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Review article

Clinical nutrition in oncology

Quality of life as an important goal of therapy for cancer patients on home enteral nutrition

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Nutritional support is increasingly recognized as an important component of multimodal cancer treatment. The number of cancer patients requiring home enteral nutrition (HEN) is increasing, particularly for head and neck (HNC) and upper gastrointestinal cancers. The quality of life (QoL) of these patients is emerging as a critical aspect that is influenced by the effective management of cancer-related symptoms, psychological support, and the socio-functional impact of HEN. Routine and standardized monitoring of QoL is highlighted as crucial for evaluating the effectiveness of HEN and for adapting treatment strategies. The interaction between nutritional status and other aspects of health such as physical functioning, psychological well-being, social engagement, and pain management is emphasized. Improving quality of life as a goal in palliative care should guide treatment strategies and the need for advanced nutritional support.

Key words: home enteral nutrition, quality of life, cancer, malnutrition

Introduction

The growing awareness of multimodal support in approaches has led to an increased focus on nutritional support, as underscored in European guidelines [1] and Polish recommendations [2–4]. Most oncology patients benefit from food fortification with the support of a clinical dietitian. However, enteral nutrition (EN) is indicated for malnourished patients or patients at risk of malnutrition who cannot meet their needs with oral nutrition and 'have a functioning digestive tract (tube, gastrostomy, jejunostomy) to a functioning digestive tract. If hospitalization is no longer required, these patients can transition to home enteral nutrition (HEN) [5]. In many countries, including Poland, HEN is reimbursed by health care provides. Home care supervised by specialized nutritional support teams (NST) reduces hospital admissions, the incidence of infectious complications, and treatment costs [8] by providing multidisciplinary care. Technological advances such as peristaltic feeding pumps or closed feeding systems can contribute to greater efficacy, safety, and patient comfort [6, 7] in long-term nutritional treatment. This can be achieved through appropriate training of patients and caregivers by specialized healthcare professionals. Improvement or preservation of nutritional status remain primary objectives of nutritional treatment. However, this review aims to draw attention to quality of life as an equally important issue, particularly in cancer patients.

Home enteral nutrition in cancer

Epidemiological studies indicate a worldwide increase in the number of patients requiring HEN [9, 10]. In the United States, the number of HEN patients increased from 463 in 1995 [11] to 1,385 per million citizens by 2017 (248,846 adult patients in total) [12]. This trend is consistent in Europe as reported by countries with national registries or long-term observations [5, 13]. Recent studies show that cancer patients have become

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a significant group among HEN recipients together with patients with neurological disorders [14]. HEN can be required due to obstruction in the gastrointestinal tract caused by tumor masses, such as in esophageal or gastric cancer, or due to mucosal damage and dysphagia caused by oncological therapy for head and neck cancer (HNC). In Poland, cancer patients accounted for 14% of all HEN cases in 2013 [15] and up to 33.9% in 2018 [16]. A particularly significant increase was seen in HNC patients (from 4.5% of all HEN patients in 2013 to 20% in 2018) and upper gastrointestinal tumors (from 5.2% to 11.7%). UK data also showed similar trends with the rate of oncological patients receiving HEN increasing from 25% in 2000 to 43% in 2015, and HNC patients clearly predominating this group (80% of oncological patients in 2015) [17, 18].

In those groups of cancer patients, especially during oncological treatment, a significant proportion may be unable to fulfill their nutritional requirements through oral intake alone. EN, especially in HNC patients, substantially contributes to therapeutic benefits by preventing chemotherapy dose reduction, excessive weight loss, and complications [19]. Postoperative body mass index (BMI), lean body mass, appendicular muscle mass and the postoperative pneumonia rates also improved in patients with esophageal cancer, compared to patients receiving only an oral diet [20]. In addition, a recent systematic review and meta-analysis has shown that HEN not only improves the postoperative nutritional status but also the physical, social, and role functions of patients with esophageal cancer [20].

The effectiveness of home EN depends on several factors such as diet tolerance, management of EN complications, appropriate pain management, mental health (depression) support, rehabilitation, and physical exercises. The European Society for Clinical Nutrition and Metabolism (ESPEN) recommends HEN for patients with a survival prognosis of at least one month [1]. For cancer cases where the remission or cure cannot be achieved, prolonged nutritional support aimed solely at improving or maintaining quality of life is considered beneficial [21].

