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NutriCancer: A French observational multicentre cross-sectional study of malnutrition in elderly patients with cancer

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ABSTRACT

Objectives: To compare the prevalence of malnutrition and nutritional management between elderly (≥70 years old) and younger patients (<70 years) with cancer.
Patients and Methods: This is a post-hoc analysis of NutriCancer 2012 study; a one-day cross-sectional nationwide survey conducted to assess malnutrition in adult patients with cancer in France. Patients diagnosed with cancer at the study date in both inpatient and outpatient settings were included. Data collection was performed by means of questionnaires completed by the physician, the patient and the caregiver.
Results: This post-hoc analysis compared 578 elderly patients (27.6%) *vs.* 1517 younger patients (72.4%). There were significant differences in cancer localization between the groups particularly in gastrointestinal cancer (27% in younger patients vs. 42% in elderly), breast cancer (17% vs 8% in elderly) and oropharyngeal (15% vs. 9% in elderly). Weight loss was significantly more reported in the elderly than in younger patients (73.6% vs. 67.6%, $p = 0.009$). Elderly patients were more frequently malnourished than younger patients (44.9% vs. 36.7%, $p = 0.0006$). Food intake was comparable between the groups; however, physicians overestimated the food intake, particularly in the elderly. The malnutrition management was more frequently proposed in elderly, as dietary advice and oral nutritional supplements, than in younger patients; however, enteral nutrition was significantly less undertaken in the elderly.
Conclusion: Malnutrition is prevalent in elderly patients with cancer, and more frequent than in younger patients. There is a need for an early integration of the nutritional counselling in patients with cancer, and particularly in the elderly.

1. Introduction

Ageing is one of the ultimate social and economic challenges of the 21st century for European countries. By 2025, more than 20% of Europeans will be 65 years or older. Although malignant diseases

Abbreviations: VAS, visual analogue scale; NS, not significant.

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occur at all ages, the elderly represents more than 40% of patients with cancer [1]; 71% of cancer deaths occur in this age group [2].

Because of the rapidly growing elderly population and the steady increase in cancer incidence with advancing age, the management of elderly patients with cancer, aged 70 years and older, has become a major public health issue. This population is subject to frequent comorbidities and associated polypharmacy, as well as nutritional concerns. Nutritional status is now established as a strong independent predictor of mortality and morbidity, as well as reduced chemotherapy exposure and increased therapy-related toxicities in patients with cancer [3–6]. Up to 10% of patients with terminal cancer die ultimately from progressive cachexia [7]. Malnutrition in elderly patients with cancer may result from dysphagia and metabolism changes. Beside cachexia, side effects and acute toxicities of anticancer therapies may further exacerbate the nutritional deterioration [8,9].

In France, diagnosis and management of malnutrition in elderly is one of the main concerns of the health authorities. Clinical practice guidelines for diagnosis and management of elderly patients who are malnourished or at risk of malnutrition were developed [10,11].

The NutriCancer 2012 study was a one-day cross-sectional epidemiological nationwide survey conducted to assess malnutrition in adult patients with cancer in France [12]. The aim of the current post-hoc analysis is to present a comparison between two groups of patients with cancer: ≥70 years (elderly) and <70 years old, particularly in terms of prevalence of malnutrition and nutritional management.

2. Patients and Methods

2.1. Study Design

This is a post-hoc analysis of NutriCaner 2012 study, focusing on the malnutrition in the elderly. The NutriCancer 2012 study was carried out simultaneously in 30 participating centres, and included 2197 patients over one day on October 9, 2012. Participating centres included private practice, medical oncology departments, radiotherapy services and other specialized services (i.e.: otorhinolaryngology, haematology, pulmonary, gastroenterology). The primary objective of the present analysis was to compare the prevalence of malnutrition (defined according to a standardized definition) between elderly (≥70 years old) and younger patients (<70 years old). Secondary objectives included the nutritional management, food intake, and the impact of the nutritional status on the quality of life as evaluated by the patient and the physician.

