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Review

Holistic multimodal care for patients with cancer cachexia and their family caregivers

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ABSTRACT

Patients with cancer cachexia frequently suffer from physical symptoms and psychological symptoms of illness, which can lead to emotional distress in patients and family caregivers. Although there is no standard care to manage cancer cachexia despite its high prevalence and negative impact on quality of life in patients and family caregivers, there is accumulating evidence showing the importance of holistic multimodal care for cancer cachexia. However, there is no agreement on the essential components of holistic multimodal care. Therefore, the aims of this review are to give an overview of what is known about the holistic multimodal care and to suggest the composition of a multidisciplinary team to achieve holistic interventions. Holistic multimodal care for cancer cachexia is defined as an approach that addresses physical health through medical, pharmacological, nutritional, and rehabilitative interventions as well as psychological, emotional, and social well-being issues according to the needs of patients and family caregivers. Moreover, an ideal multidisciplinary team is proposed to achieve holistic interventions based on patient- and family-centered care. However, the development of educational programs on cancer cachexia for both clinicians and patients and family caregivers is needed. Furthermore, measurements to assess the benefits of holistic multimodal care also need to be established.

Introduction

Cancer cachexia is a wasting disorder affecting a majority of patients with cancers of advanced stage. Tumor, tumor-induced inflammation, and cancer treatment contribute to the wasting process. Cachexia is a part of and a consequence of a complex symptom burden, which includes physical and psychological symptoms, and which can be severe.[1,2]

Hence, patients with cancer cachexia frequently suffer from severe physical symptoms and psychological symptoms of illness, which can lead to emotional distress in both patients and their family caregivers.[3–8] Caring for people affected by cancer cachexia as whole beings who can live in harmony with family members and society to which they belong, encompassing not only the body but also the mind and soul, or spirituality, should be ideally provided by clinicians engaging in cancer care.[3–8] According to existing evidence-based clinical guidelines, there is accumulating evidence to show the importance of holistic multimodal care for patients and family caregivers in management of cancer cachexia.[9–13] However, there is no standard care to manage cancer cachexia despite its high prevalence and negative impact on quality of life (QOL) in patients and family caregivers.[9–13] Furthermore, several studies reported a clinical service specifically developed as a cachexia multidisciplinary team.[14–17] However, there is no agreement on the essential components of holistic multimodal care for patient- and family caregiver-benefit.[18–22] Therefore, the aims of this narrative review are to give an overview of what is known about the holistic multimodal care according to the needs of patients with advanced cancer and their family caregivers affected by cancer cachexia and to propose the composition of a multidisciplinary team to achieve holistic interventions based on patient- and family-centered care in management of cancer cachexia.

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Physical symptoms, psychological symptoms of illness, and emotional distress among patients and family caregivers

Patients with advanced cancer have a variety of physical symptoms and psychological symptoms of illness associated with cancer cachexia. Some symptoms can be categorized into either category. For example, anorexia and fatigue can be physical symptoms resulting from tumor-induced perturbation of the central nervous system and they can also appear as psychological symptoms of illness as secondary signs of depression. Furthermore, it is relatively rare that a single symptom exists in isolation and thus symptom clusters describe the situation for the patient. Individually and collectively symptoms cause emotional distress, such as eating-, moving-, and sleeping-related distress. Physical symptoms, psychological symptoms of illness, and emotional distress generally co-exist and are interdependent in patients with cancer cachexia[3–8] (Fig. 1). Family caregivers of these patients also frequently experience emotional distress regarding the suffering of their loved one with cachexia. In particular, distress related to disrupted family relationships caused by arguments about foods within families may disturb their peaceful family lives and induce physical and psychological symptoms experienced by family caregivers, such as anxiety, sleep disruption/insomnia, and lack of appetite[3–8] (Fig. 1). Clinicians involved in cancer care need to know about common physical symptoms and psychological symptoms of illness and associated emotional distress among patients and family caregivers affected by cachexia, which are summarized in Fig. 1. Since these issues are complex and interconnected, holistic multimodal care for cancer cachexia provided by multiple health disciplines with specific knowledge about cancer cachexia is necessary for patients and family caregiver units in palliative and supportive care.[3–8]

