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Applied nutritional investigation

Unidentified cachexia patients in the oncologic setting: Cachexia UFOs do exist

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ABSTRACT

Objectives: Cachexia is an important outcome-modulating parameter in patients with cancer. In the context of a randomized controlled trial on cachexia and nutritional therapy, the TiCaCONCO (Tight Caloric Control in the Cachectic Oncologic Patient) trial, the contacts between patients with cancer and health care practitioners and oncologists were screened. The aim of this retrospective study was to identify in the charts the input of data on body weight (necessary to identify cachexia stage), relevant nutritional data, and nutritional interventions triggered or implemented by oncologists and dietitians.
Methods: In a tertiary, university oncology setting, over a time span of 8 mo (34 wk), the charts of patients admitted to an oncology, gastroenterology, or abdominal surgery unit were screened for the presence of information contributing to a cancer cachexia diagnosis. Data (patient characteristics, tumor type, and location) was gathered.
Results: We analyzed 9694 files. Data on body weight was present for >90% of patients. Of the 9694 screening, 118 new diagnoses of cancer were present (1.22% of patient contacts). Information on weight evolution or nutritional status was absent for 54 patients (46%). In contacts between oncologists and patients with cancer, at the time of diagnosis, cachexia was present in 50 patients (42%). In 7 of these patients (14%), no nutritional information was present in the notes. Of the 50 patients with cachexia, only 8 (16%) had a nutritional intervention initiated by the physician. Nutritional interventions were documented in the medical note in 11 patients (9%) in the overall study population. Dietitians made notes regarding nutrition and weight for 49 patients (42%). We could not demonstrate a difference in mortality between cachectic and non-cachectic patients, although numbers are small for analysis.
Conclusion: Patients newly diagnosed with cancer are not systematically identified as being cachectic and if they are, interventions in the field of nutrition therapy are largely lacking. Important barriers exist between oncologists and dietitians, the former being mandatory to the success of a nutrition trial in cancer.

Introduction

Cachexia is a known prognostic parameter in patients with cancer. Because of its importance, criteria have been determined for standardization, the most important one being 5% weight loss over a period of 6 mo [1]. Nevertheless, large differences exist concerning both prevalence and recognition of this entity. This could be partly explained by a lack of guideline knowledge and relative ignorance concerning possible remedies and treatments.

Recently, a study revealed the lack of cooperation by oncologists in the field of nutrition [2]. This is remarkable because the importance of nutrition as a mode of therapy has been suggested in this patient population [3,4,5] and even in other domains [6] because of malnutrition having a negative effect on prognosis [7].

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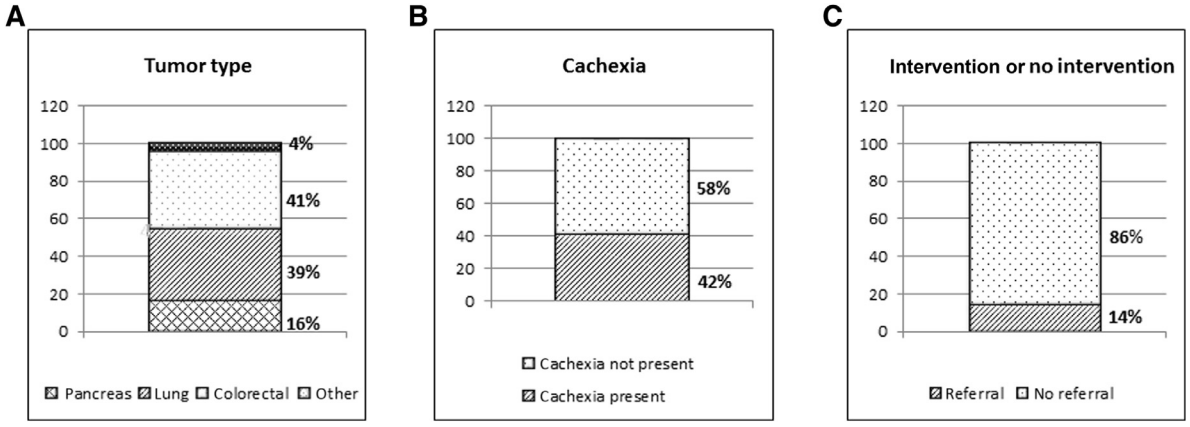

Fig. 1. Stratification of patients based on (**A**) tumor type, (**B**) the presence of cachexia, and (**C**) whether a nutritional intervention was taken.

