GI Symptoms in Oncology Patients: Nutritional Management and the Role of Enteral Feeding

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Introduction

Individuals living with cancer often experience a number of nutrition-related side effects which are primarily due to their cancer treatment[1] These side effects include taste/smell changes, nausea, loss of appetite, pain and digestive issues. It is estimated up to 40% of cancer patients undergoing treatment may experience symptoms of diarrhoea or constipation.[1]

Gastrointestinal (GI) intolerance is characterised by one or more upper- or lower-GI symptoms, including nausea, vomiting, bloating, constipation, and diarrhoea. These symptoms can disrupt feeding, consequently decreasing the rate or quantity of nutrient delivery, and are linked to a diminished quality of life (QOL) and increase risk of malnutrition in patients.[2] This article will explore the role of enteral feeding in managing GI intolerance in oncology patients and highlight strategies to mitigate these adverse effects and improve patient outcomes.

Common GI Symptoms in Oncology Patients

The most common clinical conditions and metabolic changes that cancer patients may experience include stomatitis, xerostomia, diarrhoea, nausea, vomiting, dysphagia, sub-occlusion, dysgeusia, dysosmia, anorexia, and cachexia. Among cancer patients, disease-related anorexia is the most prevalent eating disorder causing malnutrition, due to inadequate nutritional intake, with subsequent weight loss and ultimately cachexia development and occurs in about 50% of all cancer patients.[3] Cancer cachexia (CC) is a complex medical condition often occurring in 50–80% of patients with end-stage disease as a result of metabolic alterations of the tumour and oncological treatment side effects.[4]

Frequency of GI symptoms in oncology patients is as follows:[5,6]

- nausea 59%
- constipation 31.9%
- diarrhoea 20-80%.

Diarrhoea and malnutrition often co-occur in oncology patients due to the underlying disease or the treatments administered. Chemotherapy and radiotherapy cause different undesirable effects on the gastrointestinal tract mucosa, like inflammation, oedema, ulceration and atrophy.[7] The most severe complications caused chemotherapy include myelosuppression, hepatic or renal disorder, oral mucositis or diarrhoea. Oncology treatment-related diarrhoea (OTRD) is one of the most important manifestations of mucositis induced by chemotherapy. Studies report that between 20% and 40% of all patients with chemotherapy suffer severe diarrhoea.[8,9]

Treatment with radiotherapy may cause radiation-induced enteritis (inflammation of the small intestine)—when applied directly to the abdominal and pelvic regions in the treatment of urological, gynaecological or gastrointestinal tumours. The small intestine is the most sensitive organ to radiation. Radiotherapy of the head and neck or pelvic region is associated with gastrointestinal symptoms and weight loss in up to 80% of patients.[7]

Patients who have undergone radiotherapy for pelvic malignancies and/or chemotherapy are at a heightened risk of developing bile acid malabsorption (BAM). A prevalence rate of 33% has been documented in a cohort of patients receiving treatment at a leading cancer centre for various malignancies.[10]

Nutritional Management Strategies for GI Symptoms

The goal of nutritional management in this patient group is to provide nutritional solutions that facilitate absorption, reduces formula waste and digestive symptoms and contribute to the prevention of malnutrition, as well as improve the overall quality of life.

Enteral nutrition is a crucial aspect of managing malnutrition associated with cancer. It is indicated in any malnourished patient with a functional gastrointestinal tract who is unable to ingest sufficient nutrients orally as long as enteral access can safely be achieved.[11]

There are several different enteral feeding formulas on the market which can be classified as polymeric, peptide-based and disease specific. Peptide-based formulas contain nutrients that have been hydrolysed.[11] The peptides of oligomeric enteral formulas have specific uptake transport mechanisms and are thought to be absorbed more efficiently than whole proteins.[11]

Given the incidence of issues with disturbances to the gastrointestinal tract, the European Society for Clinical Nutrition and Metabolism (ESPEN) guidelines on the definitions and terminology of clinical nutrition affirm "formulas containing peptides and medium chain triglycerides can facilitate absorption in case of, e.g., malabsorption or short bowel syndrome".[12]

The efficacy and tolerability of peptide-based enteral tube feeding formulas have been demonstrated in a wide variety of nutritionally high-risk patient groups including patients with acute and chronic pancreatitis, pancreatic cancer, GI and other cancers, neurological conditions, and HIV.[13] Peptide-based formulas, containing partially predigested protein and a percentage of fat energy in the form of medium-chain triglycerides, are designed to enhance digestion and absorption and can help improve GI tolerance in patients receiving enteral nutrition who are at-risk-of or experiencing GI intolerance. Across various diseases, peptide formulas offer similar or improved tolerance, digestion, and nutrient assimilation compared with free amino acid–based or polymeric formulas.[13]

