



ONS PUTTING EVIDENCE INTO PRACTICE
Chemotherapy-Induced Nausea and Vomiting
Systematic Reviews and Meta-Analysis Table
(Literature search through from May 2008)



Review Author	Study Information	Conclusions/Implications
Pharmacologic Intervention		
Cannabinoids: PEP Weight of Evidence Category: Likely to be Effective		
Davis, 2008	<p>A systematic review of published English literature, including reviews, meta-analysis, and treatment trials from 1975–1997 on using cannabinoids to control or prevent chemotherapy-induced nausea and vomiting (CINV) with very few trials found after 1997. Key search words were: cannabinoids, nabilone, nausea, pain, tetrahydrocannabinol, and vomiting. 30 randomized control trials were found using cannabinoids to control or prevent CINV. The trials included 1,760 patients with 394 excluded. Trials overall received low scores for adequacy of randomization, blinding design, and description of withdrawal. Three cannabinoids were used: nabilone (16), dronabinol (13), and levonantradol (1). The medications were compared to prochlorperazine (12), placebo (10), metochlorpramide (4), chlorpromazine (2), domperidone (2), alizapride (1), thiethylperazine (1), and haloperidol (1). Twelve studies involved various scoring systems. No clear separation existed between acute and delayed CINV. Nabilone was superior to placebo, domperidone, and prochlorperazine but not metochlorpramide. Cannabinoids do not add to the benefits of 5-HT3 receptor antagonists. Side effects are greater for nabilone than prochlorperazine in these studies, but patients preferred nabilone to prochlorperazine.</p>	<p>The major limitation of these studies was the grading of response and inability to differentiate acute and delayed CINV. The adequacy of randomization, blinding design, and description of withdrawal were insufficient. The time period for the review was limited to 1975–1997. From 1997–present, many changes in managing CINV have occurred. The databases of the search were not indicated. Cannabinoids, like nabilone, may have a role in reducing delayed or refractory CINV, but more evidence is needed.</p>
Acupuncture and Acupressure: PEP Weight of Evidence Category: Likely to Be Effective		
Collins & Thomas, 2004	<p>Search Strategy: Scientific and internet sources, Institutes of Health Consensus statement and federal regulations. Key search words included acupuncture, acupressure in combination with chemotherapy induced nausea and vomiting. Reviewed existing research on the use of acupuncture and acupressure in the management of nausea and vomiting in order to provide nurses the information required to assist their patients undergoing chemotherapy and</p>	<p>Very few studies were found, but overall, results indicated improvement in nausea and vomiting, supporting the use of acupressure and acupuncture of the treatment of CINV. Acupuncture and acupressure were found to be safe and effective for the relief of CINV in combination with current antiemetic drugs.</p> <p>The sample sizes were small in the studies found, thus</p>



