

## Options for ED care for CVS patients

A recent evidence-based review on guidelines in the management of cyclic vomiting syndrome, a collaborative effort between the Cyclic Vomiting Syndrome Association (CVSA) and the American Neurogastroenterology and Motility Society (ANMS) review was published in their official journal, *Neuro gastroenterology*.<sup>1</sup> The link to the full-text article can be found at <https://onlinelibrary.wiley.com/toc/13652982/2019/31/S2>. Though there is a paucity of research in the effectiveness of individual medications in the management of CVS in the emergency department (ED), a set of broad guidelines was developed. In general, **a combination of medications used simultaneously or sequentially** tends to be more effective in the management of symptoms. The response to medications can vary and the **proposed regimen should be tailored to meet the needs of individual patients. A combination of anti-emetics, analgesics, and sedation** are likely to be effective for symptomatic relief.

For patients where anxiety is a prominent feature, a protocol that uses anxiolytic and sedative drugs may be more effective. There is very limited data on the **use of benzodiazepines in CVS**. That said they can be very helpful in the short term to reduce anxiety and somatic symptoms in the setting of an acute CVS episode in the ED or an acute care setting. The dilemma is that these medications while effective and should only be used short-term tend to be used long-term. **The risks with long-term use include tolerance, dependence, and abuse.** A recent report from the U.S. National Center for Health Statistics shows that from 2011 to 2016, benzodiazepines were among the 10 most frequently cited drugs in overdose deaths.<sup>2</sup> Thus, for any condition where anxiety plays a pivotal role, a focused evaluation should be conducted and the medication treatment of choice, antidepressants, be considered along with cognitive-behavioral treatment of any underlying anxiety disorder.

While opiates may occasionally be required for control of severe pain, **it is preferable to opt for the use of intravenous ketorolac and non-opiate sedation to avoid the development of dependence or patient labeling that accompanies regular opiate use** in a chronic recurrent condition such as CVS. Patient education should be included as part of the treatment approach and **providers are encouraged to provide all patients with an individual treatment plan to be used in an acute care setting** (ED or infusion clinic).

1. Venkatesan T, Levinthal DJ, Tarbell SE, et al. Guidelines on the management of cyclic vomiting syndrome in adults by the American Neurogastroenterology and Motility Society and the Cyclic Vomiting Syndrome Association. *Neurogastroenterol Motil* 2019;31 Suppl 2:e13604.
2. Warner M, Trinidad JP, Bastian BA, et al. Drugs Most Frequently Involved in Drug Overdose Deaths: United States, 2010 -2014. *Natl Vital Stat Rep* 2016;65:1-15.



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## Cyclic vomiting syndrome emergency department (ED) protocol

\_\_\_\_\_[name]\_\_\_\_\_ has an established diagnosis of Cyclic Vomiting Syndrome

### Operational definition

- A recurring pattern of discrete episodes of severe vomiting, accompanied by profound nausea and/or severe abdominal pain
- Patient returns to usual health status between episodes (may have inter-episodic nausea and or dyspepsia)
- In some patients, CVS episodes resemble a migraine attack
- Patients may be restless, anxious, and distressed
- Patients are not customarily dehydrated until late in the episode

### Therapeutic goal

Rapid recognition and intervention may decrease severity of the attack and promote prompt resolution of symptoms

### ED management

1. Clinical assessment: Pulse/Temp/BP/Weight, consciousness, and hydration
2. Laboratories
  - a CBC, urea, creatinine, LFT's, lipase, glucose, and electrolytes
  - b EKG
  - c Urine analysis
  - d Diagnostic imaging at the discretion of attending physician

### Treatment

1. Intravenous fluids
  - a IV saline bolus if clinically dehydrated
  - b IV D5NS at 100%-150% maintenance (suggested rate is 200 cc/h for a 70 kg adult.)
2. For vomiting and nausea
  - a IV ondansetron 8 mg IV × 1—may repeat q 4-6 h if ondansetron is ineffective
  - b Consider diphenhydramine 50 mg IV and metoclopramide 10 mg IV
  - c Consider IV fosaprepitant 150 mg if available
3. For sedation
  - a IV lorazepam 1-2 mg and b. IV diphenhydramine 50 mg for additional sedation
4. For migraine-like presentation
  - a Sumatriptan nasal 20 mg (head forward technique) or b Sumatriptan subcutaneous injection 6 mg/0.5 mL
5. For pain
  - a IV ketorolac 30 mg if > 60 minutes from onset; may repeat 15 mg q 6 h × 2 (maximum 60 mg/d)
  - b Opioids may be considered as part of an ongoing treatment plan in refractory patients

### Reassess

1. Treatment failure—intensify treatment as indicated above or admit patient
2. Positive treatment response—discharge
  - a Continue ondansetron (soluble tablets) q 6-8 h × 24-48 h if initially effective
  - b Continue lorazepam × 24-48 h if initially effective
  - c Continue NSAIDs for pain as needed

<sup>a</sup>This ED protocol represents a **sample template** and should be tailored based on individual needs.

<sup>b</sup>Opioids must be used sparingly and with caution given the risk of addiction, dependence with frequent or long-term use. Every effort should be made to use non-opioid alternatives including the use of sedatives and prompt care which can alleviate the anxiety that often drives symptoms.