

Chemotherapy-Induced Nausea and Vomiting: A Narrative Review to Inform Dietetics Practice



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ABSTRACT

Chemotherapy-induced nausea and vomiting (CINV) are common symptoms experienced by patients with cancer that influence nutrition. They exert a detrimental effect on dietary intake, risk of malnutrition, and quality of life. Whereas CINV are primarily managed with medication, nutrition and dietetics practitioners play an important role in the management of CINV-related complications such as reduced dietary intake. This review discusses the burden of nausea and vomiting that patients with cancer can experience, including the effect on quality of life, nutritional status, and treatment outcomes. Implications for dietetics practice include the need to explore the nature of reported symptoms, identify predisposing risk factors, and to consider the use of a variety of interventions that are individualized to a patient's symptoms. There are little clinical data regarding effective dietetic interventions for nausea and vomiting. In summary, this review discusses dietetics-related issues surrounding CINV, including the pathophysiology, risk factors, prevalence, and both pharmacologic and dietetic treatment options.

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THERE ARE MULTIPLE CHEMOTHERAPY AGENTS THAT can induce nausea and vomiting. However, with the advent of modern antiemetic agents, there has been a significant reduction in the prevalence of vomiting, with a current estimated incidence of <20%.^{1,2}

Efforts to control nausea in this setting have been less effective, with up to 60% of patients reporting nausea despite the use of antiemetic medication.¹ Consequently, nausea remains one of the most distressing side effects experienced by cancer patients, whereas vomiting is now of less concern.³⁻⁵ In addition, research has consistently associated chemotherapy-induced nausea and vomiting (CINV) with adverse effects on dietary intake, risk of malnutrition, and quality of life (QOL).^{6,7}

Nutrition and dietetics practitioners routinely consult with patients with cancer who are experiencing CINV and related symptoms. Our aim is to inform dietetics practice by providing a general overview of CINV, as well as CINV-specific issues related to clinical nutrition. These include the pathophysiology and management options for CINV, including current medications and potential dietetic treatment options.

METHODS

A literature search was undertaken between January and July 2015 using the following databases: Medline, Cumulative Index to Nursing and Allied Health Literature, and

the Cochrane Library. Search terms were not limited by timeframe; instead, all searches were from the date of each database's inception until July 2015. The bibliographies of relevant articles were scanned to identify additional articles of interest. The evidence-based guidelines of the Academy of Nutrition and Dietetics, Dietetics Association of Australia, and the Practice-Based Evidence in Nutrition Knowledge Pathway were reviewed for additional references. The following search terms were used: (Chemotherapy AND (nausea OR vomiting OR CINV)) AND ((Risk factors OR prognostic OR predictor) OR (Mechanism OR pathophysiology OR physiopathology) OR (Nutrition OR malnutrition OR weight) OR Quality of life OR guidelines OR ginger OR protein OR (CAM OR Complementary OR Alternative)). Only studies published in English with human subjects were included. The results of this search strategy are detailed in Figure 1.¹⁻⁶⁷ The results of the literature search were sorted based on the headings included in this review and were used to inform the discussion of each topic.

Defining CINV

CINV is a collective term used to describe the presentation of nausea, vomiting, or a combination of both symptoms associated with the administration of cytotoxic chemotherapy. Although nausea and vomiting are related concepts, they involve distinct physiologic mechanisms and are therefore defined separately in Figure 2.⁶⁸

