**Nausea and Vomiting: The Continuing Battle to Improve Outcomes**

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**Outcome: Nausea and Vomiting**

- Category: Symptom experience
- Activities aimed at decreasing the occurrence and distress of these symptoms
- Evidence-based summary also includes retching
- Focus on interventions of nurses, including advance practice nurses

**Scope of the Problem**

- Up to 80% of patients who receive chemotherapy experience nausea and vomiting (Berger & Clark-Snow, 2001)
- There is evidence that clinicians (MDs, RNs) still underestimate the likelihood that their patients will develop CINV, and may perceive control as better than it actually is (Grunberg, et al, 2002, 2004)

**Chemotherapy-Induced Nausea and Vomiting (CINV)**

- Reviews limited to adult population (over 18 years of age)
- Studies limited to interventions for chemotherapy-induced nausea and vomiting
- Nausea and/or vomiting primary study variables

**Definition: Nausea**

- an unpleasant feeling in the back of the throat and stomach that may or may not result in vomiting (NCCN, 2004)
- Common terms used to describe nausea include “sick to my stomach,” “queasy,” or “butterflies.”
**Definition: Vomiting**
- a forceful contraction of the abdominal (stomach) muscles to cause stomach contents to come up through the mouth (NCCN, 2004)
- Often confused with nausea, but is a separate symptom
- Frequently referred to as “throwing up”

**Definition: Retching**
- a rhythmic and spasm-like contraction of the diaphragm and abdominal muscles (NCCN, 2001)
- Different symptom from nausea or vomiting
- Often referred to as “dry heaves”
- Often not measured in clinical studies

**Pharmacologic Interventions for Nausea and Vomiting**
- Mainstay of treatment
- Need for interventions with each type of N/V: anticipatory, acute, delayed, and breakthrough nausea and vomiting
- Regimens based on emetogenicity of chemotherapy
- Need to consider other risk factors (age, gender, alcohol use, anxiety, history of CINV, history of N/V (pregnancy, motion sickness)

**Guidelines for CINV**
- American Society of Clinical Oncology (ASCO, 1999)
- Multinational Association of Supportive Care in Cancer (MASCC, 2002)
- Perugia International Consensus (2004-05)

**Are You Currently Using Antiemetic Guidelines in your Practice?**
- A. All of the time
- B. Some of the time (not consistently)
- C. Not at this time
- D. Not using, but would like to

**Are you limited to certain antiemetics in your practice?**
- A. Yes
- B. No
NCCN Antiemesis Guidelines (2005)

- High emetic risk (Level 5)
- Moderate emetic risk (Level 3)
- Low emetic risk (Level 2)
- Minimal emetic risk (Level 1)
- All recommendations 2A unless otherwise noted

NCCN Categories of Consensus

- Category 1: Uniform NCCN consensus, based on high level evidence
- Category 2A: Uniform NCCN consensus, based on lower level evidence including clinical experience
- Category 2B: Non-uniform consensus, based on lower level evidence including clinical experience
- Category 3: Major NCCN disagreement

Definition: Acute-onset Nausea and Vomiting

- Nausea or vomiting which occurs a few minutes to several hours after drug administration, and commonly resolves within the first 24 hours, with the intensity of emesis peaking at 5-6 hours (NCCN, 2005)

Case Study: Lisa

- Risk Factors for Nausea and Vomiting:
  - Gender (female)
  - Young age (38 years)
  - History of nausea with pregnancy (recently!)
  - Anxiety (Fear of chemo and unknown future)
  - Highly emetogenic chemotherapy (Cisplatin and Etoposide)

Lisa began chemotherapy with Cisplatin and Etoposide, the first of 6 courses, with the following antiemetics:

- Palonosetron 0.25 mg IV thirty min. day 1
- Aprepitant tri-pack (days 1-3)
- Dexamethasone (days 1-4)
- Ondansetron 8 mg po for home use prn

Experienced mild moderate nausea (tolerable for her), but more distressing was the feeling of agitation and paranoia.

Nervous, worried parents would drop her baby, went by Taco Bell and said at least ten times “I want a chicken taco.”

Offered to decrease dexamethasone, but preferred to drop completely.
Definition: Delayed Onset Nausea and Vomiting

- Nausea or vomiting that occurs more than 24 hours after chemotherapy administration, and may last 6-7 days (NCCN, 2005)

Case Study: Lisa

- Dilemma: Discontinue steroid, still with mild moderate delayed nausea/vomiting
- Refer to NCCN guidelines (Olanzapine)
- Input from pharmaceutical representative
- Literature search for evidence
- Discussion with physician
- Patient discussion

Show Me the Evidence: Olanzapine (Zyprexa)

- Antipsychotic that blocks multiple neurotransmitters (dopamine and serotonin)
- Common side effects: sedation and weight gain, association with onset of diabetes
- Breakthrough treatment for N/V, 2.5 mg PO bid prn (NCCN, 2005)

- Phase II study, 30 chemotherapy-naive patients (23 women) receiving moderately or highly emetogenic chemotherapy
- Patients took oral olanzapine, 5 mg/day for 2 days prior to chemotherapy, then 10 mg/day 1 (along with IV granisetron and dexamethasone), and 10 mg/day days 2-5 (along with oral dexamethasone)


- Nausea also well-controlled, no nausea (0 on scale 0-10) in acute or delayed periods in patients receiving highly emetogenic chemotherapy
- 85% control in acute period, 65% control in delayed period in moderately emetogenic chemotherapy group
- No grade 3 or 4 toxicities

Case Study: Karen

Karen is a 42 year old RN with breast cancer, beginning the first of four cycles of AC (Adriamycin, Cyclophosphamide) chemotherapy.

