CHEMOTHERAPY-INDUCED NAUSEA AND VOMITING

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DISCLOSURES

No Disclosures
Objectives

- Provide an overview of chemotherapy-induced nausea and vomiting (CINV)
- Review published guidelines
- Discuss CINV in the Hem/HSCT setting
Definition

- **Nausea**: unpleasant, subjective sensation felt with the urge to vomit
- **Vomiting**: contractions of the GI and thoracic muscles that result in oral discharge of gastric content
- **Retching (dry heaves)**: muscular activity of the abdomen and thorax attempting to expel gastric contents, without actually expelling them
CINV Categories

- **Acute**
  - Occurs within first 24 hours after administration of chemotherapy

- **Delayed**
  - Begins after first 24 hours
  - May last for 120 hours

- **Anticipatory**
  - Learned or conditioned response from poorly controlled nausea and vomiting associated with previous chemotherapy

- **Breakthrough**
  - CINV that occurs despite prophylaxis and requires rescue treatment

- **Refractory**
  - Occurs during subsequent treatment cycles when prophylaxis and/or rescue has failed in previous cycles
Significance

• Most feared and unpleasant side effect of chemotherapy
• Common side effect of chemotherapy
• May delay treatment and interfere with compliance
• Physiologic complications
  – Electrolyte imbalances
  – Dehydration
  – Malnutrition
• Negatively affects quality of life (QOL)
• Impacts healthcare costs
Risk Factors for CINV

- Age < 50 years
- Women > men
- History of light alcohol use
- History of nausea/vomiting with prior exposure to chemotherapeutic agents
- Other risks
  - History of motion sickness
  - History of nausea or vomiting during pregnancy
  - History of anxiety
Principles of Treatment

• Prevention is the goal
• Based on emetogenicity of agents
  – Highly emetogenic (HEC)
  – Moderately emetogenic (MEC)
  – Low emetogenic (LEC)
• For multi-drug regimens, base therapy on drug with highest emetic risk
• Patients should be protected during the entire period of risk
  – Start before administration of chemotherapy
CINV Management

- Antiemetics
  - Corticosteroids: dexamethasone
  - Serotonin receptor antagonists (5-HT3): ondansetron, granisetron, palonosetron
  - NK-1 receptor antagonists: aprepitant, fosaprepitant, netupitant
  - Dopamine antagonists: prochlorperazine, metoclopramide, olanzapine
  - Cannabinoids: dronabinol, nabilone
  - Benzodiazepines for treatment of anticipatory CINV
- H2 blocker or proton pump therapy (PPI) therapy for dyspepsia
Nonpharmacologic Management

- Diet restrictions
  - Eat small, frequent meals
  - Eat foods at room temperature
  - Avoid fatty, spicy, or highly salty foods
- Behavioral approaches
  - Distraction, relaxation, hypnosis, guided imagery, music therapy
- Acupuncture/acupressure
  - Effective for anticipatory nausea and CIN
Nursing Management

- Assessment
  - Standardized tools
- Communication to healthcare team
- Patient education
- Advocate for guideline adherence
- Management strategies
  - Administer antiemetics prior to meal times
  - Encourage proper dietary practices
    - Small, frequent meals with bland flavors
  - Assess effectiveness of interventions
  - Promote nonpharmacologic measures
Guidelines

- National Comprehensive Cancer Network (NCCN)
- Multinational Association of Supportive Care in Cancer/European Society for Medical Oncology (MASCC/ESMO)
- American Society of Clinical Oncology (ASCO)
- Oncology Nursing Society (ONS) Putting Evidence into Practice (PEP)
Recent Updates to Guidelines

- **Newer agents**
  - Palonosetron (Aloxi®) – second generation 5-HT3 antagonist
    - Superior to early 5-HT3 antagonists: longer half-life, high binding affinity, exceptional safety profile
  - Aprepitant (Emend®) – NK-1 antagonist
  - Netupitant/Palonosetron (Akynzeo®)
    - Long-lasting combination antiemetic activity with one dose
  - Rolapitfant (Varubi®) – NK-1 antagonist
    - Delayed CINV
CINV in the Hem/HSCT Population

- CINV management in Hem/HSCT is complex
- High prevalence of risk factors
  - Young age
  - High-dose regimens
  - Previous exposure to highly-emetogenic agents and repeated cycles
  - Total body irradiation (TBI) in conditioning regimens
  - High psychological burden of treatment
Common Chemotherapy Agents – Hem/HSCT

- **High-dose**
  - Melphalan (200 mg/m$^2$)
  - Cytarabine (1,000-3,000 mg/m$^2$)
  - ABVD (doxorubicin, bleomycin, vinblastine, dacarbazine)
  - Bendamustine (high-dose)

- **Combinations of moderately emetogenic single agents**
  - Cytarabine
  - Anthracyclines
  - Cyclophosphamide
  - Fludarabine
  - Clofarabine
Hem/HCT Treatment Challenges

• Currently no formal recommendations or guidelines for treatment of CINV in the Hem/HSCT setting
• Limited research on the unique characteristics
  – Multiple days and daily doses regimens
  – Cryopreserved (DMSO) stem cell infusion
  – Concomitant administration of supportive therapy such as IV antimicrobial prophylaxis
• Fragmentation and limited number of studies in HSCT-related CINV
Summary

• Treatment guidelines have been updated
• Lack of guidance for treatment in the Hem/HSCT setting
• Further research is needed in the Hem/HSCT setting
• Despite advances, control of CINV remains an unmet need among cancer patients
  – Next steps:
    • Improve adherence to clinical guidelines
    • Further development of regimens to treat delayed CINV and nausea
References


