Managing Nausea

Gail Kulaś, RN, MN, CON(c), CHPCN(c)
Nurse Practitioner, Family Medicine
Grey Nuns Hospital
Objectives

- Pathophysiology of nausea
- Use vomit to direct assessment
- Cure nausea and manage nausea
- Choices for medical management – pros and cons
- Utilize case studies understand the complexity
Causes of Nausea

- Vomiting centre
- Chemoreceptor trigger zone
- Cerebral cortex
- Vestibular systems
- Gut and serosal visceral surfaces
History

- Timing of symptoms
- Food and fluid intake
- Drugs
- Pain
- Bowel habits
- Urinary output
- Affect of daily life
Examination

- Assessment of hydration
- Signs of infection
- Presence of jaundice
- Neurological exam
- Rectal exam
- Abdominal exam
Nausea = Vomit
Causes of Nausea

- V – Vestibular
- O – Obstruction
- M – DysMotility, EEmotions
- I – Infection/ Inflammation
- T - Toxins

The Causes of Nausea and Vomiting (V.O.M.I.T.), 2nd ed (Hallenbeck, J.).

www.eperc.mcw.edu/fastFact
## Categorize the Causes

<table>
<thead>
<tr>
<th>Movement related</th>
<th>Features of abdominal tumor, vestibular disease or increased opioids</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malignant bowel obstruction</td>
<td>• Onset insidious, can remain partial&lt;br&gt;• Abdo pain 90%, colic 70%&lt;br&gt;• Vomiting early – high&lt;br&gt;• Vomiting later – large&lt;br&gt;• Exclude constipation</td>
</tr>
<tr>
<td>Gastric stasis</td>
<td>• Fullness, epigastric pain, reflux, hiccoughs&lt;br&gt;• Timing of vomiting&lt;br&gt;• Symptoms resolved with vomiting</td>
</tr>
</tbody>
</table>

## Categorize the Causes

<table>
<thead>
<tr>
<th>Emotions/Anxiety</th>
<th>Anticipatory</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Challenged coping mechanisms, stress</td>
</tr>
<tr>
<td></td>
<td>Diagnosis of exclusion</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Irritation or stretching of the meninges</th>
<th>Headache, nausea lying flat, neurological signs and papilloedema</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irritation of mechanoreceptors Pelvic or abdominal tumor</td>
<td>Confirmed on CT and MRI</td>
</tr>
<tr>
<td></td>
<td>Nausea and vomiting from stretched mechanoreceptors.</td>
</tr>
<tr>
<td></td>
<td>Diffuse pain, with or without radiating component</td>
</tr>
<tr>
<td></td>
<td>Radiology needed to confirm diagnosis</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical/Metabolic Toxicity</th>
<th>Start of medication</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hypercalcemia with confusion</td>
</tr>
<tr>
<td></td>
<td>Confusion</td>
</tr>
<tr>
<td></td>
<td>Polyuria, nocturia</td>
</tr>
<tr>
<td></td>
<td>Blood chemistry, lytes, urea, creatinine, ca</td>
</tr>
</tbody>
</table>

Reversible Causes of Nausea

- Hypercalcemia – hydration and bisphosphonates
- Uremia – rehydration
- Gastritis – PPI
- Infection – ABX
- Constipation – laxatives
- Corticosteroids – decr. edema
- Emotions - anxiolytics
Metoclopramide (Maxeran)

- Dopamine antagonist and serotonin antagonist
- Affects the chemoreceptor trigger zone (CTZ)
- Affects gastric motility
- Affects acetylcholine – potential EPS
- Not for Parkinson’s
- Po or sub cut
Chlorpromazine (Largactil), Prochlorperazine (Stemetil)

- Block dopamine receptors in the CTZ and blocks vagus nerve in GI tract
- Effective with opioid induced nausea
- Po or sub cut

Cropped from an original painting, *Miracle of Marco Spagnolo (1681)* by Giovanni Dall'Orto
Ondansetron (Zofran), Granisetron (Kytril)

- 5HT3 antagonist
- Targets serotonin receptors in the CTZ
- Randomized control studies with chemotherapy
- Not impacting dopamine receptors therefore useful when risk of EPS is high
- No impact on motion sickness
- Po
- Expensive
Haloperidol (Haldol)

- D2 antagonists
- Negligible anticholinergic activity therefore less sedation but greater EPS
- Not prokinetic Ideal for opioid induced nausea
- Not with Parkinson’s
- PO or Sub cut
Methotrimeprazine (Nozinan)