Moreover, oncologic therapy could even aggravate a poor nutritional status [8]. Despite these results and the presence of clear guidelines on nutrition in patients with cancer [9], the barrier between nutrition and oncology appears to be important for a variety of reasons [2].

In our university setting in the Universitair Ziekenhuis Brussel (UZ Brussel), the TiCaCONCO (Tight Caloric Control in the Cachectic Oncologic Patient) trial, concerning nutrition therapy in patients with cancer, is ongoing. We used the Fearon criteria to determine cachexia and identify patients eligible for inclusion. In the current substudy, we wanted to measure the prevalence of cachexia in our study population, the presence of nutrition-related information in the medical records, and the intensity of interventions in the field of nutritional therapy, initiated by the coordinating oncologist.

Materials and methods

This was a retrospective observational study carried out in the UZ Brussels, and its inclusion criteria are based on the TiCaCONCO/CoCooN trial.

The inclusion period on the date of this analysis was as of July 31, 2017 (the study duration was 8 mo). All medical records reporting on outpatient clinical contacts (consultation) and patients with cancer admitted to an oncology, gastroenterology, or abdominal surgery ward were screened for information contributing to the cancer cachexia diagnosis. Patient and cancer characteristics were gathered prospectively (for the TiCaCONCO trial). Every single note made in the electronic medical file of the patients by the treating physician was analyzed for the presence of body weight, body weight evolution, nutritional information, and initiatives such as treatments or referrals. Notes by dietitians were analyzed, and links between medical notes and dietitian interventions were investigated. Inclusion in the TiCaCONCO trial was investigated.

Only descriptive statistical analysis was performed. Therefore, no statistical tests were used.

Results

We analyzed 9694 files of patients with malignant neoplasia, as confirmed on biopsy, at the UZ Brussel, looking for cancer diagnosis as described in the TiCaCONCO protocol. Patients with a new diagnosis of lung; colorectal; pancreatic; ear, nose, throat; esophageal; or gastric cancers were eligible for inclusion. In >90% of patients, data on body weight was present in the medical file. In the 9694 file screenings (1.22% of patient contacts), 118 new diagnoses of cancer were present, with the tumor types represented in Figure 1A. In these 118 patients, 50 (42%) presented with cachexia according to the Fearon criteria, as seen in Figure 1B. Nutritional intervention was undertaken by the oncologist in 8 of these patients (16%), representing an initiative in 11 of them (9%) out of the entire population (Fig. 1C). Figure 2 compares the presence of

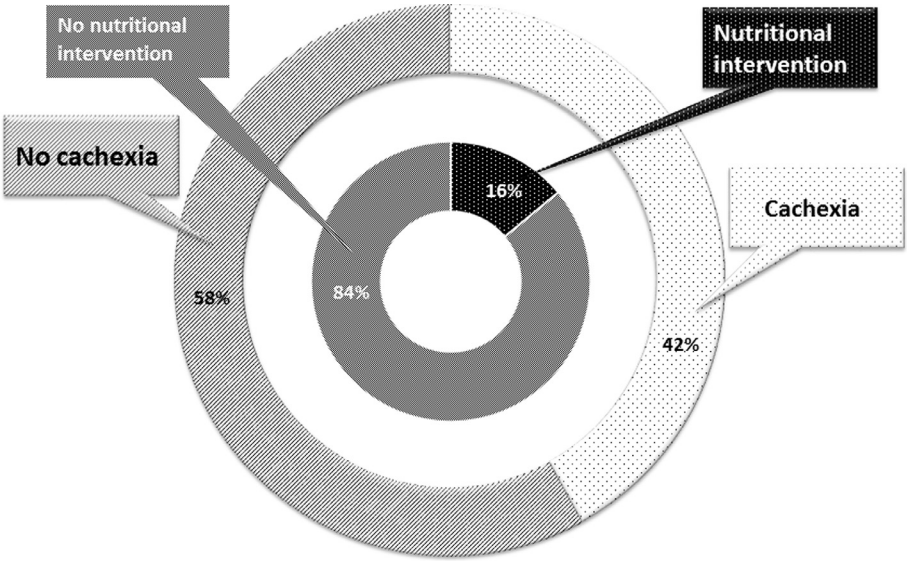

Fig. 2. Percentage of patients having undergone nutritional intervention.

cachexia with nutritional intervention. No intervention was identified in patients without cachexia. Of the cachectic patients, 21 (42%) had a doctor's note about nutritional issues and an intervention by a dietitian. Eleven patients (22%) only had a doctor's note and another 11 (22%) had a note only by a dietitian. In 7 cachectic patients (14%), no information nor intervention was present in the medical file. Referral to a dietitian was present in the medical note for 11 patients (9%). Of all the patients, 49 (42%) had a note by a dietitian in the file.

