

UNDERSTANDING NUTRITIONAL ISSUES IN THE OLDER PERSON WITH CANCER

Merran Findlay,¹ Judith Bauer,^{2,3} Stephen Clarke,^{4,5} Elisabeth Isenring^{2,6}

1. Department of Nutrition and Dietetics, Royal Prince Alfred Hospital, Sydney, New South Wales.
 2. Centre for Dietetics Research, School of Human Movement Studies, The University of Queensland, Brisbane, Queensland.
 3. Department of Nutrition and Dietetics, The Wesley Hospital, Brisbane, Queensland.
 4. Department of Medical Oncology, Royal North Shore Hospital, Sydney, New South Wales.
 5. University of Sydney, Camperdown, New South Wales.
 6. Department of Nutrition and Dietetics, Princess Alexandra Hospital, Brisbane, Queensland.
- Email: Merran.Findlay@sswhs.nsw.gov.au

Abstract

The prevalence of malnutrition in both older people and those with cancer is high. Risk of malnutrition is compounded in the oncogeriatric population arising from the overlap of both age-related and cancer - induced aetiologies, leaving the older person particularly susceptible to the detrimental sequelae of disease and treatment-related morbidity. National evidence-based guidelines recommend implementation of routine malnutrition screening to identify at risk patients and facilitate early access to dietitians with expertise in nutritional management of this patient group for comprehensive nutritional assessment, intervention and monitoring. The multidisciplinary team can play a proactive role in addressing the nutritional needs of this group as part of comprehensive cancer care and improve patient-centred, clinical and cost outcomes.

In Australia in 2012, approximately 75% of new cancer cases were diagnosed in males, and 65% in females, aged 60 years and over.¹ There is some evidence to suggest that the gaps in knowledge about older peoples' responses to cancer treatment result in dose-reduced chemotherapy,² or suboptimal anticancer treatment relative to current guidelines.^{3,4} The rising life expectancy of the general population and longer survival after a diagnosis with cancer, suggest that all cancer clinicians require knowledge and expertise in managing the oncogeriatric population.

Nutritional issues in the older person with cancer

Pathophysiology of aging and nutritional concerns

Aging is characterised by a decline in organ function, including loss of lean muscle mass (sarcopenia) and/or bone mineral density, in conjunction with a reduced capacity to adapt to environmental changes arising from deficits in homeostatic mechanisms.⁵ The resultant physical frailty is compounded further by changes in cognitive function, mental health and socioeconomic status. Progressive decline in organ function will ultimately induce functional impairment and finally disability.

The pathophysiology of sarcopenia is complex, although has been described as the loss of muscle mass and muscle strength that is associated with aging.⁶ 'Anorexia of aging' describes the loss of appetite and resulting reduction in dietary intake that can occur with increasing age.⁷ Cancer cachexia is also multifaceted and has historically lacked an agreed definition. A recent international consensus document has defined cancer cachexia as a multifactorial syndrome defined by an ongoing loss of

skeletal muscle mass (with or without loss of fat mass) that cannot be fully reversed by conventional nutritional support and leads to progressive functional impairment.⁸ Its pathophysiology is characterised by a negative protein and energy balance, driven by a variable combination of reduced food intake and abnormal metabolism. However, even if patients were observed to maintain reasonable oral intake, they are still likely to experience unintentional weight loss, predominantly from fat free mass, indicating this complex proinflammatory cytokine-mediated syndrome is more metabolic than caloric in origin and hence requires multifaceted management. Cancer cachexia must therefore be distinguished from other forms of muscle depletion, in particular age-related sarcopenia.

Malnutrition

Malnutrition can be defined as inadequate nutritional intake and/or increased nutritional requirements that results in negative clinical outcomes.⁹ Anorexia of aging, cachexia and/or the effects of the tumour, and side-effects of treatment can all increase the risk of developing malnutrition. Malnutrition is common in cancer patients and risk is higher among those who are older and/or treated with chemoradiation.¹⁰ Age is a non-modifiable risk factor for becoming malnourished.¹¹ While any elderly patient with cancer is at nutritional risk, those at highest nutritional risk have gastrointestinal or head and neck cancers.¹²⁻¹⁴ Inpatients who are malnourished or who have a poor dietary intake are at greater risk of increased length of hospital stay, treatment related morbidity and mortality after adjustment for disease type and severity.¹⁵ Malnutrition risk was frequent (53%) in 175 patients aged over 65 years undergoing chemotherapy, associated with impaired functionality and cognition, which negatively

influenced their ability to complete planned intensive chemotherapy.¹⁶ The influence of nutritional status on postoperative morbidity and mortality has also been well documented, with undernutrition recognised as an independent risk factor for the increased incidence of complications, mortality, length of hospital stay and costs.^{17,18}