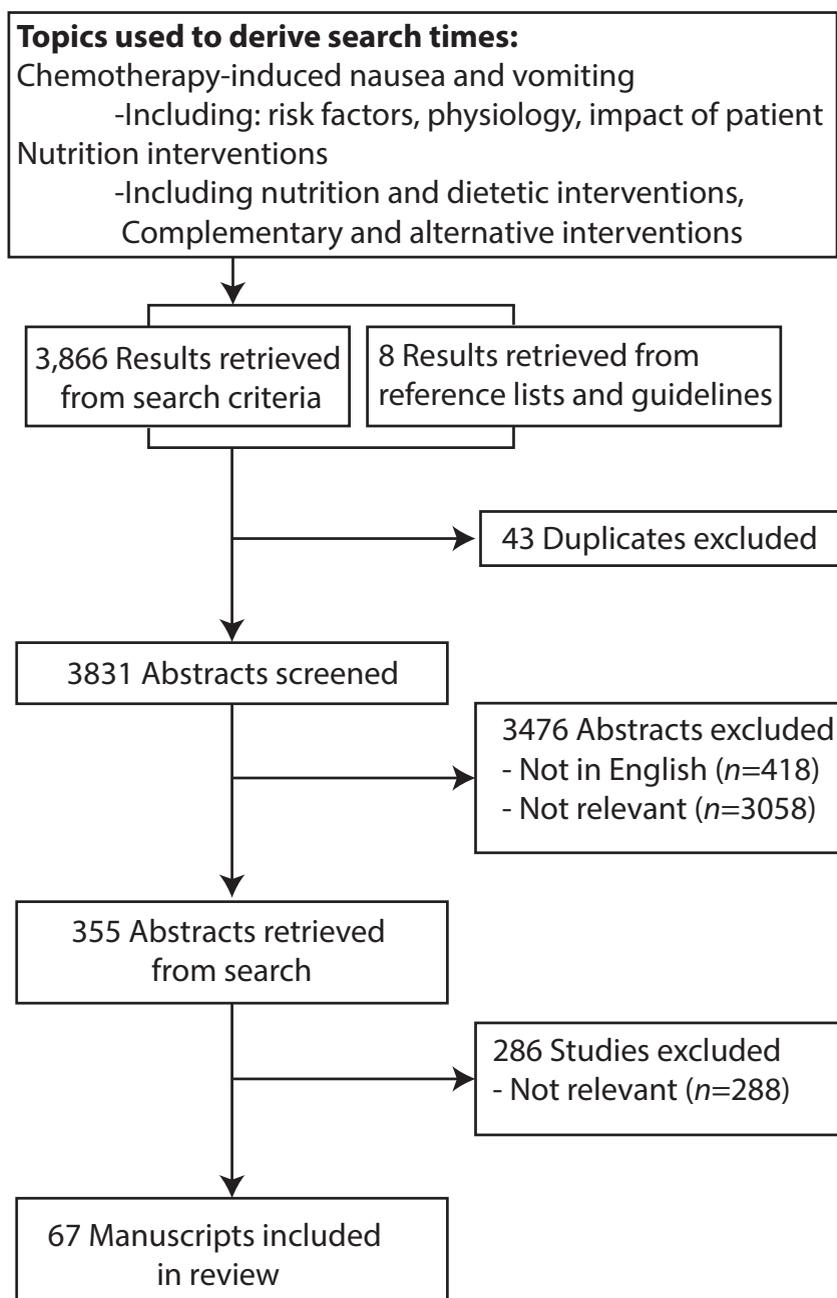


Figure 1. Flow diagram of the literature search process conducted between January and July 2015 to discuss the burden of nausea and vomiting that patients with cancer can experience.

Nausea is a subjective sensation of discomfort, typically associated with the epigastrium, which might result in vomiting. Due to this subjective nature, the sensation, location, duration, and intensity of nausea reported by patients can vary.³⁰ In addition, multiple symptoms that influence nutrition interlink with nausea, such as appetite loss, lack of energy, taste changes, and pain.³¹ Hence, in cases where a patient experiences nausea, it is prudent to investigate an individual's sensations to effectively target treatment toward those symptoms.

CINV is further classified as acute, delayed, anticipatory, breakthrough, and refractory. Exact definitions of acute CINV

vary, but it is generally considered to be nausea and/or vomiting that occurs within 24 hours of chemotherapy administration.³² Delayed CINV is defined as nausea and/or vomiting that occurs after the first 24 hours postchemotherapy.⁶⁸ Whereas this distinction might appear arbitrary, research suggests that differing physiologic processes are involved in the acute phase when compared with the delayed phase.⁶⁹

Anticipatory CINV is a conditioned response that occurs after previous cycles of chemotherapy in which nausea and/or vomiting were not adequately controlled. The current understanding of anticipatory CINV is explained in Pavlovian terms. According to this framework, a neutral

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