Of patients with cachexia (identified by our study team, not by the treating oncologist), 7 (14%) did not have an initiative launched, even when notes such as "lost only 5 kg in 1.5 y," "weight loss of 10% in 1 y," "4 kg of body weight loss in 2 mo," or "eats like a sparrow" indicating probable malnutrition, were present.

Of these 118 patients, only 7 (6%) were finally included in the TiCaCONCO trial. Reasons for documented non-inclusion for the 118 patients were lack of interest (n = 20; 17%), stable weight (n = 29; 25%), oncologic recurrence requiring radio- or chemotherapy (n = 5; 4%), no indication for (neo)adjuvant treatment for any reason (n = 30; 26%), neoplasia not mentioned in the inclusion criteria (n = 8; 7%) or any other reason (n = 19; 16%).

Discussion

In this study, we found that the recorded information on the nutritional condition of patients newly diagnosed with cancer was low, and the intervention rate was dramatically low. In the patient group with cachexia, 16% received nutritional therapy or were referred to a dietitian, which are interventions known to influence treatment success and survival.

Inclusion of patients with cancer cachexia into a study on nutritional interventions in cancer cachexia, according to the Fearon criteria [1], appeared to be very difficult, despite a significant prevalence (42%) of cachexia in this patient group. This prevalence is relatively low compared with the ≤80% that has been reported by others [10], although the TiCaCONCO trial is already designed to include only types of cancer where cachexia is known to be common.

Cachexia appears to be a defining factor in illness and outcome as we showed previously [3]; another study similar to the TiCaCONCO trial has been initiated to study the same variables in the intensive care unit [11].

Guidelines by different societies offer clinical tools to detect and treat malnutrition in patients with cancer: the European Society for Clinical Nutrition and Metabolism guidelines in 2017 [9] and expert consensus reports [9,10,12]. The need for these appears to be very high [13,14].

The low inclusion rate in the ongoing cachexia study has several causes. Cooperation with oncologists seems necessary to avoid the creation of large screening logs with mostly ineligible patients. Seventeen percent of patients refused inclusion after discussion with their oncologist or general practitioner. But there also seems to be a problem at the level of the referring oncologists, other physicians, or dietitians. This problem has been described previously [2] (Figures 3 and 4).

There is a low rate of referral to a dietitian in the medical notes. Nevertheless, in clinical practice, it is possible that physicians would give an oral instruction to foresee a contact between the patient and a dietitian when they find this appropriate. In 21 cachectic patients, there was indeed a note by the physician and a note by a dietitian. This represents 42% of the cachectic patients, which is <50% of the patients. Eleven patients had only a note by the oncologist. These data illustrate a suboptimal patient flow. Cachectic patients should be identified at cancer diagnoses; a medical note could contain this information, and an intervention by a dietitian would follow. Alternatively, dietitians could screen newly diagnosed patients on cachexia, and a multidisciplinary plan could be developed and documented in the medical file. As systematic screening is not implemented and a clear work path regarding malnutrition is not in place in our oncology department, a scattered approach is proven by the present study. These data can lead to an improvement of quality of care and is initiated following the following findings: Because body weight is a well-known parameter, an automated calculation of weight loss is performed at every visit. Body mass index is also calculated. These parameters are used in a prescreening on cachexia by the consulted oncologist or the nurse who measures the patient. A negative prescreening results in a follow-up and rescreening. A positive result triggers a nutritional assessment by a specialized health care practitioner (e.g., dietitians). In the assessment information on food intake, body composition, metabolic rate, and inflammatory status is collected. A nutritional care plan is developed and implemented in a multidisciplinary way. Targets on protein and calorie intake are set. Follow-

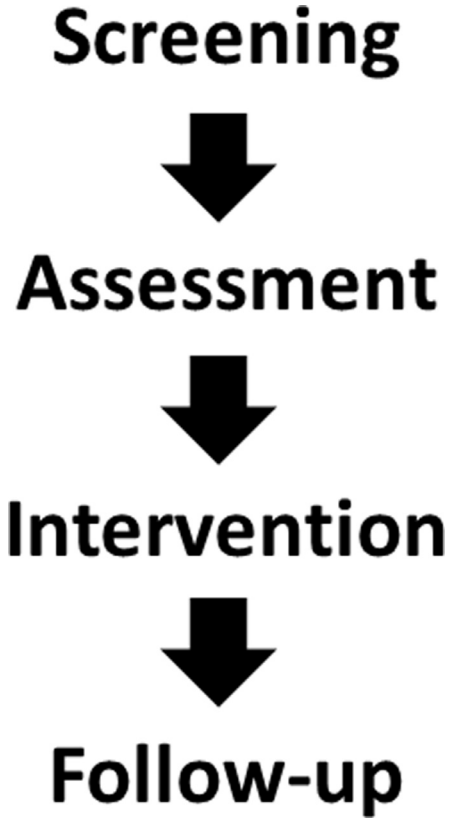

Fig. 3. Proposed workflow in nutrition therapy in general.