Recently had breast reconstruction and had terrible nausea with anesthesia

History of diabetes

Karen was ordered to have a 5HT3 antagonist, low dose of dexamethasone on day 1 only, and 5HT3 for prn use

She inquired about the use of ginger to help prevent nausea and vomiting

Show Me the Evidence: Ginger

1 randomized controlled trial was conducted in 48 gynecologic oncology patients with ginger compared to metoclopramide

Addition of ginger to standard antiemetic regimen in acute phase showed no advantage, and was comparable to metoclopramide in delayed phase


Show Me the Evidence: Ginger

Gaps: small sample, did not use newer 5HT3 agents, dosing schedule borrowed from other uses

1 systematic review (6 studies, 1 for chemotherapy-induced N/V) favored ginger over placebo

CINV study of 41 patients with leukemia suggested a significant reduction in nausea in patients receiving ginger compared to placebo (P value not reported, study published in abstract only)


Show Me the Evidence: Ginger

No reports of adverse reactions to ginger

Data insufficient to draw firm conclusions

Few studies for CINV

National Center for Complementary and Alternative Medicine currently studying ginger in CINV
What would be your response when Karen inquired about the use of ginger?

- A. Would definitely recommend
- B. Would consider with caution
- C. Would definitely not recommend

Case Study: Karen

- After review of this evidence, discussed pros and cons of ginger
- Patient opted to try ginger, purchased at local health food store
- Took at doses in article, 1 gram/day for 5 days
- Verbalizes some improvement, offers to family members

Definition: Anticipatory Nausea and Vomiting

- The occurrence of nausea and/or vomiting before patients receive their next chemotherapy treatment, often due to a negative past experience with chemotherapy (NCCN, 2005)

Anticipatory Nausea and Vomiting

- Due to ineffective treatment of chemotherapy-induced nausea
- Treatment may be delayed, doses reduced, or discontinued, all which can affect survival
- Pharmacologic interventions (alprazolam & lorazepam)
- Behavioral techniques: relaxation/systematic desensitization, hypnosis/guided imagery, music therapy, acupressure

Case Study: Lisa

- Despite better control of nausea and vomiting, she still dreaded coming in for 3 days of chemotherapy every 3 weeks
- The thought of coming to the treatment center, the smell, the staff, and the beverages made her queasy, nauseous, and she even vomited prior to her treatment in the 4th cycle

How might you approach the anticipatory N/V based on the current evidence?

- A. Consider pharmacologic interventions
- B. Consider non-pharmacologic interventions
- C. Consider A and B
- D. Consider changing chemotherapy agents

Case Study: Lisa

- What did we do?
  - Prescribed Lorazepam 1 mg twice a day, with doses the night before and the morning of treatment
  - Provided alternative beverages
  - Discussed relaxation and imagery techniques to provide diversion

Show Me the Evidence: Acupressure

- Acupressure used in a pilot study of 17 women with breast cancer
- Intervention involved finger acupressure bilaterally at the P6 (forearm) and ST36 (knee)
- Acupressure group reported significantly less intensity and experience of nausea


Show Me the Evidence: Acupressure

- Gaps: Small sample study needs replication
- May be most practical, could be taught to patients, not costly

Definition: Breakthrough Emesis

- Emesis that occurs despite prophylactic treatment and requires "rescue" (NCCN, 2005)

Case Study: Lisa

- Where would be appropriate places to search for alternative antiemetics for breakthrough or delayed N/V?
  - A. Standardized guidelines
  - B. Pubmed search for latest regimens
  - C. Query your colleagues
  - D. All of the above
Show Me the Evidence: Cannabinoids

- Across all trials, cannabinoids were more effective than active comparators and placebo
- At the end of 18 crossover trials, 38-90% of patients preferred cannabinoids
- In selected patients, cannabinoids are useful as mood-enhancing adjuvants
- More side effects with cannabinoids


Show Me the Evidence: Cannabinoids

- Gaps: No comparisons of cannabinoids with a serotonin receptor antagonist (5-HT3)


Definition: Refractory Emesis

- Emesis which occurs after prophylactic treatment fails, and the patient no longer responds to treatment to prevent nausea and vomiting (NCCN, 2005)

Future Directions

- Research related to symptom clusters
- Acupressure and acupuncture studies ongoing
- Need for randomized intervention studies of complementary and alternative medicine
- Need more nursing studies


Future Directions

- Based on study of family relationships on adjustment to chemotherapy, family member conflicts can worsen symptoms (nausea), especially in women and younger adults
- Family intervention studies to evaluate effectiveness in reducing the development and duration of anticipatory symptoms

Issues for Nursing

- Knowledge of and barriers to adherence to CINV guidelines
- Feasibility of utilizing selected interventions (access, cost)
- Time constraints to educate patients or to perform the interventions
- While drug therapy remains essential, how can we improve the N/V outcomes?
Nausea and Vomiting

Some men see things as they are and say “Why?” I dream of things that never were and say, “Why not?”

--- Robert Frost

ONS Website Reference

- http://onsopcontent.ons.org/toolkits/evidence/Clinical/summaries.shtml#nv