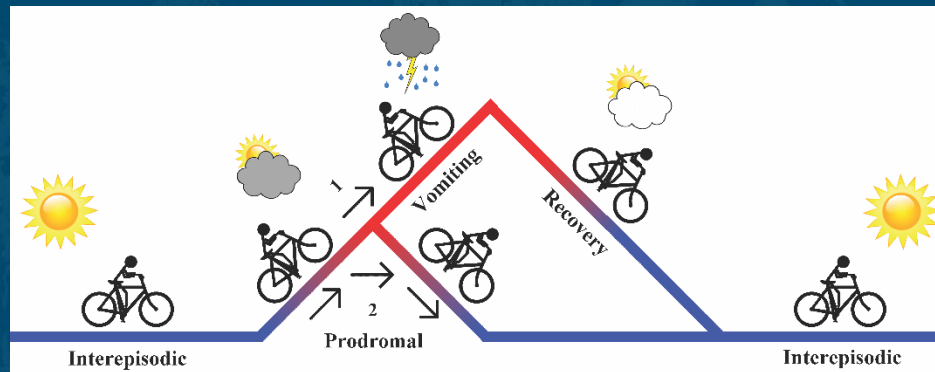


# From Heave to Leave: Understanding Cyclic Vomiting Syndrome in the Adult Population



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# Presentation Objectives



- Introduction
- Defining Cyclic Vomiting Syndrome
- Epidemiology
- Approach to Patient Care
  - Outpatient Considerations
  - Inpatient Considerations
- 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.
  - It is a disorder of the gut-brain interaction.
- Dr. Samuel Gee first described CVS in 1882 in the pediatric population.
- Considered to be a variant of migraines.



# 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% Caucasian
  - 18% African American
  - 6% Hispanic



# Approach to Patient Care: Outpatient and Inpatient





# Case Presentation



- 18 year old male with PMH of depression who presents 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

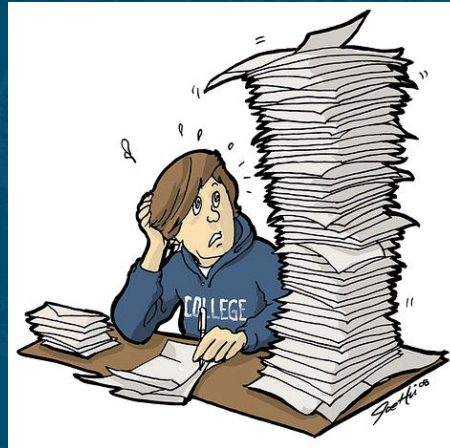


- Social:
  - Tobacco: none
  - Drinks 2-3 hard alcoholic beverages on the weekends
  - Occasional marijuana use, started smoking 2 months ago at a party, helps when he has nausea symptoms



# 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



- Includes the presence of all the following:
  - 1) Stereotypical episodes of vomiting regarding onset (acute) and duration (less than one week)
  - 2) Three or more discrete episodes in the prior year, and two episodes in the past six months, occurring at least one week apart
  - 3) Absence of vomiting between episodes, but other milder symptoms can be present between cycles
- The criteria should be fulfilled for the last three months with symptom onset at least six months before diagnosis.
- Supportive criteria include:
  - History or family history of migraine headaches



# Cannabinoid Hyperemesis Syndrome



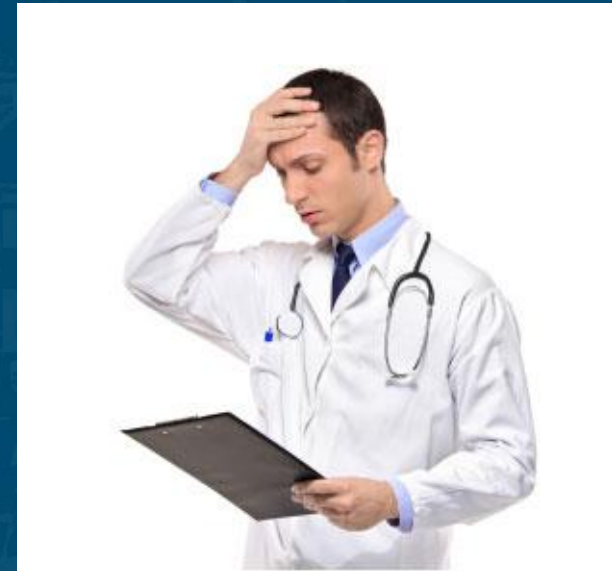
- Marijuana is the most commonly used drug in the U.S.
- First described in 2004
- Usually starts years after chronic marijuana use
- Cyclic episodes of nausea and vomiting
- Excessive hot showers/baths





# 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



# Cyclic Vomiting Syndrome



- It is very important for the provider to take a careful history:
  - How often does vomiting occur?
  - Is there is a complete resolution of symptoms between episodes?
  - Was there an incipient event?



