Interprofessional Webinar Series
Assessment and Management of Nausea and Constipation in Advanced Illness

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Disclosure Slide

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Gastrointestinal Symptoms

• Nausea/vomiting
• Bowel obstruction
• Constipation
Nausea…and/or…Vomiting

• Usually studied together

• Not necessarily associated
  
  • In a cancer study:
    – 62% both
    – 34% isolated nausea
    – 4% isolated vomiting

Definitions

• Nausea:
  • Entirely subjective experience
  • Sensation preceding vomiting
  • Feeling “queasy”, “sick in the stomach”

• Vomiting:
  • Specific physical event
  • Rapid, forceful evacuation of gastric contents in retrograde fashion
  • Usually preceded by nausea

• Retching:
  • Repetitive, active contraction of abdominal musculature, generating pressure and eventual evacuation or not of gastric content
Nausea/Vomiting

- Prevalence
- Etiology
- Pathophysiology
- Assessment
- Management
Nausea/Vomiting Prevalence

• 4th symptom/cancer population

• 40-70% of patients with advanced cancer

• More common in women; in breast, stomach and gynecologic cancers; and in patients receiving opioids (10%-30%)

• Patients hospitalized with serious illness (3-7%); highly prevalent in AIDS patients (43%); end stage renal failure (30%); heart failure (17%); cancer patients (6%)

• Tend to occur with other symptoms like fatigue, decreased appetite, drowsiness, dyspnea

Nausea/Vomiting Etiology

Related to Disease:
- Functional or structural GI disorder
- Hypomotility
- Obstruction
- Constipation
- CNS Disease
- Posttussive

Related to Treatment:
- Chemotherapy
- Radiation therapy
- Surgery
- Drug induced
- Tube feedings

Related to Other Disorders:
- Uremia
- Hyponatremia
- Renal insufficiency
- Hepatic failure
- Hypercalcemia

Related to Psychological Factors:
- Anxiety
- Others
Nausea/Vomiting Pathophysiology

Psychological Stimuli
- Tastes, Smells

Limbic System

Cerebral Cortex

Vomiting Center

Vestibular Nuclei
- Motion, Position
- Vagus nerve

Chemoreceptor Trigger Zone
- Drugs, Uremia
- Ketosis, Carcinomatosis

Effector Organs

Abdominal Organs
- Gastric distention,
- Gastric irritation,
- Hepatitis
Nausea/Vomiting Assessment

• Cornerstone

• Assess characteristics
  - pattern and frequency - triggers
  - intensity - distribution - impact

• Assess for accompanying symptoms:
  - pain - headache
  - constipation - anxiety
  - early satiety

• Review medication list
Nausea/Vomiting Assessment

• Assess diet

• Assess electrolyte disturbances

• Assess relevant history, e.g., past history of chemotherapy, radiation therapy, or surgery

• Physical examination

• Investigations
  • X-ray
  • Labs
Nausea/Vomiting Management

General approach

Pharmacological approach
Nausea/Vomiting Management

General approach:

- Reassure patient: provide information
- Improve environment (calm/avoid odors)
- Avoid rapid movements
- Hydrate as appropriate
- Progressive alimentation
- Good mouth care
- Correct all contributory factors
Nausea/Vomiting Management

Pharmaco Approach

Consider prophylactic treatment if nausea is persistent

Repeat dose of antiemetic if vomiting within 1/2 hr after oral intake

Use alternative route (parenteral, PR) if:
- unable to take orally
- gastrointestinal obstruction
- frequent episodes of vomiting

Combination drugs may be needed in intractable vomiting
Nausea/Vomiting Management

Pharmacological approach

• Data on effectiveness on antiemetic regimen are limited

• Often needs multiple agents of different categories

• No recommended regimen but tailored according to assessment
## Nausea/Vomiting Management

### Antiemetics

<table>
<thead>
<tr>
<th>Clinical Characteristics</th>
<th>Consider</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/V from drugs, metabolic changes</td>
<td>Neuroleptics, 5-HT antagonists</td>
</tr>
<tr>
<td>N/V with vertigo</td>
<td>Antihistamines, anticholinergics, benzos</td>
</tr>
<tr>
<td>N/V with early satiety</td>
<td>Prokinetic Drugs</td>
</tr>
<tr>
<td>N/V with anxiety</td>
<td>Benzodiazepines</td>
</tr>
<tr>
<td>N/V with CNS lesion</td>
<td>Corticosteroids</td>
</tr>
<tr>
<td>N/V with advanced illness</td>
<td>Corticosteroids</td>
</tr>
</tbody>
</table>
# Nausea/Vomiting Management