According to the French regulations, the protocol received the approval of CCTIRS (Comité Consultatif sur le Traitement de l'Information en Matière de Recherche dans le Domaine de la Santé) on May 9, 2012 and CNIL (Commission nationale de l'informatique et des libertés) on July 18, 2012.

2.2. Patients

Inclusion criteria were: (i) patients diagnosed with cancer at the study date in both inpatient and outpatient settings, (ii) older than 18 and (iii) willing and able to complete a questionnaire written in French. Patients were eligible if their usual weight, current weight and height were available. Investigators were asked to include all patients with cancer who were at the hospital on the survey day and who accepted to participate. Patients admitted in outpatient units or for observation after endoscopic or other invasive treatment were also included in the study.

2.3. Data Collection

Malnutrition was assessed in each patient according to a standardized definition [13,14]: weight loss equal to or greater than 5% within one month or 10% within 6 months, and/or BMI ≤18.5 in patients younger than 70 years or ≤21 in patients older than 70 years, and/or albuminemia (when available) strictly less than 35 g/L in patients older than 70 years.

For each patient included, two questionnaires were analysed: one completed by the patient, and the other completed by the physician who examined the patient on that day. All questionnaires were anonymously encoded in order to match the questionnaires completed for a given patient. The completeness of the questionnaires was verified on the same day by Clinical Research Associate.

Weight and height, measured according to each centre policy, were used to calculate the BMI. Weight loss was assessed as the difference between the current weight (on the study day) and the weight reported by the patient before the diagnosis of cancer. The impact of the nutritional status on the quality of life was assessed by the physician and the patient using a visual analogue scale (VAS) ranging from 1 to 10. Food intake was also assessed using suitable analogue scales [15] and main reasons for lower food intake were reported. These data were used to evaluate the crossed perception of nutritional interventions and status by patients and physicians.

2.4. Statistical Methods

All data were entered into DAISIE database (version 2.17.016). Statistical analyses were performed with SPSS version 20.0 and TANAGRA version 1.4.47. Results are presented as means and standard deviations for quantitative variables and frequencies and percentages for qualitative variables. The current post-hoc analysis consists of a comparison between two groups of patients with cancer: ≥70 years (elderly) and <70 years old. Malnutrition was also evaluated in the patients aged ≥80 years. Chi-2 tests and t-tests were used to compare quantitative variables with a type-I error limit set to 0.05 for statistical significance.

3. Results

On October 9, 2012, among the 2197 eligible patients consecutively included in the study, the age was missing for 102 patients. In consequence, this post-hoc analysis compared 578 patients (27.6%) aged 70 years or older vs. 1517 patients (72.4%) aged less than 70 years.

3.1. Patient Characteristics

On the study day, demographics and clinical characteristics in patients being 70 years or older and younger patients are presented in Table 1. Median elderly patient age was 75.4 years and they were mostly male (53.6%). One third of elderly patients (n = 154, 26.6%) were aged 80 years and older; which constitutes 7.5% of total population.

Almost half of elderly patients were hospitalized in inpatient setting (n = 304, 52.6% vs. 774 (51%) in younger patients, p = 0.5). More than one-third of elderly patients were suffering from a primary digestive cancer (42%), which is significantly more frequent than younger patients (27%). Significant differences were also found in breast and oropharyngeal cancers, which were more reported in younger patients; whereas urinary tract cancers were significantly more reported in elderly patients.

The cancer was diagnosed from less than one year in almost half of elderly patients (50.6%) and from more than 10 years in 8.4% of elderly patients. The percentage of patients in remission was higher in younger patients than in elderly (9.7% vs. 6.8%, p = 0.05). There was no difference in cancer recurrence between the elderly and younger patients; mean number of relapses was comparable (1.72 vs. 1.62 episodes in the elderly, p = 0.4). Most of the elderly was presenting metastases (n = 264, 57%). No difference was observed in the two groups regarding the treatment modalities.

Significant differences were found between the elderly and younger patients regarding the ECOG performance status. Younger patients were

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