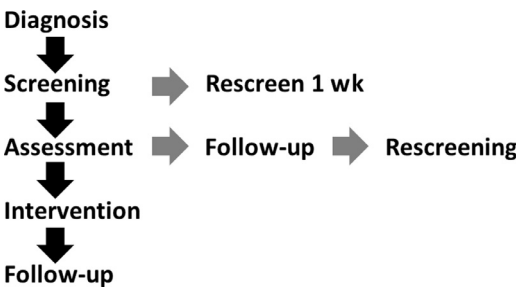

Fig. 4. Proposed workflow concerning cooperation with oncologists (black arrows: positive; gray arrows: negative).

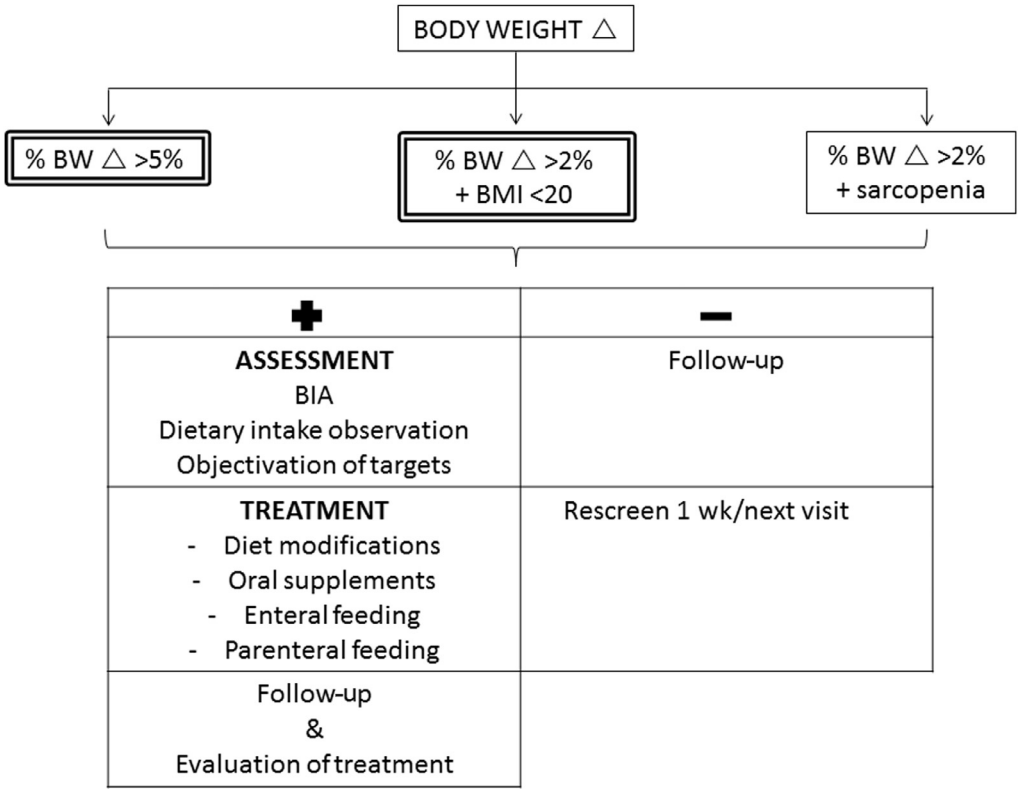

Fig. 5. Summarized workflow. BIA, bioimpedance assay; BMI, body mass index; BW, body weight.

up and evaluation of the treatment is put in place (Fig. 5). Our suggestions are in line with an earlier report concerning nutrition in cancer, where nutritional intervention depends not only on intake itself, but also symptomatic and psychological issues, especially in older patients with cancer, with, for instance, impaired taste. This could all be done by a specialized nurse. This study equally provides an evidence-based decision-making plan [15].

In the present study, we did not find any difference between patients with and without cachexia, but the numbers are small, compromising the statistical analysis, and a trend toward a higher mortality in the cachectic group is clearly shown.