Malnutrition is both a cause and consequence of ill health across health care settings. Malnutrition can occur in the older person with cancer due to one or more of the following:

- decreased oral intake due to swallowing or dentition problems, impaired functional capacity, reduced appetite, depression, polypharmacy and/or illness.¹⁹
- an acute care hospital admission with resultant deterioration in nutritional status.
- presence of symptoms which impact on nutritional status as a result of: the patient's tumour, particularly head and neck or upper gastrointestinal cancer; their anticancer treatment, especially emetogenic chemotherapy or radiation fields that include the head and neck or oesophagus; excessive alcohol intake; sensory deficits; dysphagia; and social isolation, dementia, delirium, depression and destitution in the vulnerable elderly population.

A diagnosis of cancer in an older person can superimpose disease-related sequelae upon pre-existing comorbidities. As such, comprehensive screening and thorough assessment by the multidisciplinary team is essential to both determine appropriate medical treatment and facilitate earlier intervention for management of potentially treatable conditions such as malnutrition. A Comprehensive Geriatric Assessment can help determine the fitness of an older person for treatment after potential vulnerabilities have been identified through screening.²⁰

Understanding nutritional risk versus nutritional status

Malnutrition screening and nutritional assessment

Nutritional risk should be recognised as distinct from nutritional status, as even individuals who are determined to be well-nourished, and even obese at initial presentation, may be at high risk of decline in nutritional status during the course of treatment or with disease progression. Australian evidence-based practice guidelines recommend that ideally, all oncology patients should be screened for malnutrition and that formal nutritional assessment be performed on high-risk patients, using tools validated in the oncology population.^{21,22}

Malnutrition screening is a quick and simple process used by the multidisciplinary team to identify patients at risk of malnutrition who require comprehensive nutritional assessment by a trained clinician with nutrition expertise. Malnutrition screening is considered an essential component of comprehensive cancer care and should be undertaken at initial presentation in both ambulatory and inpatient settings, with rescreening performed at regular intervals throughout the trajectory

of care. One such tool is the Malnutrition Screening Tool (MST) that can be easily implemented to identify patients at nutritional risk.²³

It consists of two questions related to recent unintentional weight loss and poor intake because of a decreased appetite. The MST provides a score between 0-5, with patients considered to be at risk of malnutrition if they score ≥ 2 . It has been validated in a range of settings and is one of the simplest malnutrition screens; it can be completed by administrative staff or the patient themselves.

Nutritional assessment is a comprehensive approach to clinically determine an individual's nutritional status and identify nutrition-related problems. This involves analysis and interpretation of a range of parameters and data, including medical diagnoses, treatment plan, medication history, physical examination through anthropometric measures, nutritional biochemistry, psycho-social factors and dietary intake history. Detailed assessment of nutritional status is important because malnutrition is not always obvious. For example, an obese patient may still exhibit signs of nutritional compromise with severely depleted lean muscle mass and poor micronutrient status. Use of biochemical indices, such as albumin in isolation, as a proxy measure of nutritional status, is no longer accepted as adequate to accurately determine nutritional status and should not be considered a surrogate for a thorough clinical nutritional assessment.^{24,25} It is important to measure and record regular body weights, as it is not always apparent when someone is losing weight. Due to kyphosis, a higher healthy weight (or Body Mass Index) is acceptable for older adults, with a lower cut off of 22 or 24kg/m², typically used to define underweight as compared to a BMI of <18.5kg/m² in patients <65 years. However, the presence of oedema in a proportion of cancer patients, especially older patients, confounds interpretation of weight status and that is why comprehensive assessment tools as described below are the preferred method of nutritional assessment.

Several validated nutritional assessment tools are suitable for use in the elderly person with cancer. The Subjective Global Assessment (SGA),²⁶ yields a global rating that classifies nutritional status as: well-nourished (SGA A); moderate or suspected malnutrition (SGA B); or severely malnourished (SGA C). Adapted from the SGA, the scored Patient-Generated Subjective Global Assessment (scored PG-SGA)²⁷ yields both the categorical global rating and an additional continuous component relating to the severity of nutrition-impact symptoms. While both tools are validated for use in the oncology patient population (including elderly) and are recommended by current evidence-based practice guidelines, the scored PG-SGA includes a more comprehensive range of nutrition impact symptoms and tends to be more sensitive to measurable change over shorter periods of time.

