substitute calf circumference if BMI is not available. A validation study demonstrated good sensitivity compared with the full MNA [17].

Using MNA, some authors have proposed some epidemiological data regarding malnutrition in older people. For example, a 2016 meta-analysis on malnutrition in various health-care settings, including data from 240 studies and 110,000 persons, found very different rates of malnutrition: outpatients, 6.0% (95% CI, 4.6–7.5); hospital, 22.0% (95% CI, 18.9–22.5); nursing homes, 17.5% (95% CI, 14.3–20.6); long-term care, 28.7% (95% CI, 21.4–36.0); and rehabilitation/sub-acute care, 29.4% (95% CI, 21.7–36.9) [18].

Box 4.2 Most Common Tools Used for the Screening of Malnutrition in Older People

Tools

Nutritional Risk Screening
Simplified Nutrition Assessment Questionnaire
Seniors in the Community: Risk Evaluation for Eating and Nutrition
Malnutrition Universal Screening Tool
Malnutrition Screening Tool
Mini Nutritional Assessment

4.2.3 Malnutrition and Weight Loss in Older People: From Diagnosis to Management

Poor nutritional status in older people may have a great impact on outcomes, including physical function [19], health-care utilization [20], and length of stay in hospital [21]. A peculiar aspect of older people is the lack of ability to compensate for periods of low food intake (e.g., due to illness) which can result in long-term, persistent weight changes, especially when combined with other factors that can negatively impact body weight.

Involuntary weight loss may be driven by a variety of factors, as follows.

4.2.3.1 Inadequate Dietary Intake

There are multiple causes of weight loss due to inadequate nutrient intake. These include social (e.g., poor economic status, loneliness, social isolation), psychological (in particular depression and dementia), medical (e.g., edentulism, dysphagia), and finally pharmacologic issues.

- Increased likelihood of isolation at mealtimes. About one-third of persons over 65 and one-half over 85 live alone, which typically decreases food enjoyment and calorie intake. In this regard, several studies have reported that older adults who eat in the presence of others consume more than those who eat alone [22].
- Financial limitations affecting food acquisition.
- Cancer is another common cause of unexplained weight loss in older people, particularly when affecting the gastrointestinal tract as well as depression.
- Dysphagia is present in approximately 7–10% of the older adults [23]. Dysphagia is often a consequence of other neurological conditions including stroke and Parkinson disease [1].

When we found an unintentional weight loss in older people, we should also consider the conditions listed in Table 4.1:

4.2.3.2 Physiologic Factors

Physiologic factors associated with weight loss may include age-related decrease in taste and smell sensitivity, delayed gastric emptying, early satiety, and impairment in the regulation of food intake [1].

- Anorexia (of aging): Anorexia, the decrease in appetite, in older adults is influenced by multiple physiological changes. It is known that food intake gradually diminishes with age due to several factors including decreased energy, decreased resting energy expenditure (REE), and/or loss of lean body mass [24]. Changes in taste and smell lead to a decreased desire to eat, and early satiety develops

Table 4.1 Common causes of malnutrition in older people

Apparatus/system/condition	Examples
Endocrine disorders	Hyperthyroidism, new-onset diabetes mellitus
End-organ disease	Congestive heart failure, end-stage kidney disease, chronic obstructive pulmonary disease, hepatic failure
Gastrointestinal disorders	Celiac disease, ischemic bowel, inflammatory bowel disease, pancreatic insufficiency, peptic ulcer disease, gastroesophageal reflux disease
Infections	Tuberculosis
Rheumatologic disorders	Polymyalgia rheumatica, rheumatoid arthritis
Neurologic conditions	Parkinson disease, chronic pain, Alzheimer disease
Medication side effects	Digoxin, opioids, serotonin-reuptake inhibitors, diuretics, and topiramate

with age [25], related to gastrointestinal changes and gastric hormone changes, as discussed above [26]. Moreover, appetite regulation may be affected by some factors cited before such as illness, medications, dementia, and depression [27, 28].

- Cachexia: Cachexia has been defined as a "complex syndrome associated with underlying illness, and characterized by loss of muscle with or without loss of fat mass" [29]. Anorexia, inflammation, insulin resistance, and increased muscle protein breakdown are often associated with the presence of cachexia. Cachexia involves many pathways, leading to a disequilibrium between catabolism and anabolism. Since inflammation and catabolism are present, cachexia often is resistant to nutritional interventions. The cause of cachexia is multifactorial. Therefore, its treatment should be multimodal, including the use of a combination of an appetite stimulant and an agent promoting muscle protein synthesis [30]. Cachexia usually occurs in the setting of underlying illness involving a cytokine-mediated response, such as cancer, renal failure, chronic pulmonary disease, heart failure, rheumatoid arthritis, and acquired immunodeficiency syndrome (AIDS). The role of inflammation in cachexia seems to be pivotal [31], even if anti-inflammatory drugs are not able to modify the course of cachexia itself [30].

4.2.3.3 Evaluation of Weight Loss

Often weight loss is self-reported or based on anamnestic data from the patient and caregivers. Therefore, the first step is to document weight loss during the first visit.

During the first visit, we recommend to estimate body fat and lean muscle mass, through bioelectrical impedance or anthropometric measures, for example. At the same time, in front of an important weight loss, appetite and dietary intake must be assessed using validated tools, such as the MNA. A more formal dietary intake assessment can be obtained with a dietetic consult.

The next step is to perform appropriate laboratory studies, such as metabolic and inflammatory parameters, to include a basic chemistry profile including glucose and electrolytes, thyroid-stimulating hormone (TSH), complete blood count (CBC), and C-reactive protein (CRP) if cachexia is suspected. Chest and plain abdomen radiographs may be considered in the case of suspected cancer or other specific conditions. Order additional studies based on suspicion of underlying disease from the patient's history and examination.