# Cyclic Vomiting Syndrome



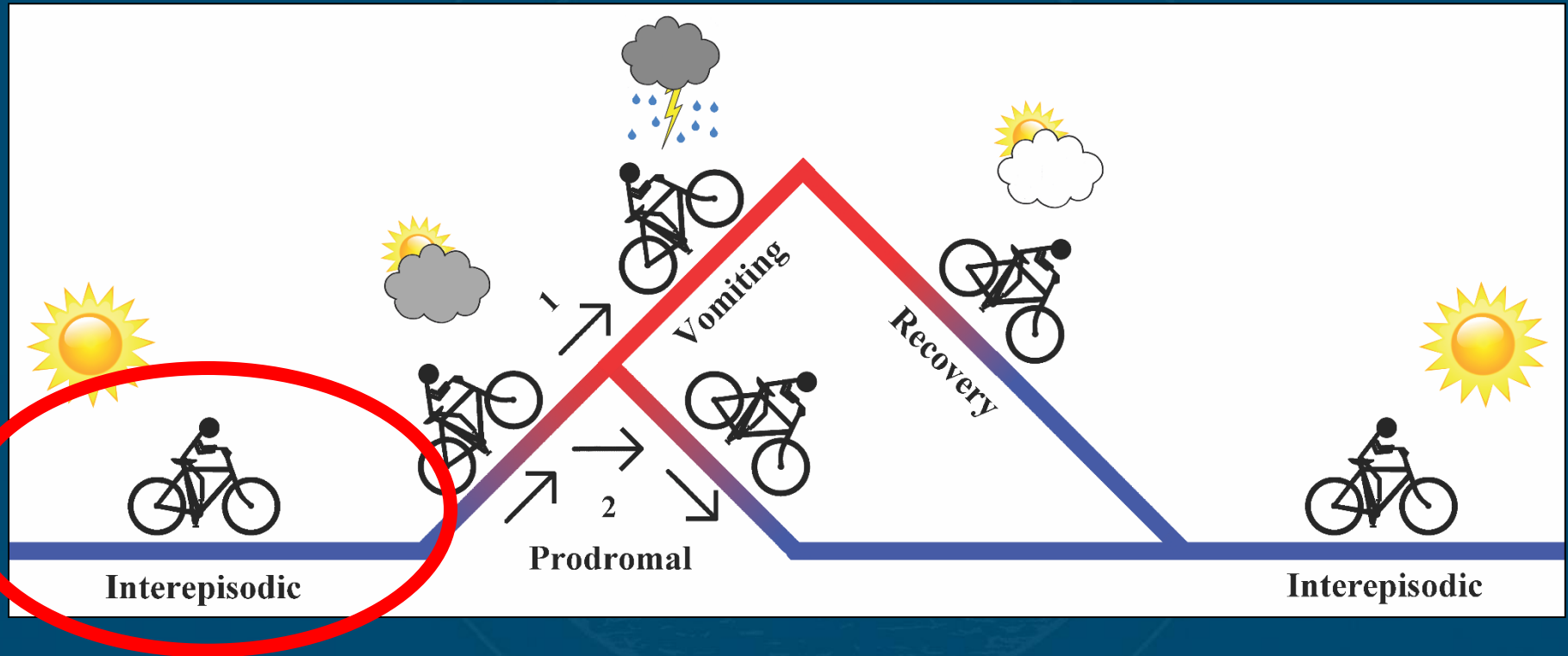
- Review of previous work-up such as:
  - Gastric Emptying Scan
  - Upper Endoscopy and Colonoscopy
  - CT scan
  - Small bowel follow through
  - Magnetic Resonance Enterography
- Review medications the patient is taking



# Cyclic Vomiting Syndrome Treatment Options



# CVS Phase Treatment Option(s)



# Outpatient Considerations



- Appropriate Diagnosis
- Regular follow up every six months
- Medication reconciliation
- Establish an acute care plan (in case 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







# 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 (nortriptyline)
  - 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