## Antiemetics

<table>
<thead>
<tr>
<th>Class</th>
<th>Examples</th>
<th>Dosing</th>
</tr>
</thead>
</table>
| Dopamine Blockers            | prochlorperazine  | 5 – 20 mg po q6-8h  
                           25 mg PR q8h                      |
| Neuroleptics                 | haloperidol       | 0.5 – 2 mg q8h po/sc                           |
| Anticholinergic Drugs        | Hyoscine          | 200 – 400 mcg sl/sc q4-8h  
                           or TD patch 500 – 1500 mcg q72h    |
## Nausea/Vomiting Management

### Antiemetics

<table>
<thead>
<tr>
<th>Class</th>
<th>Examples</th>
<th>Dosing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannabinoids</td>
<td>dronabinol</td>
<td>2.5 – 5.0 mg po BID</td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>lorazepam</td>
<td>0.5 – 2.0 mg po/IV q8h</td>
</tr>
<tr>
<td>Corticosteroids</td>
<td>dexamethasone</td>
<td>2 – 4 mg po/IV/sc q6-8h</td>
</tr>
</tbody>
</table>
# Nausea/Vomiting Management

## Antiemetics

<table>
<thead>
<tr>
<th>Class</th>
<th>Examples</th>
<th>Dosing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antihistamines</td>
<td>cyclizine</td>
<td>25 – 50 mg po/sc/PR q8h</td>
</tr>
<tr>
<td>Prokinetic Drugs</td>
<td>metoclopramide</td>
<td>10 – 20 mg po/sc/IV q4h</td>
</tr>
<tr>
<td>5-HT Antagonists</td>
<td>granisetron</td>
<td>3 mg IV q8h</td>
</tr>
<tr>
<td></td>
<td>ondansetron</td>
<td>8 mg po/IV q8h</td>
</tr>
</tbody>
</table>
Nausea/Vomiting

Bowel Obstruction
Bowel Obstruction

Management

• Assess options, consider goals of care, and discuss approaches with patient and family
• Symptom control
• Nasogastric or gastrointestinal suction
• Hydration
• Surgery
Bowel Obstruction

Pharmacologic Approaches

• Discontinue laxatives and prokinetic drugs

• Drugs

<table>
<thead>
<tr>
<th>Class</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opioids</td>
<td>morphine</td>
</tr>
<tr>
<td>Corticosteroids</td>
<td>dexamethasone</td>
</tr>
<tr>
<td>Anticholinergic drugs</td>
<td>scopolamine, atropine</td>
</tr>
<tr>
<td>Antiemetics</td>
<td>haloperidol, prochlorperazine</td>
</tr>
<tr>
<td>Other</td>
<td>octreotide</td>
</tr>
</tbody>
</table>
Bowel Obstruction

Pharmacologic Approaches

Octreotide

- analog of somatostatin
- inhibits gastrointestinal secretions and motility
- controls pain and emesis in more than 50% of cases
- generally well-tolerated
- cost is a limiting factor
- dosing: 100-600 mcg/day IV or sc
  (dose can be given q8h or continuously)
Bowel Obstruction

Nasogastric Suction

• Advantages
  • helps to decompress in case of intractable vomiting
  • corrects fluid and electrolyte imbalance before surgery

• Disadvantages
  • interferes with coughing
  • can lead to aspiration/esophagitis
  • can be uncomfortable
  • barrier between patient and family
Bowel Obstruction

**Venting Gastrostomy**

- Indicated in case of prolonged drainage
- Superior to NG tube in alleviating small bowel obstruction
- Technique relatively safe
- Good results in majority of patients
- Need to consider goals of care
Bowel Obstruction

SEMS (self-expandable metal stent)

- In selective patients: Gastric outlet/upper third of duodenum
  - High technical success (94-97%)
  - Clinical success in >85%
  - Mortality: 0%
  - Complications:
    - 1-2% perforation
    - 5% migration
    - Reobstruction 15%

Bowel Obstruction

SEMS (self-expandable metal stent)

- In colorectal cancer: Study of 122 patients Mayo Clinic
  - Results variable (location of obstruction)
  - Stent patency 88.5% (145 days)
  - Overall complications: 24.4%
  - Perforations: 9%

Bowel Obstruction

Hydration

• Indications:
  • prevention of dehydration, if consistent with goals of care
  • preparation for surgery
  • administration of medication
  • complaint of dry mouth or thirst

• Must be individualized

• Hypodermoclysis may be an option

• Encourage eating and drinking as tolerated
Bowel Obstruction

Surgery

• In cancer:
  • Inoperable 6-50%
  • Surgical mortality 9-32%
  • Surgical morbidity 15-49%
• Results vary according to:
  – cause of obstruction
  – type of cancer
  – prognostic factors
Bowel Obstruction