Holistic multimodal care for cancer cachexia

Holistic multimodal care, which is defined as a comprehensive approach that addresses physical health through medical, pharmacological, nutritional, and rehabilitative interventions as well as psychological, emotional, and social well-being issues, is needed for patients with advanced cancer and family caregivers in management of cancer cachexia.[23] Concrete interventions previously proposed by us[7,8] are modified and summarized in Table 1 to further advance discussions on this research area. Management of physical symptoms and psychological symptoms of illness and provision of multimodal therapies according to evidence-based clinical practice guidelines are suggested for patients. Furthermore, enablement of adherence to multimodal therapies, aid of emotional adaptation and support for coping, provision of evide nce-based information and education about cancer cachexia, and initiation of end-of-life discussion are also proposed for both patients and family caregivers. These holistic interventions suggested by us are based on the results obtained in previous surveys investigating the needs of patients with advanced cancer and their family caregivers.[7,8]

Table 1
Holistic multimodal care for patients and their family caregivers in management of cancer cachexia.

Patients
• Management of physical symptoms and psychological symptoms of illness • Provision of multimodal therapies according to evidence-based clinical practice guidelines
Patients and family caregivers
• Enablement of adherence to multimodal therapies • Aid of emotional adaptation and support for coping • Provision of evidence-based information and education about cancer cachexia • Initiation of end-of-life discussion

An ideal multidisciplinary team to perform holistic multimodal care for cancer cachexia is illustrated in Fig. 2. In order to support patients and their family caregivers suffering from a variety of problems associated with cancer cachexia, physicians and nurses act not only as specialists but also as generalists, leading the multidisciplinary team, while other professionals provide highly specialized care as specialists. The oncologist has the proactive role that oversees the entire team and ensures that the team approach is stable. The nurse constantly screens and assesses the patient and family caregiver and, when necessary, performs a hub function to connect the patient and family caregiver with the appropriate professionals.[23,24] Oral mucositis, which is the most significant symptom impacting food intaking during radiotherapy and/or chemotherapy, can be directly intervened by the dentist and dental hygienist with the nurse. A speech therapist should be actively involved in the multimodal care for swallowing difficulty, which is commonly seen in advanced-stage patients with cancer, with the nurse. The nurse can recommend seeing the