In our opinion, a tight and daily collaboration between oncologists and experts on the nutrition of patients with cancer may play a relevant role in improving the choice of the appropriate nutritional intervention and more generally the outcome of patients receiving anticancer treatments [16]. However, this requires the continuous presence of a medical nutritionist in the oncology department, both for in-clinic patients and outpatients.

Overall, based on the current data, we propose a more efficient cooperation between nutritionists and oncologists. This can be achieved by exposing oncologists to the data and raising awareness campaigns surrounding nutrition, as is often done for screening. Finally, the mandatory role of the dietitian, as paramedic in a multidisciplinary context, should be stressed.

Conclusion

Patients newly diagnosed with cancer are often not identified as being cachectic, interventions in the field of nutrition therapy are lacking, and important barriers still exist between oncologists and dietitians, the former being mandatory to the success of a nutrition trial in cancer.

References

[1] Fearon K, Strasser F, Anker SD, Bosaeus I, Bruera E, Fainsinger RL, et al. Definition and classification of cancer cachexia: an international consensus. Lancet Oncol 2011;12:489–95.
[2] Caccialanza R, Cereda E, Pinto C, Cotogni P, Farina G, Gavazzi C, et al. Awareness and consideration of malnutrition among oncologists: Insights from an exploratory survey. Nutrition 2016;32:1028–32.
[3] De Waele E, Mattens S, Honoré P, Spapen H, De Grève J, Pen JJ. Nutrition therapy in cachectic cancer patients. The Tight Caloric Control (TiCaCo) pilot trial. Appetite 2015;91:298–301.
[4] Della Valle S, Colatruglio S, La Vela V, Tagliabue E, Mariani L, Gavazzi C. Nutritional intervention in head and neck cancer patients during chemo-radiotherapy. Nutrition 2018;51–52:95–7.
[5] De Waele E, Nguyen D, De Bondt K, La Meir M, Diltoer M, Honoré PM, et al. The CoCoS trial: Caloric Control in Cardiac Surgery patients promotes survival, an interventional trial with retrospective control. Clin Nutr 2018;37:864–9.
[6] Muscaritoli M, Rossi Fanelli F, Molfino A. Perspectives of health care professionals on cancer cachexia: Results from three global surveys. Ann Oncol Off J Eur Soc Med Oncol 2016;27:2230–6.
[7] Souza Cunha M, Wiegert EVM, Calixto-Lima L, Oliveira LC. Relationship of nutritional status and inflammation with survival in patients with advanced cancer in palliative care. Nutrition 2018;51–52:98–103.
[8] Bicakli DH, Ozveren A, Uslu R, Dalak RM, Cehreli R, Uyar M, et al. The effect of chemotherapy on nutritional status and weakness in geriatric gastrointestinal system cancer patients. Nutrition 2018;47:39–42.
[9] Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, et al. ESPEN guidelines on nutrition in cancer patients. Clin Nutr 2017;36:11–48.
[10] Gullett NP, Mazurak VC, Hebbar G, Ziegler TR. Nutritional interventions for cancer-induced cachexia. Curr Probl Cancer 2011;35:58–90.
[11] Allingstrup MJ, Kondrup J, Wiis J, Claudius C, Pedersen UG, Hein-Rasmussen R, et al. Early goal-directed nutrition in ICU patients (EAT-ICU): protocol for a randomised trial. Dan Med J 2016;63.

[12] Virizuela JA, Camblor-Álvarez M, Luengo-Pérez LM, Grande E, Álvarez-Hernández J, Sendrós-Madroño MJ, et al. Nutritional support and parenteral nutrition in cancer patients: An expert consensus report. Clin Transl Oncol 2018;20:619–29.
[13] Álvaro Sanz E, Garrido Siles M, Rey Fernández L, Villatoro Roldán R, Rueda Domínguez A, Abilés J. Nutritional risk and malnutrition rates at diagnosis of cancer in patients treated in outpatient settings: early intervention protocol. Nutrition 2018;57:148–53.
[14] Gavazzi C, Sieri S, Traclò F, Sproviero A, Vandoni G, Ricci R, et al. Changes in food habits in cancer patients in Italy: e survey. AIOM - SINPE - FAVO. Nutrition 2018;55–56:140–5.
[15] Ravasco P. Nutritional approaches in cancer: relevance of individualized counseling and supplementation. Nutrition 2015;31:603–4.
[16] Cotogni P, De Carli L, Passera R, Amerio ML, Agnello E, Fadda M, et al. Longitudinal study of quality of life in advanced cancer patients on home parenteral nutrition. Cancer Med 2017;6:1799–806.