Surgery

• Poor prognostic factors in cancer patients:
  • intestinal motility problems due to carcinomatosis
  • cachectic patients over 65 yrs
  • ascites requiring paracentesis
  • low serum albumin
  • previous radiotherapy to abdomen or pelvis
  • metastatic cancer (liver, pulmonary, pleural effusion)
  • multiple partial bowel obstructions
  • poor performance status (ECOG <2)
Bibliography


Davis MP, Hallerberg G. Palliative Medicine Study Group of the Multinational Association of Supportive Care in Cancer. A systematic review of the treatment of nausea and/or vomiting in cancer unrelated to chemotherapy or radiation. J Pain Symptom Manage 2010;39(4):756-767
Bibliography


Constipation

• Prevalence
• Etiology
• Pathophysiology
• Assessment
• Management
Constipation Definition

• Passage of small hard feces infrequently and with difficulty
• Defecation usually less than 3 times/week
• Two aspects: Measurable symptoms/patient’s perception
• Defined by the patient (subjective)
• Needs to be placed in context of patient’s habitus

Constipation

Prevalence*
- Cancer patients: 23-65%
- AIDS population: 34-35%
- Heart disease: 38-42%
- COPD: 27-44%
- Renal disease: 29-70%
- Overall: 50% of palliative care patients
  Probably common in all populations with advanced illness

*More common in debilitated patients and the elderly

Constipation: Impact and Adverse Effects

- Impact on nursing time
- Impact on QOL, well-being of patient
- Distress (pain, bloating, etc.)
- Adverse effects:
  - Inadequate absorption of nutrients and medications
  - Fecal impaction
  - Rectal tearing
  - Rectal fissure
  - Hemorrhoids
  - Bowel obstruction
  - Intestinal perforation
Constipation Etiology

General

- diet (low intake, low fiber)
- dehydration
- inactivity environment
- advanced age
- structural lesion
Constipation Etiology

Concurrent disease:

- Endocrine dysfunction: hypothyroidism, diabetes
- Electrolyte imbalance: hypokalemia, hypercalcemia
- Gastrointestinal disease: diverticular disease, colitis, anal fissure/stenosis, hemorrhoids
Constipation Etiology

Drug-related:

- opioids
- diuretics
- anticholinergic
- iron
- others
Constipation Pathophysiology

Intestinal motility:
- Facilitates bacterial/enzymatic breakdown of food
- Under control of myenteric nerve plexus and parasympathetic system
- Numerous neurotransmitters involved (acetylcholine, vasoactive intestinal peptide)

Fluid and electrolyte balance:
- Fluid originates from diet and secretions (7 L)
- Most absorption (75%) in small intestine
- Absorption dependent on electrolyte transport
Constipation Assessment

- General
  - diet
  - fluid intake

- Physical and social impediments
  - to defecation

- Bowel habits
Constipation Assessment

Symptoms:
- Anorexia
- Nausea/vomiting
- Abdominal pain
- Bloating
- Tenesmus
- Diarrhea
- Blood or mucus

Signs:
- Abdominal
  - distension, palpation of fecal masses
- Rectal
  - hard impacted feces, dilated rectum, fistula, stenosis, leakage
Best treatment is **Prevention**
Constipation Management

General Approaches

• Increase fiber content and hydration, if appropriate
• Encourage activity
• Treat medical factors
• Create favorable environment
• Anticipate constipation ==> prophylactic laxative, if appropriate
Constipation Management

Pharmacological Approaches: General principles

• Exclude bowel obstruction/impaction, before using laxatives
• Know the mode of action in selecting laxatives
• Discuss approach with patient (frequency, modality, etc.)
• Adjust dose and dosing schedule to optimize effects
• Switch or combine agents when necessary
• Consider alternative approaches in refractory cases
• Usually combine 2 or 3 different types of laxatives
• Alternate laxatives
• Tailor to patients (symptoms, cognition)
Constipation Management: Specific Situations

- **EMPTY DISTENDED RECTUM:**
  - high enemas

- **LARGE FECAL MASS:**
  - digital manipulation
  - oil enema
  - repeat high enema

- **HEMORRHOIDS:**
  - bulk-forming agents
  - stool softener
  - analgesic suppository

- **EXTRINSIC MASS:**
  - consult surgery (goal/stage)
  - possible radiation therapy
Management of Constipation in Palliative Care

First-line treatment: With oral laxative: combination of stimulant (e.g., senna or bisacodyl) and a softener (e.g., docusate, lactulose)

Second-line treatment: Rectal suppository and enema: consider use of peripherally specific opioid antagonist (e.g., methylnaltrexone)

Third-line treatment: Manual evacuation; consider use of peripherally specific opioid antagonist (e.g., methylnaltrexone)