With the evolution of blended diets in enteral feeding and the development of commercially available enteral formula with food-derived ingredients, there is growing evidence to support their role in also managing GI symptoms.[14]

Enteral Feeding in Oncology Patients with GI Symptoms

The percentage of oncology patients who require enteral feeding varies depending on the type of cancer and treatment. Dietitians should work closely with the multidisciplinary team to determine the most appropriate enteral feeding method, whether it be via a nasogastric tube, gastrostomy, or jejunostomy, depending on the patient's needs and the expected duration of feeding support. Data suggests gastrostomy tubes placement is highest for oesophageal cancer (31.8%) followed by head and neck cancers (29.7%).[15] For most, a gastrostomy tube will be sufficient. However, some oncology patients may require jejunostomy tube placement. Reasons may include altered gastric anatomy, severe delay of gastric emptying, or prior intolerance to gastric feeds.[16] Cancer is the most common indication for home enteral nutrition accounting for more than 40% of patients.[17]

Given impaired digestive function in cancer patients with treatment induced diarrhoea, peptide-based enteral formulas place less burden on the digestive system and are absorbed better, and thus are thought to be more favourable options compared with polymeric formula.[12] Peptide-based enteral nutrition formulas could help to maintain mucosal integrity in the gastrointestinal tract, thereby resulting in maintained nutrient absorption.[7]

Unintentional weight loss and cancer cachexia remains highly prevalent among pancreatic cancer patients and is associated with poor survival outcomes and diminished health-related quality of life. A single site study suggests that, in patients who complete treatment, enteral nutrition support with a peptide-based formula may improve weight stability, patient reported outcomes such as gastrointestinal symptoms, and physical function in pancreatic cancer patients with cachexia. Peptide-based formulas that contain a high percentage of medium chain triglycerides are quick to absorb in the GI tract and can be utilised as energy without the need for pancreatic enzymes or bile salts.[18]

As previously discussed, there may be a role of enteral formula containing food-derived ingredients in managing GI symptoms as well as supporting weight goals. A pilot study conducted by Sputuk et al. on patients with head and neck cancer at risk of malnutrition before and during chemoradiation treatment demonstrated positive results. In this prospective pilot study, patients were transitioned from a standard enteral formula to one containing food-derived ingredients for six weeks. Over this period, most patients experienced improvements in quality of life (QOL) and oral intake, alongside a reduction in gastrointestinal (GI) symptoms. Specifically, there were notable improvements in GI symptoms, including pain (reduced from 18.8% to 12.5%), vomiting (from 31.3% to 12.5%), constipation (from 31.3% to 12.5%), gas/bloating (from 50% to 18.8%), nausea (from 62.5% to 12.5%), and diarrhoea (from 37.5% to 0%). Weight gain was observed in all patients except for one who received the enteral formula with food-derived ingredients.

A further consideration is the quality of life of cancer patients receiving enteral nutrition. Most studies confirm the beneficial effects of enteral nutrition on the quality of life and a recent systematic review concluded that there is a positive influence of enteral nutrition on the quality of life, either assessed based on the psychological measures or by considering the other potential determinants (e.g. malnutrition, complications, etc.).[19]

Collaborative Care and Dietitian's Role

Nutrition support for oncology patients aims to mitigate metabolic disturbances, promote weight gain, maintain muscle mass and function, and to diminish interruptions for cancer treatment. Nutrition monitoring should begin at diagnosis and continue throughout the cancer trajectory. It involves evaluating patients' response to nutrition and exercise interventions, regularly reassessing nutrition status, and providing follow-up care to support recovery from the detrimental effects of treatment on body composition, physical function, and quality of life.[20]

Subsequently, multidisciplinary team (MDT) working is essential to balance all of these considerations. Research has demonstrated that the MDT approach can enhance patient prognosis, improve quality of life, and increase survival rates. As dietitians, our role within the MDT is to provide specialised nutritional expertise, ensuring that patients receive comprehensive care tailored to their individual needs.[21]

Conclusion

Managing gastrointestinal (GI) symptoms in oncology patients requires a proactive, individualised, and multidisciplinary approach. Nutritional strategies, particularly the use of enteral feeding, play a critical role in mitigating the adverse effects of cancer treatment, improving nutrient absorption, and preventing malnutrition.

Tailoring enteral formulas to meet the specific needs of patients, such as using peptide-based or fibre-enriched options, can enhance GI tolerance and support better clinical outcomes.

Dietitians are essential in this process, working closely with the wider MDT to optimise nutritional care, monitor patient progress, and adjust interventions as needed. By prioritising nutritional support throughout the cancer treatment journey, healthcare professionals can significantly improve patients' quality of life, support treatment adherence, and enhance overall recovery.

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