Quality of life

Improving or maintaining quality of life is a major goal for cancer patients treated with HEN, especially in advanced stages of the disease. According to the ESPEN guidelines, QoL should be systematically monitored using validated assessment tools [26]. Due to the different populations of HEN patients, some NSTs use disease-specific assessment methods, for example IBDQ [27], QOL-EF for H&N [28], EuroQol-5D (EQ-5D) [29] or EORTC QLQ-C30 with modules for specific cancer types. NutriQoL is a validated and reliable quality of life assessment questionnaire that can be used to identify specific problems for HEN populations [30, 31].

Other studies have shown that QoL in HEN patients is generally worse than that of the general population, although this is dependent on demographics. Better QoL is observed in younger individuals, non-cancer patients, and those receiving care from multiple caregivers. In a study by Sharma et al., the quality of life of HNC patients was analyzed. Within the first three months of treatment, a significant deterioration in physical, emotional, social, and functional aspects was observed. One year after treatment, none of the subscales returned to baseline values. Surgery in combination with chemo-radiotherapy had the strongest impact on QoL among the treatment modalities [23]. Sensitivity problems, mouth opening, dry mouth, viscous saliva, pain, and weight problems can be observed even long after treatment [24]. The health-related quality of life of patients with locally advanced, non-metastatic gastric cancer deteriorated significantly after surgery and chemotherapy, improving after 6–12 months if no recurrence was diagnosed [25].

HEN significantly interferes with daily activities such as meals, sleep, travelling, and work, and often limits social activities due to long feeding times and concerns about damaging the EN tube [35, 36]. Enteral feeding affects social and family life, intimate relationships, and hobbies [32–34]. Nevertheless, patients observe an improvement in QoL during HEN [35–37], which was confirmed by a systematic review by Ojo and co-authors [38]. On the other hand, some studies indicate possible adverse effects, emphasizing the complexity of nutritional interventions in cancer treatment [36]. Lis showed in a systematic review that malnutrition significantly impairs the quality of life of patients with EN [39]. Weight loss is associated with poorer quality of life in patients with HNC and upper gastrointestinal cancer undergoing HEN [40]. Malnutrition assessed according to the Global Leadership Initiative on Malnutrition (GLIM) criteria correlated with QoL in HEN [41]. However, HEN can prevent further weight loss and thus, improve some aspects of QoL [42–43]. Studies on the effect of HEN on nutritional status and QoL in patients with esophageal cancer after esophagectomy found that HEN can stabilize or slightly improve nutritional status and physical performance as well as reduce fatigue [44, 45]. When nutritional support is initiated in the early stages of precachexia or cachexia, it can also improve performance status and survival [46].

Effective management of symptoms associated with cancer and its treatment, such as nausea, vomiting, pain, and digestive problems, is a critical component of QoL. In addition, the physical and mental health and QoL of cancer patients are related to sleeping problems. Sleep quality can be considered a prognostic factor for survival as it is related to cancer progression [25, 47]. More than half of cancer patients report poor sleep quality, and one third report functional impairment due to lack of sleep [48].

Chronic pain is another important factor contributing to the deterioration of quality of life in cancer patients [49, 50]. Although improvements in pain management have been noted in recent years, more than a third of cancer patients

still do not receive adequate treatment [51, 52]. Inadequate pain management leads to further deterioration of QoL [53]. Pain and malnutrition contribute to depression and anxiety, which are common in cancer patients. In palliative stages, almost half of patients can be affected by these problems [54–56]. Psychological support can promote active coping and constructive strategies to manage difficult life situations during oncological treatment [22].

Nutritional support in palliative care requires experienced professionals as it can lead to poorer outcomes in some cases [57]. In cancer patients receiving palliative care, monitoring of QoL in HEN is particularly important. A significant decline in QoL, despite treatment, should prompt a reassessment of the need for more aggressive nutritional strategies. In end-stage disease, it may be more beneficial to prioritize supportive measures such as hydration and analgesia.

Conclusions

QoL is an important outcome for cancer patients receiving HEN. Regular, systematic assessment using validated instruments should be an integral part of patient monitoring. Strategies to improve QoL are essential components of care. Addressing problems affecting QoL like pain, sleeping disorders or depression is one of the key elements of care. HEN patients should have access to psychological support, especially in advanced stages of cancer. Deterioration of QoL can be a helpful parameter when deciding on the nature of palliative care.

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Author contributions

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