Of importance are older people with no localizing findings and with normal complete blood count, biochemical profile, or chest and plain abdomen radiographs since until one-third of patients were ultimately diagnosed with cancer [32].

4.2.3.4 Tips for Weight Loss Diagnosis

After the diagnosis of weight loss, if it is possible, it is mandatory to treat the condition. The most common causes of weight loss in older people can be described using the acronym "MEALS ON WHEELS" (Table 4.2).

Table 4.2 Causes of weight loss in older adults

Medications
Emotional
Alcoholism, older adult abuse
Late-life paranoia or bereavement
Swallowing problems
Oral factors
Nosocomial infections
Wandering and other dementia-related factors
Hyperthyroidism, hypercalcemia, hypoadrenalism
Enteral problems
Eating problems
Low salt, low cholesterol, and other therapeutic diets

4.2.3.5 Treatment of Weight Loss in Older People

General Recommendations

- Make sure that feeding or shopping assistance is available. Remember that feeding assistance was resource-intensive and required a mean of about 30 minutes and often more [33]. In this regard, social work support may be of importance, if inadequate finances are one of the determinants of poor nutritional status.
- Assure that meals and foods meet individual preferences.
- Increase the nutrient density of food. For example, it could be useful to increase protein content by adding milk powder, whey protein, and egg whites or increase fat content by adding olive oil. If weight does not increase, we suggest daytime snacks between meals.

Nutritional supplements: A meta-analysis included 55 randomized trials of nutritional supplements containing protein and energy to prevent malnutrition in older, high-risk patients [34]. This work resulted in modest improvement in percentage weight change. Moreover, overall mortality was reduced in the groups receiving nutritional supplement, compared with control, but no improvement in disability [34]. In this regard, nutritional supplements seem be able to improve physical performance and muscle strength tests in older people, particularly in frail and sarcopenic subjects [35].

Mirtazapine: Mirtazapine is a common antidepressant leading to more weight gain than selective serotonin reuptake inhibitor (SSRI) antidepressants. For this side effect, it is commonly used for weight loss in older adults due to depression, even if few studies have been specifically performed to evaluate its impact on weight among older adults with weight loss [36].

4.2.4 Obesity in Older People

Even if the prevalence of obesity in people who are 80 years of age is about one-half of that of older adults between the ages of 50 and 59, the fact is that more than 15% of the older American population is obese [37]. However, the epidemiological role

of obesity in older people is really debated. It is known that in the general population, obesity is associated with an increased risk of all-cause mortality [38], as well as other disabling conditions including metabolic (e.g., type 2 diabetes) and cardiovascular diseases (e.g., hypertension, coronary heart disease, stroke), but also some types of cancer (e.g., endometrial, breast, prostate, and colon cancers) [39].

However, the association between high BMI values and mortality seems to decline over time, and this seems to be more evident in some special settings such as nursing home in which high BMI seems to be protective for mortality [40]. Other large observational studies observed a decrease in the association of obesity with cardiovascular disease mortality over time [41] and that being overweight does not increase mortality risk for people age 65 years and older [42].

A few studies suggest that being overweight as an older adult is associated with increased mortality:

These findings did not suggest that adiposity per se is protective for mortality but that BMI and weight are not reliable indicators of being overweight or obesity in older people, where normal weight may reflect loss of muscle mass rather than decreased adiposity [1, 43].

This is somewhat demonstrated by the fact that obesity in older adults is associated with new or worsening disability [44], and weight loss can further improve physical function and quality of life in older obese people [45]. Regarding the treatment, recommendations to lose weight must be tailored to the risk profile of particular patients. Those who are experiencing significant adverse effects associated with obesity (the typical example is the patient with pain from osteoarthritis) [46] should be encouraged to have weight loss, but only in the context of regular physical exercise [47].

4.2.5 What's the Role of General Practitioner in Nutritional Issues in Older People?

Older people access very frequently GPs' ambulatories for several reasons [48, 49]. Of curiosity, it is estimated that 10% of the population requiring care from a GP are at risk of malnutrition [50]. Despite the large population at risk of malnutrition and its associated health implications discussed in this chapter, malnutrition is often undiagnosed and untreated by GPs [51]. Many reasons have been suggested for the under-diagnosis of malnutrition in primary care setting, including the absence of nutrition education in medical school curricula and post-graduate training in GPs and the unclear "ownership" of malnutrition care among health-care professionals [52].

However the role of GP in nutritional issues in older people is pivotal. For this reason, we first recommend to assess weight in all older people using the ambulatory, at least one time every 6–12 months. Another important point is to assess, better if through validated screening tools, the presence of malnutrition and start the diagnostic pathway. In this regard, the help of specialists (e.g., geriatrician, gastroenterologist, and others) is recommended as well as the use of laboratory measures.

The use of "MEALS ON WHEELS" could be useful for better and quickly identifying the cause of weight loss. Regarding obesity in older people, it should be noted that the GP was the least likely person to tell a patient to lose weight after partner, family, and friends [53]. Therefore, more is needed to improve the knowledge of GPs regarding obesity in older people.

4.3 Conclusions

Malnutrition is extremely common as condition in older people, but often neglected. In this chapter, we have revised the common tools used for the screening of malnutrition in older people and how to diagnose malnutrition and weight loss. At the same time, obesity is increasing also in older people, probably indicating that it will be a common problem in the next future. The role of the GP is really important, but more knowledge regarding nutritional issues in older people (and their clinical importance) is needed.

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