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	<p>experiencing CINV. Numerous studies tested the effectiveness of acupressure, acupuncture, and the combination. Few focused on acupressure alone for managing CINV. A total of 5 studies were found, with a total of 409 patients included in the review.</p>	<p>making it difficult to determine how applicable the interventions are to various practice settings and populations.</p>
Mayer, 2000	<p>Search Strategy: Medline Review covered 14 medical conditions for which the National Institutes of Health Acupuncture Consensus Development Panel (NIHCDP) concluded acupuncture as effective (2 conditions) or may be useful (12 conditions). The two conditions where acupuncture is effective is in the treatment of CINV and post-operative nausea and vomiting. Other conditions reviewed in the article were acupuncture effects on pain and treatment for other conditions (addiction, stroke rehabilitation, and asthma).</p>	<p>Three studies reviewed examined the effect of the P6 acupuncture on nausea and vomiting induced by chemotherapy. Although the chemotherapy agents were variable and three were various carcinomas, there was strong evidence for greater antiemetic effects with acupuncture than antiemetics alone. There was sufficient evidence to support acupuncture in the treatment of CINV and post-operative NV.</p>
Ezzo, Vickers, Richardson, et al., 2005	<p>Search Strategy: A MEDLINE search (1966-Dec 2003) was conducted. Terms used – acupuncture, alternative medicine, electroacupuncture, moxibustion, “injections, intramuscular”, “Medicine, Traditional Chinese”, acupressure, transcutaneous electrical nerve stimulation (TENS), and TENS. These were combined with nausea, vomiting, emesis, antiemetic therapy, and antineoplastic agents/adverse effects. Studies were included if they were randomized, with patients receiving chemotherapy, included an intervention that stimulated acupuncture points, and had nausea or vomiting as outcomes. Studies with high possibility of bias were excluded. 14 studies were identified.</p>	<p>In the 9 studies that evaluated acute vomiting acupuncture-point stimulation reduced acute vomiting but not nausea severity. The 7 studies assessing acute nausea, acupressure reduced acute nausea severity. Three studies that evaluated delayed vomiting did not support the intervention, and the 5 studies using acupuncture-point stimulation did not delay vomiting. The pooled results of 11 studies using acupuncture-point stimulation plus antiemetics for CINV showed significant reduction in acute vomiting and marginal statistical significance for reducing acute nausea. Electroacupuncture provides protective effects for acute vomiting, but acupuncture does not. Acupressure was effective for acute nausea in patients using “state of the art” antiemetics. However, placebo effects may have</p>



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Klein, & Griffiths, 2004	<p>Search strategy: Medline, Embase, AMED, the Cochrane Library, Cancerlit, and CINAHL. Search terms included adult patients receiving chemotherapy, with nausea and vomiting duration or intensity measured as outcomes.</p> <p>Two randomized controlled trials involving 482 patients which compared acupressure to no intervention control. Second study did not meet inclusion criteria, as TENS stimulation of antiemetic point was used.</p>	<p>influenced results.</p> <p>Results suggest that acupressure may decrease nausea in patients receiving chemotherapy, but further work is required before conclusively advising patients on the efficacy of acupressure in preventing and treating CINV.</p>
Guided Imagery, Progressive Muscle Relaxation, Music Therapy: PEP Weight of Evidence Category: Likely to Be Effective		
Fellowes, Barnes, Wilkinson, 2005	<p>Search Strategy: CENTRAL (Cochrane Library, Issue 1, 2002), MEDLINE (1966-May 2002), CINAHL (1982-April 2002), British Nursing Index (1994-April 2002), EMBASE (1980-week 25, 2002), AMED (1985-April, 2002), PsycINFO (1887-April, 2002), SIGLE (1980-March, 2002), CancerLit (1975-April, 2002), and Dissertation Abstracts International (1861-March, 2002). Reference lists of relevant articles were searched for additional studies.</p> <p>Reviews included randomized controlled trials(RCTs), controlled before and after studies, interrupted time series studies of aromatherapy and/or massage for patients with cancer, that measured changes in patient-reported levels of physical or psychological distress or QOL using reliable and valid tools.</p> <p>Ten reports met inclusion criteria (Eight RCTs with 357 patients) Most studies measured anxiety, depression, pain, with 2 had a reduction in nausea.</p>	<p>Two studies assessed the symptom of nausea. Both studies showed a reduction in nausea in hospitalized patients.</p> <p>Although the studies were RCTs, the sample sizes were small. Difficult to assess effect of aromatherapy, as different essential oils were used. It is not known whether variation in style of massage affects outcomes. Longer follow-up studies are needed with larger samples. No harm was involved, but evidence was mixed as to effect of aromatherapy enhancement to massage to a clinically significant level.</p>
Luebbert, Dahme, Hasenbring, 2001	<p>Search Strategy: Databases included MEDLINE, PSYCINFO, PSYINDEX, and CANCERLIT (1980-Dec., 1995) Key search words included relaxation techniques, progressive muscle</p>	<p>Consistent positive results in meta-analysis studies showed clinically significant reductions in nausea and other symptoms. Relaxation during the courses of</p>