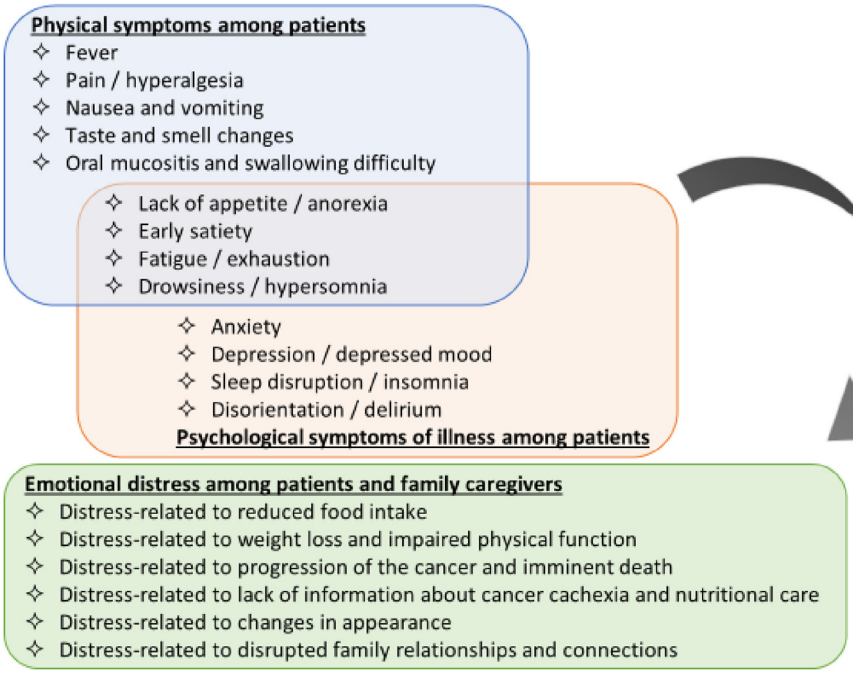

Fig. 1. Physical symptoms, psychological symptoms of illness, and emotional distress associated with cancer cachexia. Patients with advanced cancer have a variety of physical symptoms and psychological symptoms of illness associated with cancer cachexia. Some symptoms can be categorized into either category. Furthermore, it is relatively rare that a single symptom exists in isolation and thus symptom clusters describe the situation for the patient. Individually and collectively symptoms cause emotional distress. Physical symptoms, psychological symptoms of illness, and emotional distress generally co-exist and are interdependent in patients with cancer cachexia. Family caregivers of these patients also frequently experience emotional distress regarding the suffering of their loved one with cachexia. In particular, distress-related to disrupted family relationships caused by arguments about foods within families may disturb their peaceful family lives and induce physical and psychological symptoms experienced by family caregivers, such as anxiety, sleep disruption/insomnia, and lack of appetite.

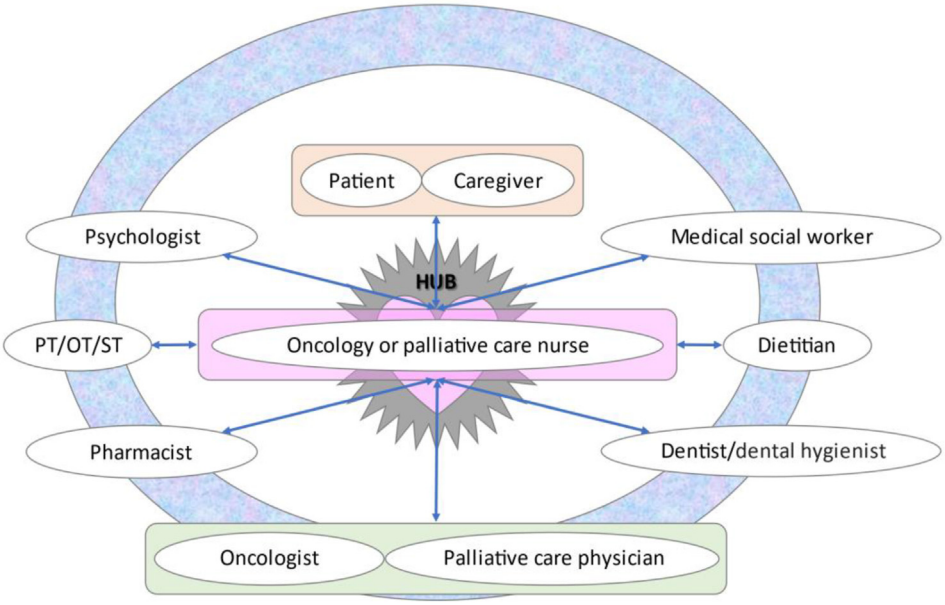

Fig. 2. The multidisciplinary team to perform holistic multimodal care for cancer cachexia. In order to support patients and their family caregivers suffering from a variety of problems associated with cancer cachexia, physicians and nurses act not only as specialists but also as generalists, leading the multidisciplinary team, while other professionals provide highly specialized care as specialists. The oncologist has the proactive role that oversees the entire team and ensures that the team approach is stable. The nurse constantly screens and assesses the patient and family caregiver and, when necessary, performs a hub function to connect the patient and family caregiver with the appropriate professionals. PT, physical therapist; OT, occupational therapist; ST, speech therapist.

psychologist to the patients and/or family caregiver being in deep grief. These are important examples of the multidisciplinary approach. However, the multidisciplinary team often needs to depend on specialists in other fields as consultants. For example, when the team provides multimodal cachexia care for a hypogonadal male patient who needs testosterone replacement therapy, the physician belonging to the team should consult an endocrinologist. It is also important for the nurse with a hub function to connect the patient and family caregiver with the appropriate professionals, such as a dietitian and physical therapist, in a way that is not physically and psychologically burdening the patient and family caregiver. Without collaboration between the multidisciplinary team and the capacity to refer other specialists, it is very difficult for the individual oncologist-nurse dyad to provide comprehensive holistic multimodal cachexia care.

