From Heave to Leave: Understanding Cyclic Vomiting Syndrome in the Adult Population

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Presentation Objectives

- Introduction
- Defining Cyclic Vomiting Syndrome
- Epidemiology
- Approach to Patient Care
  - Outpatient Considerations
  - Inpatient Considerations
- Research
- Conclusions/Questions
Introduction: Cyclic Vomiting Syndrome (CVS)

- Chronic functional GI disorder characterized by stereotypical episodes of nausea and vomiting with periods of wellness in-between.
- Dr. Samuel Gee first described CVS in 1882 in the pediatric population.
- Considered to be a variant of migraines.

Bhandari, 2017
Epidemiology

• The **incidence** (rate of occurrence of newly diagnosed cases) and **prevalence** (percent in a given population with known diagnosis) of cyclic vomiting syndrome in adults is unknown.

• Prevalence in an outpatient GI clinic was 11%.

• only 5% of these patients were diagnosed accurately by their referring provider despite meeting the criteria for a CVS diagnosis.
Epidemiology

- Affects both males and females however difficult to get a consensus

- Recent study shows 74% of adults with CVS are female

- Recent nationwide analysis:
  - 63% White
  - 18% African American
  - 6% Hispanic

Sagar, 2018
Bhandari, 2017
Approach to Patient Care: Outpatient and Inpatient
Case Presentation

- 18 year old male with episodes of nausea and vomiting
- Started 7 months ago when he started college
- Episodes start with abdominal fullness, nausea and diarrhea and progress into vomiting
- Episodes last 2-7 days, worsen with larger meals and high fat foods
Case Presentation

- He feels well in-between these episodes however they seem to occur almost monthly at this point.
- Resulted in 4 emergency room trips over the past 7 mos
  - Two trips required inpatient admission
- Given medicines upon arrival
  - IV morphine and benadryl
Case Presentation

Current Medications:

- multivitamin,
- Sertraline (Zoloft)
Case Presentation

• Social:
  – Tobacco: none
  – Drinks 2-3 hard alcoholic beverages on the weekends
  – occasional marijuana use, started smoking 2 months ago at a party, helps when he has nausea symptoms
Case Presentation

- Freshman in college, studying psychology
- Hoping to get an internship at school next year
Case Presentation

• Objective Testing:
  – Abdominal CT scan: normal exam
  – Upper Endoscopy: normal exam
  – He also underwent testing to make sure his stomach and small intestine were emptying normally
Defining CVS: Rome IV Criteria

• Rome IV criteria for the diagnosis of cyclic vomiting syndrome in adults

• Criteria must be fulfilled for last 3 months, with onset at least 6 months prior to diagnosis

1. Stereotypical episodes of vomiting regarding onset (acute) and duration (less than 1 week). Episodes abrupt in onset and occurring at least 1 week apart

2. Three or more discrete episodes in the prior year
   Two episodes in the past 6 months with absence of vomiting between episodes. Other milder symptoms can be present between episodes.

3. Personal and/or family history of migraines are supportive criteria
Cannabinoid Hyperemesis Syndrome

- Marijuana is the most commonly used drug in the U.S.
- First described in 2004
- Usually starts years after chronic marijuana use
- Cyclic episodes of nausea and vomiting
- Excessive hot showers/baths
- Avoid opioid use
Differential Diagnosis

- Cannabinoid Hyperemesis Syndrome
- Peptic Ulcer Disease
- Gastroparesis
- Biliary tract dysmotility
- Urea cycle defects
- Renal colic
- Adrenal insufficiency
- Central nervous system disorder
- Intermittent small bowel obstruction

Bhandari, 2017
It is very important for your provider to take a careful history.

- How often does vomiting occur?
- Is there a complete resolution of symptoms between episodes?
- Was there an incipient event?

Thurler, A.H. and Kuo, B., 2013
Cyclic Vomiting Syndrome

- Examine GI studies including but not limited to:
  - Gastric Emptying Scan
  - Upper Endoscopy and Colonoscopy
  - CT scan
  - Small bowel follow through
  - Magnetic Resonance Enterography

- What medications are the patient taking?