Symptom Improvement

Continue with regimen

<table>
<thead>
<tr>
<th>Type</th>
<th>Attributes</th>
<th>Examples</th>
<th>Side Effects/Complications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bulk laxatives</strong></td>
<td>Dietary fiber; causes water retention in the colon and increase stool bulk</td>
<td>Psyllium husk, methylcellulose</td>
<td>Increased gas; risk of bowel obstruction in patients with strictures</td>
</tr>
<tr>
<td><strong>Osmotic laxatives</strong></td>
<td>Salt content retains fluid retention and increased intestinal secretion</td>
<td>Sorbitol, lactulose, polyethylene glycol, magnesium citrate</td>
<td>Electrolyte imbalances; increased gas, nausea, and dehydration</td>
</tr>
<tr>
<td><strong>Stool softeners</strong></td>
<td>Decrease surface tension to lubricate and soften fecal matter</td>
<td>Docusate</td>
<td>Require adequate fluid intake, useless in patients with compromised bowel motility</td>
</tr>
<tr>
<td><strong>Stimulants</strong></td>
<td>Increased colonic motility and electrolyte transport; stimulate fluid secretion</td>
<td>Senna, bisacodyl, cascara</td>
<td>Electrolyte imbalances; abdominal pain, nausea, and colonic dysmotility</td>
</tr>
<tr>
<td><strong>Peripheral opioid antagonist</strong></td>
<td>Inhibit opioid from binding to mu receptors in the GI tract</td>
<td>MethylNaltrexone</td>
<td>Abdominal pain, nausea, dizziness, flatulence</td>
</tr>
</tbody>
</table>
## LAXATIVES

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dosage</th>
<th>Actions (comments)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>contact cathartics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>senokot</td>
<td>8.6 mg 1-3 co qd-bid</td>
<td>stimulate peristalsis (distal colon)</td>
</tr>
<tr>
<td>bisacodyl (Dulcolax)</td>
<td>5-10 mg hs (po, supp.)</td>
<td>effective after 12-24 hrs.</td>
</tr>
<tr>
<td><strong>osmotic cathartics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>lactulose</td>
<td>10-30 ml bid-qid</td>
<td>water retention in lumen, decrease transit time, cramps/flatulence</td>
</tr>
<tr>
<td>polyethylene glycol</td>
<td>240 ml po</td>
<td>water retention</td>
</tr>
<tr>
<td>fleet phosphosoda</td>
<td>1/2 to 1 btle po</td>
<td>check for dehydration</td>
</tr>
<tr>
<td>magnesium salts</td>
<td>1-2 tsp (1/2 cup water)</td>
<td>harsh laxative, severe constipation, not for renal pt</td>
</tr>
</tbody>
</table>
## LAXATIVES

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dosage</th>
<th>Actions (comments)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>stool softener</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>docusate Na</td>
<td>100 mg 1-3 qd-bid</td>
<td>wetting agent, promotes water/Na/Cl in jejunum/colon, weak laxative, not with mineral oil</td>
</tr>
<tr>
<td><strong>lubricants</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mineral oil</td>
<td>10 ml po qdaily</td>
<td>lubricate, risk of aspiration, useful in fecal impaction</td>
</tr>
<tr>
<td>fiber (psyllium)</td>
<td>5 gm qd-tid</td>
<td>increase stool bulk, soften stool, takes 2-4 days, (stomies/hemorrhoids/fissures), NO in obstruction or poor hydration</td>
</tr>
</tbody>
</table>
## LAXATIVES

<table>
<thead>
<tr>
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<th>Actions (comments)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>suppositories</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>glycerine</td>
<td>1 supp. prn</td>
<td>lubricant, softens stools</td>
</tr>
<tr>
<td>bisacodyl</td>
<td>10 mg HS</td>
<td>stimulant</td>
</tr>
<tr>
<td><strong>enemas</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>fleet</td>
<td>1 prn q 3 days</td>
<td>acute constipation, fecal impaction</td>
</tr>
<tr>
<td>fleet with oil</td>
<td></td>
<td>stools high in lumen</td>
</tr>
<tr>
<td><strong>opioid antagonists</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>naloxone</td>
<td>4-18 mg q daily po</td>
<td>reverse opioid gut effect</td>
</tr>
<tr>
<td>methylnaltrexone</td>
<td>8 mg (38-62 kg) sc 12 mg (62-114 kg) &gt;weight: 0.15 mg/kg</td>
<td>need to DC other laxatives for noncancer opioid constipation</td>
</tr>
<tr>
<td>naloxegol</td>
<td>12.5-25 mg po daily</td>
<td></td>
</tr>
</tbody>
</table>
Bibliography


Clark K, Lam L,Currow DC, Agar M. A prospective study to investigate contributory factors that lead to constipation in palliative care patients. J Pain Symptom Manage 2014; 47:e1-4
Bibliography


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