Measurements to evaluate potential benefits of holistic multimodal care should be concurrently established. It is true that appetite scores, food intake measurements, values of body weight and skeletal muscle mass, physical function assessments, and overall survival are important variables to evaluate the effects of holistic multimodal care in patients, but patient-reported QOL outcome measures are as important as symptom and physical status outcome measures. There are currently only two comprehensive questionnaires to examine the cancer cachexia-related QOL for patients: The Functional Assessment of Anorexia/Cachexia Therapy Anorexia Cachexia Subscale[25,26] and the European Organization for Research and Treatment of Cancer Quality of Life Questionna ire-Cachexia 24 (EORTC QLQ-CAX24) used in combination with EORTC Core Quality of Life Questionnaire (QLQ-C30).[27,28] However, both The Functional Assessment of Anorexia/Cachexia Therapy Anorexia Cachexia Subscale and EORTC QLQ-CAX24 whilst including an emotional status domain do not enable an assessment of all factors contributing to eating-related distress, particularly need for information on cancer cachexia and conflicts over food within families. Furthermore, there had been no questionnaire to measure the cancer cachexia-related QOL and eating-related distress in family caregivers. Therefore, tools that specifically measure eating-related distress experienced by patients with advanced cancer and their family caregivers were recently developed, respectively,[29] because eating-related distress, which can adversely affect QOL, is an important matter to address in holistic multimodal care for patients and family caregivers affected by cancer cachexia. For example, the PiCNIC study found that family-centered nutritional interventions that included advice for people with advanced cancer on improving the nutritional intake (energy and protein) had good potential to have positive effects on patients' nutritional status and eating-related distress.[22] In summary, screening tools to determine appropriate interventions and assessment tools to evaluate the effectiveness of care provided are needed in management of cancer cachexia.

Clinicians' perspectives on cancer cachexia and professional education and training programs

To provide holistic multimodal care for patients and family caregivers suffering from cancer cachexia, clinicians engaging in cancer care should ideally equip themselves with the specific knowledge, sophisticated skills, and robust confidence in practicing such interventions. However, recent surveys investigating clinicians' perspectives on cancer cachexia conducted in multiple countries revealed the insufficiency of knowledge, skills, and confidence in management of cancer cachexia.[23,24,30–34]

An international survey among 2375 professionals (779 physicians, 658 dietitians, 323 nurses, 295 pharmacists, 169 physical therapists, 151 respondents without information on their professionals) reported that 23.7% of all respondents lacked confidence in their ability to provide care for patients with cancer cachexia. Only 29.1% of respondents recognized a key criterion of cancer cachexia as $>$ 5% weight loss from baseline. A total of 79.2% believed that a multidisciplinary team approach could improve care and that the use of standardized tools was critical.[31] According to the survey conducted in 451 designated cancer hospitals across Japan, 1188 professionals (236 physicians, 246 pharmacists, 247 nurse, 237 dietitians, 122 physical therapists/occupational therapists/speech therapists, 36 psychologists, and 64 social workers) also demonstrated significant gaps in knowledge of cancer cachexia as well as implementation of guideline recommendations to address it, although the majority of participants recognized the importance of holistic multimodal care for cancer cachexia. However, 64.3% of respondents recognized a key criterion of cancer cachexia as $>$ 5% weight loss from baseline[24] unlike the international survey mentioned above.[31] Furthermore, the secondary analysis of the survey also showed that specialization in palliative care, specific knowledge, and confidence were associated with the practice of multimodal care for cancer cachexia among 233 physicians and 245 nurses.[23] Another secondary analysis of the survey using data of 237 dietitians reported that specific knowledge on cancer cachexia and training for management of cancer cachexia, as well as abundant experience of nutritional care in cancer, were

associated with the dietitians' perception of playing an important role in management of cancer cachexia.[32]

A cross-sectional study was performed among 299 nurses caring for patients with advanced cancer undergoing chemotherapy at designated cancer care hospitals in Japan in 2020. The aim of this study was to identify the awareness, knowledge, and assessment of cancer cachexia among nurses. The results obtained showed that nurses considered the assessment of cancer cachexia as part of their roles, but they did not assess cachexia in patients routinely. Additionally, participating nurses had limited knowledge about cancer cachexia and were not confident in their ability to assess associated problems.[33] Furthermore, a recent scoping review on barriers in nursing practice in cancer cachexia revealed individual and environmental barriers to nursing practice. However, nurses who are in close contact with patients and family caregivers can make a difference in the worsening trajectory of cachectic patients if they recognize the patient's condition and integrate multidisciplinary care early.[34]

