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GENERAL AND SUPPORTIVE CARE

Nutritional support during oncologic treatment of patients with gastrointestinal cancer: Who could benefit?

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Summary
Introduction: In patients with gastrointestinal (GI) cancer, severe malnutrition is associated with increased morbidity and mortality, reduction of treatment efficacy, and increased length of hospital stay. Therefore, systematic screening and care of malnutrition is mandatory.
Materials and methods: Data for this review were identified by searches of Medline with and without MeSH database and Cancerlit. Studies were selected only if they were randomised clinical trials or historical reports. References were also identified from reference lists in relevant preciously published articles. Recent guidelines and meta-analyses were included. Only articles published in English were taken into consideration.
Results: For surgical patients, practical information such as weight loss or subjective global assessment would provide a better basis for deciding whether or not to delay surgery. At least 10 days of nutritional support is recommended in severely malnourished patients before major digestive surgery. In non-severely malnourished patients, preoperative oral immunonutrition is associated with a 50% decrease in postoperative complications. The benefit of immune-enhancing diets in severely malnourished patients remains to be proven. For patients undergoing radiochemotherapy, dietary counselling should be proposed to all patients. In cases of severely malnourished patients or if dietary counselling suffers a setback, enteral nutrition should be recommended. Parenteral nutrition should be reserved for patients with severe digestive intolerance when enteral nutrition is not possible.

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Conclusion: Propose an adaptive nutritional support at each step of a multimodal GI oncological treatment is essential. These recommendations should be used in daily practice but should also be included in all clinical research protocols.

Introduction

Several recent publications and guidelines have pointed out the benefit of nutritional support for patients suffering from gastrointestinal (GI) cancer. Therefore, even if most clinicians commonly agree that malnutrition is a risk factor for increased morbidity and mortality, nutrition management of these patients remains insufficient. Among the many reasons for this clinical circumspection, the following can be mentioned: the lack of useful practicable criteria, the multiplicity of these criteria, the lack of publications on large series, and the complexity of current guidelines. While this list may be continued, in daily oncological practice, nutrition is often relegated to the bottom of the list of priorities. Spiro and colleagues,[1] on the basis of two case scenarios in patients with GI cancer and a specific questionnaire, gathered views and practices of oncologists on nutritional support. Their study showed that oncologists lacked identifying factors for classifying patients at risk of malnutrition. Indeed, 48% failed to specify height and/or BMI (body weight in kg/height in m^2) and 55% failed to determine weight loss over 1 month, indicative of the need for nutritional support. Nutritional assessment concerns all the actors of the treatment strategy and should not be restricted just to the nutrition expert. Nutritional support is particularly relevant in GI cancer for which recent studies and guidelines have been published and the benefits proven.

The aim of this target review is to sensitise oncologists and surgeons to the problem of nutritional assessment and support for GI cancer patients undergoing curative treatment.

Review of the literature

Data for this review were identified by searches of Medline with and without MeSH database and Cancerlit. End of literature search was December 2006. Studies were selected only if they were randomised clinical trials or historical reports. Only articles published in English were taken into consideration. The terms ''enteral feeding'', ''parenteral nutrition'', ''surgery'', ''radiotherapy'', ''neoadjuvant therapy'', ''perioperative care'', ''chemotherapy, adjuvant'', ''dietary supplements'', ''meta-analysis'', ''guidelines'', ''clinical trials'', ''prospective studies'', ''gastrointestinal neoplasms'', ''immunonutrition'', ''eicosapentaenoic acid'' were used.

Consequences of malnutrition in GI cancer patients

Malnutrition is a well-recognized and significant source of postoperative morbidity and high rate toxicities during chemotherapy or radiotherapy, resulting in increased hospital length of stay, increased treatment costs, decreased performance status, and altered quality of life.

For patients undergoing surgery, Malone and colleagues[2] reported that malnutrition (defined as a weight loss of more than 10% over 6 consecutive months) has to be considered as a significant preoperative risk factor of nosocomial infections (12.3 *vs* 7.1% infections in the surgical site, $p = 0.011$). In GI cancer patients, malnutrition is also associated with a poor prognosis. In a randomised control study of localized oesophageal cancers, Kelsen and colleagues[3] reported the negative role of weight loss greater than 10% of body weight in the outcome ($p = 0.03$). Alves and colleagues[4] reported similar data in a prospective multicentre study of 1421 patients undergoing colon surgery (colorectal cancers and diverticular disease). In this study, weight loss of more than 10% was an independent preoperative risk factor of mortality.

Nutritional assessment or more precisely malnutrition screening is thus an essential step in the global management of all cancer patients. In fact, this screening allows clinicians to distinguish two subgroups of patients: malnourished and non-malnourished patients. The American Society for Parenteral and Enteral Nutrition guidelines[5] defined malnutrition as an involuntary loss or gain $\geqslant$10% of usual body weight in 6 months or $\geqslant$5% of usual body weight in 1 month. The recent European guidelines[6] for surgical patients suggest a systematic screening of malnourished patients on additional criteria: severe nutritional risk defined by weight loss greater than 10–15% in 6 months, BMI less than 18.5, a subjective global assessment (SGA)[7,8] grade C, or a serum albumin concentration less than 30 g/L. In addition to these criteria, the Nutritional Ratio Index[9,10] [NRI: $15.9 \times$ serum albumin (g/dL) + $41.7 \times$ (current weight/usual weight)] could predict morbidity in perioperative patients.

For patients undergoing chemotherapy and/or radiotherapy, minor malnutrition (weight loss <10%) is also a significant source of toxicities and poor prognosis. In a multicentre cooperative study of 3047 patients prior to chemotherapy,[11] weight loss was associated with a poor median survival for colorectal cancer patients (weight loss compared with no weight loss, $p < 0.01$). Andreyev and colleagues,[12] indicated in a retrospective review of 1555 patients for GI malignancies undergoing chemotherapy that weight loss at presentation may be an independent prognostic variable of developing more severe dose-limiting toxicities ($p < 0.0001$), decreased response ($p = 0.006$), and shorter overall survival (gastric and colorectal neoplasms, $p < 0.0001$). Weight loss $\geqslant$5% was associated with a poor prognostic factor (9 months *vs* 12 months, $p = 0.006$) in 350 patients with advanced oesophageal cancer who were treated in six consecutive prospective trials.[13] Recently, Mitry and colleagues[14] analyzed predictive factors of survival in patients with advanced colorectal cancer included in irinotecan phase III trials. By multivariate analysis, weight loss <5% was independently associated with a better overall survival (odds ratio 1.67, 95% CI 1.29–2.14). One hypothesis to explain these side effects is modification of xenobiotic