Both a screening and assessment tool, the Mini-Nutritional Assessment (MNA) has been developed and

cross-validated for use in a broad spectrum of elderly populations, including hospitalised, frail housebound and the active elderly.²⁸ On a scale of 0-30, this tool yields a score with the following categories: normal nutritional status (24-30 points); at risk of malnutrition (17-23.5 points); or malnourished (<17 points). While validated for use in the elderly population, little research has been undertaken validating use of the MNA in the cancer population. In comparing the MNA with the scored PG-SGA in diagnosing malnutrition, Australian investigators determined that the MNA demonstrated high sensitivity (97%), however only moderate specificity (54%).²⁹ A similar finding was observed when comparing the two instruments in the elderly (> 65 years), with researchers concluding misclassification may have been attributable, in part, to scoring of questions relating to polypharmacy and the number of full meals consumed per day, which may not take into account characteristics typically seen in oncology patients. Therefore, the SGA and PG-SGA tools have the further advantage of being validated in all adults with cancer (ie. both those above and below 65 years of age) and also across health care settings that aids staff use of the tools and documentation and communication between settings.

Nutrition support options

The early identification and management of older people demonstrating compromised nutritional status is paramount, particularly in those undergoing multimodal treatment regimens in neoadjuvant, definitive, or adjuvant settings, as they are more likely to experience greater nutrition-impact symptoms. Improved treatment and patient outcomes have been demonstrated with appropriate nutrition intervention. Nutrition support options typically include food fortification, oral nutrition support with specialised medical nutrition therapy formula, and initiating supplementary tube feeding or total parenteral nutrition when appropriate. Each nutrition support modality has specific indications, with selection of the most appropriate method best determined on an individualised basis by a specialist dietitian in consultation with the patient, family and treating team. Evidence-based practice guidelines for the nutritional management of the patient with cancer highlight the strength of evidence with regards to nutrition support options and particular cancer types and/or treatment. There is strong evidence that early and ongoing dietary counselling (eg. by a dietitian), with or without the use of high energy-protein nutritional supplements, improves dietary intake and results in less weight loss and better quality of life. Patients requiring palliative care also necessitate special consideration, as choice and suitability of nutrition support options may vary according to where the patient is on the care pathway, in order to remain aligned with overall management goals and optimise quality of life.

Role of the multidisciplinary team in nutrition care

Comprehensive nutritional care of all patients undergoing cancer treatment involves collaboration

by all members of the multidisciplinary team to ensure positive patient outcomes are achieved. As there is now a body of strong evidence to support the role of nutrition care in cancer treatment, it is important that all members of the multidisciplinary team are aware of their potential contribution in addressing nutrition issues.³¹ Patients should be encouraged to regard nutrition care as a key component of their treatment. A positive nutrition focus with reinforcement from multiple team members has been shown to substantially increase dietary intake and improve outcomes such as quality of life in the elderly.³² Table 1 summarises key elements in the attainment of improved nutrition outcomes.

Table 1: Key points in the nutrition care of the older person with cancer.

- Older people with cancer should be screened for malnutrition risk at diagnosis, planning of anticancer therapy and regularly during treatment and follow-up.
- Patients identified as at risk of malnutrition should be referred for a comprehensive nutrition assessment and care plan (e.g. by a dietitian), which is communicated between health care settings.
- Formal nutritional assessment of patients identified as being at high nutritional risk should be undertaken utilising appropriate tools validated for use in the oncology patient outcomes.
- Early identification and treatment of nutrition problems can lead to improved patient outcomes.
- All members of the multidisciplinary team can play a proactive role in the nutritional care of patients.

Recommendations

The older person with cancer is particularly susceptible to the detrimental sequelae of malnutrition arising from the overlap of both age-related and cancer-induced aetiologies. The potential for decline in nutritional status is multifactorial, arising from reduced dietary intake (both disease and treatment-related nutrition impact symptoms), the effects of aging and the burden of disease. Members of the multidisciplinary team can proactively participate in addressing the nutritional needs of this group. In particular, it is recommended that routine malnutrition screening in both ambulatory and inpatient settings is implemented and that access to specialist dietitians for comprehensive nutritional assessment, intervention and monitoring is essential as part of an effective multidisciplinary team approach in order to achieve delivery of best practice, evidence-based nutritional care to the oncogeriatric population. Health administrators need to ensure there are adequate numbers of trained staff available in both the geriatric and cancer treatment settings

to undertake appropriate assessments, intervention and monitoring to ensure improved outcomes.

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