Proposed contents of the cancer cachexia education for nurses are categorize into topics as follows: (1) knowledge about responsible mechanisms of cancer cachexia, (2) knowledge about common symptoms and distress associated with cancer cachexia among patients and family caregivers, (3) awareness of nurses' roles in management of cancer cachexia, (4) utilization of existing evidence-based clinical practice guidelines for management of cancer cachexia, (5) collaboration within multiple health disciplines to perform holistic multimodal care for cancer cachexia.[23,33] This categorization can help nurse educators know what should be covered in a teaching session and course about management of cancer cachexia.

These findings of recent surveys have emphasized that professional education and training programs on management of cancer cachexia for clinicians involved in cancer care should be urgently developed to promote their accomplishment of holistic multimodal care for cancer cachexia.[23,24,30–34] In parallel, the development and standardization of health care systems to collaborate within multiple health disciplines beyond the border of oncology and palliative care are necessary. In addition, the role of the cancer center or hospital administration to build such health care systems is also essential. However, required health care systems may be different between countries/regions.

Education on cancer cachexia in the holistic multimodal care for patients and family caregivers

Patients with advanced cancer and their family caregivers want to know the reasons for anorexia and weight loss and seek ideas to improve food intake. Yet, correct information about cancer cachexia is insufficient worldwide.[6] Communication between patients, family caregivers, and clinicians acting in oncology and palliative care is a priority to manage pain and symptoms and mitigate emotional distress due to cancer cachexia in daily clinical practice.[7,8] The holistic interventions in management of cancer cachexia mentioned above include enablement of adherence to multimodal therapies, aid of emotional adaptation and support for coping, provision of evidence-based information and education about cancer cachexia, and initiation of end-of-life discussion, which can be performed through explanation and communication among patients, family caregivers, and clinicians. Furthermore, the educational needs for self-care by patients and family caregivers affected by cancer cachexia are largely unmet, and there are potential benefits of education to enable self-care that can mitigate cachexia-related distress experienced by patients and family caregivers.[35]

In other words, clinician-led education on cancer cachexia for patients and family caregivers is at the core of holistic multimodal care for cancer cachexia. Particularly, nurse-led education is the most expected because nurses are closer to patients and family caregivers than other professionals in a multidisciplinary team and nurses can screen and assess patients and family caregivers routinely in their clinical practice.[23,24,33,34] Thus, education programs on management of cancer cachexia for patients and family caregivers need to be concurrently developed with education programs for clinicians involved in cancer care. However, further research is warranted to explore beneficial effects of education programs for patients and family caregivers on their QOL.

Conclusions

Holistic multimodal care for cancer cachexia was defined as an approach that addresses physical health through medical, pharmacological, nutritional, and rehabilitative interventions as well as psychological, emotional, and social well-being issues according to the needs of patients and family caregivers. An ideal multidisciplinary team in management of cancer cachexia was also proposed to achieve holistic interventions based on patient- and family-centered care. However, constructing a care framework based on a narrative review is not robustly evidence-based and not scientific enough. Moreover, the development of educational programs on cancer cachexia for both clinicians engaging cancer care and patients with advanced cancer and their family caregivers is urgently needed to improve outcomes. Furthermore, measurements to assess beneficial effects of newly developed holistic multimodal care also need to be parallelly established.

CRediT author statement

Koji Amano: Conceptualization, Methodology, Data curation, Writing – Original draft preparation, Visualization, Investigation. Jane B Hopkinson: Writing – Reviewing and Editing. Vickie E Baracos: Writing – Reviewing and Editing. Naoharu Mori: Supervision. All authors had full access to all the data in the study, and the corresponding author had final responsibility for the decision to submit for publication. The corresponding author attests that all listed authors meet authorship criteria and that no others meeting the criteria have been omitted.

Declaration of competing interest

The authors declare no conflict of interest.

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Declaration of Generative AI and AI-assisted technologies in the writing process

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