Chemotherapy-Induced Nausea and Vomiting Mitigation With Music Interventions

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PROBLEM IDENTIFICATION: Despite three decades of studies examining music interventions as a mitigant of chemotherapy-induced nausea and vomiting (CINV), to date, no systematic review of this literature exists.

LITERATURE SEARCH: PubMed, Scopus, PsycInfo®, CINAHL®, Cochrane Library, and Google Scholar were searched. Keywords for all databases were *music*, *chemotherapy*, and *nausea*.

DATA EVALUATION: All studies were appraised for methodology and results.

SYNTHESIS: 10 studies met inclusion criteria for review. Sample sizes were generally small and nonrandomized. Locus of control for music selection was more often with the investigator rather than the participant. Few studies controlled for the emetogenicity of the chemotherapy administered, nor for known patient-specific risk factors for CINV.

IMPLICATIONS FOR RESEARCH: The existing data have been largely generated by nurse scientists, and implications for nursing practice are many, because music interventions are low-cost, easily accessible, and without known adverse effects. However, this specific body of knowledge requires additional substantive inquiry to generate clinically relevant data.

KEYWORDS music; nausea; chemotherapy; chemotherapy-induced nausea and vomiting
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Chemotherapy-induced nausea and vomiting (CINV) is a potential adverse effect of cancer treatment. This phenomenon contains numerous subtypes (Navari & Aapro, 2016), and patients may experience each. Acute CINV occurs from chemotherapy administration (time 0) to 24 hours after administration. Delayed CINV is defined as occurring from 24 hours after chemotherapy to 120 hours (five days) after administration. Anticipatory CINV is a learned behavior resulting from experience with CINV and occurs prior to a subsequent chemotherapy cycle; it is the only form of CINV thought to be attributable to anxiety rather than chemotherapy. Breakthrough CINV occurs when antiemetic prophylaxis fails, and refractory CINV is considered when patients are unresponsive to antiemetic medications.

Multiple risk factors for the development of CINV are well documented in the literature. The dominant factor is the type of chemotherapy administered. The Hesketh scale is an evidence-based method of quantifying the emetogenicity of a chemotherapy regimen and guiding CINV prophylactic treatment (Hesketh et al., 1997). Additional, but less dominant, risk factors for CINV include female gender (Hesketh et al., 2006), age younger than 50 years (Roscoe et al., 2010), a history of motion sickness or pregnancy-induced nausea (Pirri et al., 2011), and little or no exposure to alcohol (Warr, Street, & Carides, 2011). Emerging evidence also suggests that some patients may have an above-average risk for CINV based on genetic polymorphisms affecting serotonin receptors, drug metabolism, and drug transport proteins (Kiernan, 2016).

CINV historically has been treated pharmaceutically, with less than perfect results. In 2016, Navari et al. published studies showing that the antipsychotic drug olanzapine significantly reduced CINV when coupled with standard-of-care prophylaxis, with strong effects for nausea control. In that study, total control of nausea (i.e., patients reporting no development of