• Broad spectrum of anti-emetic activity
• Potent 5HT3 and D2 antagonism
• Sedating
• Start low dose
Aprepitant (Emend)

- Inhibits substance P
- Especially useful against CINV
- Especially with cisplatin based chemotherapy protocols
- Po
Dexamethasone (Decadron)

- Steroid
- Additive emetic effects with 5HT3, & metoclopramide
- Mechanism unknown
- Decreases edema
- Adverse effects – glucose intolerance, myopathy, osteopenia, and infections
- Po or sub cut
Nabilone, Dronabinol

- (THC)-Tetrahydrocannabinoid synthetic derivatives
- Direct inhibition of the vomiting centre in the medulla
- Low antiemetic efficacy and adverse side effects
Domeridone (Motilium)

- Antidopamine and GI prokinetic agent
- Similar to Maxeran
- Less EPS as poorly transient at blood brain barrier
- Parenteral formulation not easily accessible
Dimenhydrinate (Gravol)

- Antihistamine effects
- Useful for motion related nausea
- Bowel obstruction
- Of 2\textsuperscript{nd} line for brain primary or mets
- Metabolites
Scopolamine

- Pure anticholinergic
- Useful for treatment of motion sickness
- Decreases gut secretions and decreases bowel cramping
- Sedating
Principles for Managing Emesis

• Principle of breakthrough tx is to give an additional agent from a different class. No one drug class is superior.
• Antiemetic drug choice dependant upon assessment
• ATC vs. PRN
• Ø po
• Multiple current agents
• Hydration
Along with treatments....

- Separate fluids from solid foods
- Size and type of meals; cold foods, non spicy, often juicy foods
- Cleansing mouth (assess for mouth ulcers), drinking water
- Hard tart candies
- Environment
Mr. N - 50 year old male

- Admitted after GP found lung nodules
- Sx: Weakness, fatigue, nausea
- Tx: admitted for lung biopsy
- Started on opioids on admission for thoracic pain 6/10
- What do we want to do?
What to do?

- Hydrate
- Assess/ treat hypercalcemia
- Bone scan to assess involvement
- Bowel routine
- Correct electrolyte imbalances
- Antiemetic ATC vs. PRN

www.bathartgallery.co.uk
Mrs. M – 78 year old with metastatic ovarian ca

- Admitted abdominal distention, nausea

- What do we want to do?
Mrs. M – 78 year old with metastatic ovarian ca

- Hydrate
- Bowel routine
- Maxeran controlled nausea 2 days
- Recurrence with aggressive emesis
Mrs. M – 78 year old with metastatic ovarian ca

- Start Dex
- Start Octreotide
- Start Haldol
- Surgical consult
- NG
- Venting PEG
Mrs. J – 69 year old female treated for breast ca

- 69 year old
- Treated for breast ca with Adriamycin and Cyclophosphamide
  - Decadron 20mg at treatment then 8mg b.i.d.
  - Granisetron 1mg Q12h
Mrs. J – 69 year old female treated for breast ca

- Regimen needs to be adjusted!
- Changed Granisetron for Ondansetron 8mg q12h
- Continue Decadron
- Adjuvant Aprepitant (Emend) 125 mg po ac chemo and 80mg po daily x 2 days
Significant points

- You need to continually reassess
- Side effects of antiemetics
- Layered treatments
- You can feel desperate to relieve the suffering of nausea
## “Quick-Pick” Antiemetic List

<table>
<thead>
<tr>
<th>Condition</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opioid induced nausea</td>
<td>Metoclopramide, domperidone or haloperidol</td>
</tr>
<tr>
<td>Malignant bowel obstruction</td>
<td>Haloperidol (1&lt;sup&gt;st&lt;/sup&gt; line), or dimenhydrinate or 5HT3 antagonist (2&lt;sup&gt;nd&lt;/sup&gt; line)</td>
</tr>
<tr>
<td>Chemotherapy or radiotherapy induced</td>
<td>5HT3 antagonist (1&lt;sup&gt;st&lt;/sup&gt; line), cannabinoids (2&lt;sup&gt;nd&lt;/sup&gt; line), corticosteroids, metochlopramide</td>
</tr>
<tr>
<td>Anticipatory or anxiety related</td>
<td>Benzodiazepine anxiolytic</td>
</tr>
<tr>
<td>Motion sickness</td>
<td>Dimenhydrinate, prochlorperazine or hyosine hydrobromide</td>
</tr>
</tbody>
</table>

The Pallium Palliative Pocketbook (2008) Chapter 8: Gastrointestinal problems
Questions?