Thurler, A.H. and Kuo, B., 2013
Cyclic Vomiting Syndrome
Treatment Options
Outpatient Considerations

• Appropriate Diagnosis
• Regular follow up every six months
• Medication reconciliation
• Establish an acute care plan (incase inpatient/ ED visit are required)
  – it is key to initiate abortive therapies upon arrival to hospital
  – i.e. IV hydration, IV sedation and nausea medications
Outpatient Considerations

- Sleep hygiene
- Good nutrition
  - i.e. avoiding triggering foods
- Stress management
- Avoiding triggers
  - i.e. stress, alcohol, marijuana
- Strong support system
Interepisodic (prophylactic/ daily use)

First Line: Tricyclic Anti-depressants (TCA)

- Not to treat depression
- The doses used are low and usually given at night due to sedative effects
- Serve as a daily medicine to decrease the frequency and severity of attacks
- Help stabilize neurotransmitters (chemicals in the brain responsible for mood and fight or flight)

Examples:
- elavil (amitriptyline)
- pamelor (notriptyline)
- norpramin (desipramine)
- tofranil (imipramine)
Interepisodic (cont)

Second Line options: (if TCAs fail)

- SSRI: citalopram (celexa)
  - increases and maintains the amount of serotonin in the brain

- Beta Blocker: propranolol (inderal)
  - Can reduce anxiety
  - Can decrease heart rate

- Antihistamine: cyproheptadine (periactin)
  - Serves as a sedative and anti-nausea

Thurler, A.H. and Kuo, B., 2013
Anticonvulsants:

- Help stabilize nerve membranes

- Phenobarbital (luminal)
- Valproate (depakote)
- Carbamazepine (tegretol)
- Gabapentin (neurontin)
- Topiramate (topamax)
- levetiracetam (keppra)
- zonisamid (zonegran)

Other options:

- Supplements: L-Carnitine, Coenzyme Q-10
  - Benefits have been seen in pediatric and adult patients with migraines
  - Helps with cell function

Thurler, A.H. and Kuo, B., 2013
CVS Phase Treatment Option(s)

Thurler, A.H. and Kuo, B., 2013
Prodromal & Vomiting Acute (abortive)

Anti-emetics

- Reduce nausea and vomiting

- Ondansetron (zofran)
- Granisetron (kytril)

Benzodiazepines

- Break the cycle, help the patient with a deep sleep
  - Lorazepam (ativan)
  - Chlorpromazine (thorazine)
  - Diphenhydramine (benadryl)

Thurler, A.H. and Kuo, B., 2013
Prodromal & Vomiting Acute (abortive)

Anti-Migraine

- Sumatriptan (imitrex)
- Frovatriptan (frova)
- Rizatriptan (maxalt)
- Zolmitriptan (zomig)

- **AVOID narcotics** despite significant pain
Inpatient Considerations

Considerations when coming to the hospital

• IV fluids to be administered as soon as possible

• IV benzodiazepine

• IV anti-emetic

• Topical lotions such as capsaicin

• Access to a hot shower

• Quiet, dark, private room preferred
Inpatient Considerations

• Primary inpatient team’s priority is to rule out causes of nausea and vomiting
  – Consider diagnosis of CVS or CHS

• Inform the inpatient team that you have a known diagnosis of CVS
  – Previously established acute care plan

• Communication with the outpatient team.
Recovery Phase

- Allow patient to recover without relapse of nausea and vomiting
- Slowly advance the diet:
  - Nothing by mouth $\rightarrow$ clear liquid $\rightarrow$ liquid $\rightarrow$ soft $\rightarrow$ solid
Case Presentation

• Our patient was given a medicine to take daily to reduce the frequency and severity of his attacks.

• He worked with his outpatient team to develop an acute care plan to allow for optimal communication with the inpatient team.

• He will graduate from college this May and has not had an attack in 6 months.

• He has been able to stay out of the hospital.
Patient Resources

- Cyclic vomiting syndrome association
  - [http://cvsaonline.org](http://cvsaonline.org)

- National Institute of Diabetes and Digestive and Kidney Diseases
Ongoing CVS Research

- CVS registry: Identifying and tracking patients with CVS to understand natural history of disease
- Genetics and microbiome of CVS
- Brain Imaging in CVS: Is it unique?
- Abnormal hormone and autonomic nervous system difference in CVS
- What is the impact of Marijuana in the brain of CVS


Thurler, A.H. and Kuo, B (2013) From heave to leave: understanding cyclic vomiting syndrome. *Gastroenterology Nursing*
Thank You

Questions?