# Interepisodic (cont)

## Anticonvulsants:

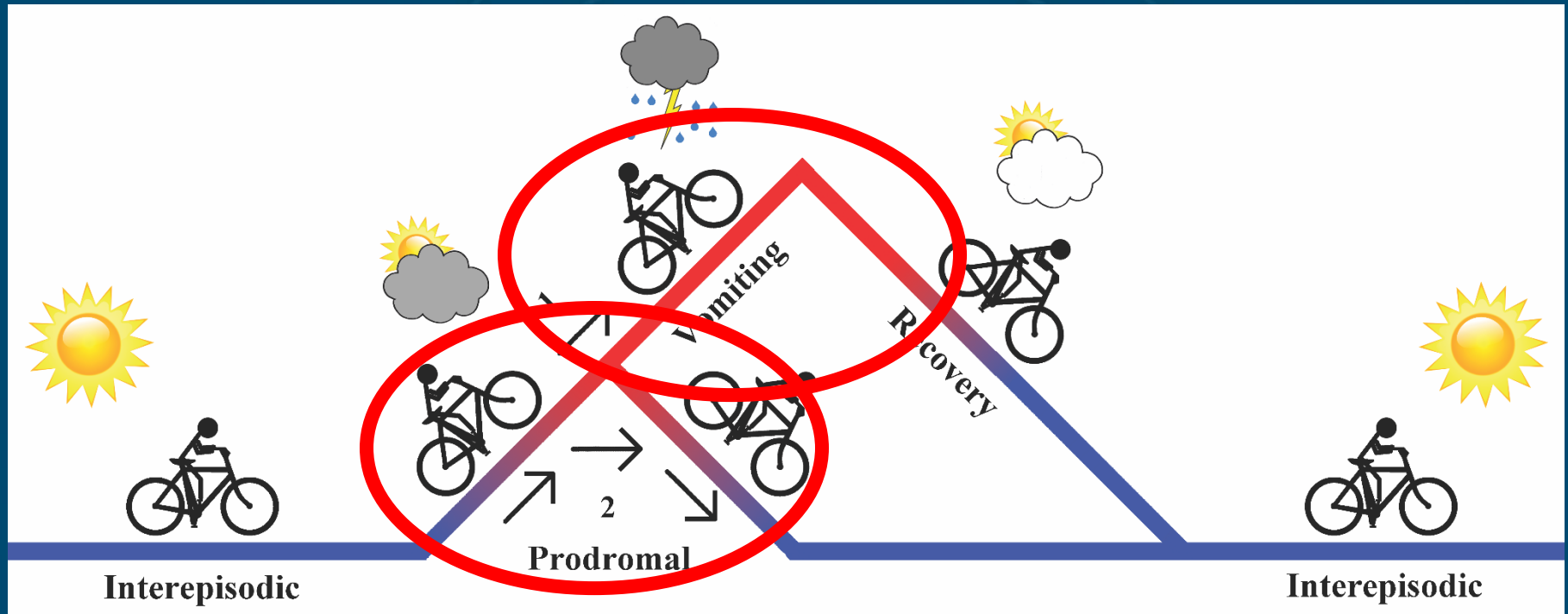
- **Help stabilize nerve membranes**
- **Examples:**
  - Phenobarbital (luminal)
  - Valproate (depakote)
  - Carbamazepine (tegretol)
  - Gabapentin (neurontin)
  - Topiramate (topamax)
  - Levetiracetam (keppra)
  - Zonisamid (zonegran)

## Other options:

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



# CVS Phase Treatment Option(s)



## Anti-emetics

- Reduce nausea and vomiting
- Examples:
  - Ondansetron (zofran)
  - Granisetron (kytril)

## Benzodiazepines

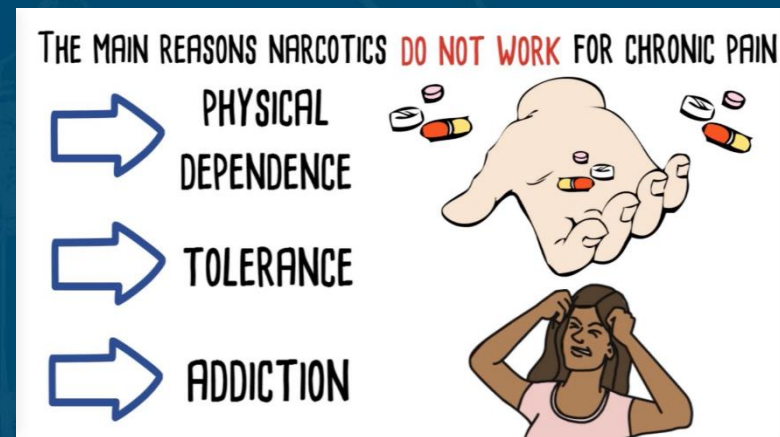
- Break the cycle, helps the patient with a deep sleep
- Examples:
  - Lorazepam (ativan)
  - Chlorpromazine (thorazine)
  - Diphenhydramine (benadryl)