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	relaxation (PMR), autogenic training, hypnosis, imagination, guided imagery in combination with neoplasms, cancer treatment, chemotherapy, radiotherapy, drug therapy, and bone marrow transplantation. 280 abstracts found, narrowed to 58 relevant studies, 15 qualified for inclusion criteria for meta-analysis. Moderator variables included intensity, schedule, and focus of intervention. 742 subjects with variable malignancies receiving highly-emetogenic chemotherapy (mostly women) were trained in PMR.	treatment made the experience less stressful, reducing side effects. Studies supported the implementation of relaxation training into clinical routines as standard adjunctive treatment.
Miller & Kearney, 2004	Search Strategy: Databases of MEDLINE and CINAHL were searched (1990-2002) with the terms nausea, vomiting, chemotherapy and neoplasm, assessment, management, complementary therapies, pharmacological and non-pharmacological. Review included primary research, literature reviews, opinion articles, and information leaflets/booklets. Anticipatory nausea and vomiting associated with chemotherapy were excluded, due to psychological basis the authors felt that those symptoms should be addressed in a separate paper. Non-pharmacologic management interventions reviewed, with the intention that they do not replace standard antiemetic therapies, rather they are adjuncts to improve QOL. Intervention articles reviewed for progressive muscle relaxation, guided imagery, self-hypnosis, acupuncture/acupuncture, transcutaneous electrical nerve stimulation, biofeedback, cognitive distraction, and music therapy.	Support of the non-pharmacologic interventions weak at best. Many studies flawed due to small sample sizes, confounding variables (stage of disease, various chemotherapy regimens, culture, and patient compliance). Preliminary available evidence suggests positive benefits through non-pharmacologic techniques; however, larger randomized trials are needed to demonstrate the exact benefits including economic evaluation.
Redd, Montgomery, DuHamel, 2001	Search Strategy: National Library of Medicine PubMed database, which includes MEDLINE®, PreMedline, and other related databases (1979- January, 2000). Search terms	54 studies met the criteria for review. Treatments evaluated included: relaxation, hypnosis, cognitive/attentional distraction, desensitization, and



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	<p>included "cancer and: behavior, intervention, nausea, vomit, depression, anxiety, fatigue, neuro, cognitive, menopause, sex,, and post-traumatic stress disorder. Randomized controlled studies, within-subject studies, and case reports included.</p> <p>Sample: Three symptom clusters evaluated, included published reports for nausea and vomiting, anxiety/stress, and pain</p> <p>Nausea and Vomiting Review only: All studies reviewed met criteria: cancer-related treatment side effect with behavioral intervention, and cancer-treatment intervention effects reported</p>	<p>rehearsal modeling. Four studies for relaxation and hypnosis show effectiveness of behavioral intervention for control of anticipatory nausea and vomiting (no anticipatory vomiting occurred). Results from the individual analyses were confirmed in 12 of 13 randomized-controlled trials that compared behavioral interventions with no treatment/attention control conditions. The impact of behavioral intervention on post-chemotherapy side effects is less established, with four studies reporting that the behavioral intervention reduced the intensity of the post-chemotherapy side effects, but it did not prevent their occurrence.</p>
<p>Ginger: PEP Weight of Evidence Category: Effectiveness Not Established</p>		
<p>Ernst & Pittler, 2000</p>	<p>Search Strategy: Databases included Medline, Embase, Biosis, CISCOS and Cochrane Library. Key search words included ginger, herbal remedy or nausea and vomiting. Found 3 studies on postoperative nausea, 1 for seasickness, 1 for morning sickness, and 1 for chemotherapy induced nausea and vomiting (CINV). Total numbers of participants in the studies was 288 for postoperative nausea, 30 for morning sickness, 80 for seasickness, and 41 leukemia patients receiving chemotherapy for CINV. Studies were done in the United States and in Denmark.</p>	<p>There was insufficient clinical data available to draw a firm conclusion on the benefits of ginger for nausea and vomiting.</p> <p>Although there were no reports of adverse events in these studies, ginger may have an adverse effect (commonly used as a spice). It was reported in a German monograph that ginger may be mutagenic in pregnancy.</p>