## Anti-Migraine

- Sumatriptan (immitrex)
- 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



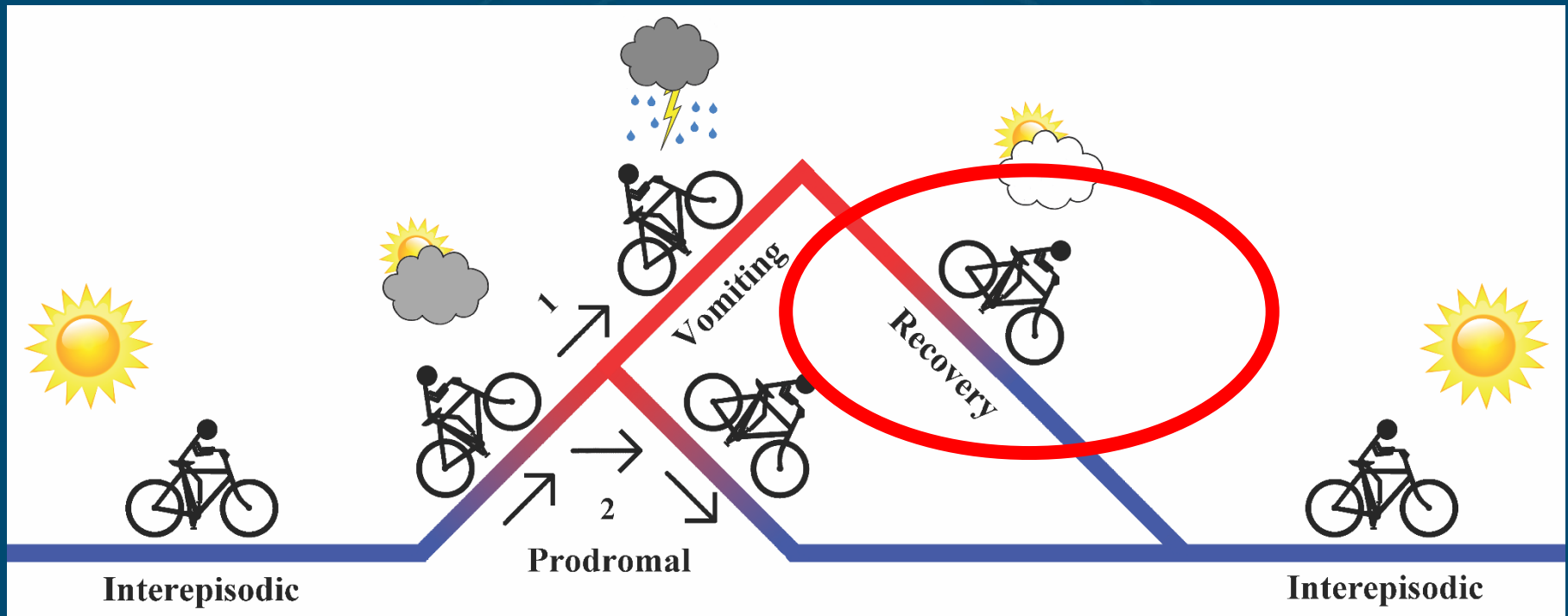
# Inpatient Considerations



- Primary inpatient team's priority is to rule out causes of nausea and vomiting
  - Consider diagnosis of CVS or CHS
- Implement patient's established acute care plan
- Communication with the outpatient team

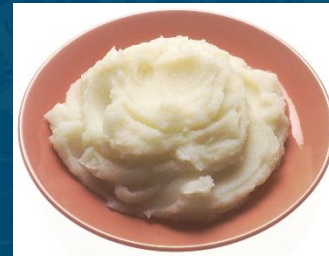


# CVS Phase Treatment Option(s)



# Recovery Phase

- Allow patient to recover without relapse of nausea and vomiting
- Slowly advance the diet:
  - Nothing by mouth → clear liquid → liquid → soft → 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>
- National Institute of Diabetes and Digestive and Kidney Diseases
  - <https://www.niddk.nih.gov/health-information/digestive-diseases/cyclic-vomiting-syndrome>



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# Thank You



## Questions?

