CYCLIC VOMITING SYNDROME (CVS)

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Cyclic Vomiting Syndrome (CVS) is a condition where children experience **repeated, sudden episodes of intense nausea and vomiting**, separated by **periods of complete wellness.** Episodes are similar each time, may last hours to days, and often include pallor, abdominal pain, and exhaustion. CVS and migraine share similar biology. Children with a **family or personal history of migraine** respond especially well to migraine-style treatments.

Common Symptoms During an Episode

- Repetitive vomiting (may be several times per hour)
- Pallor, sweating, lethargy
- Abdominal pain
- Sensitivity to light/sound
- Excess saliva, dizziness
- Dehydration

Between episodes, children feel normal.

Triggers to Watch For

- Poor or irregular sleep
- Fasting or skipping meals
- Illness/infection
- Stress or excitement
- Dehydration
- Certain foods (varies by child)
- Menstruation (catamenial CVS)

ACUTE MANAGEMENT OF CVS

(Adapted from pediatric migraine acute management tables and NASPGHAN CVS guidelines)

Treat Early & Effectively

Start treatment **as soon as early symptoms begin** (nausea, fatigue, abdominal discomfort).

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1. Anti-Nausea (Abortive) Medications

Ondansetron (Zofran)

- **0.15–0.2 mg/kg/dose PO/ODT q4–6h** (max **8 mg per dose**)

Aprepitant (NK-1 antagonist; may abort an episode)

Typical "3-day rescue regimen":

- <15 kg: **80 mg day 1**, then **40 mg daily x 2 days**
- 15–20 kg: **80 mg daily x 3 days**
- 20 kg: **125 mg day 1**, then **80 mg daily x 2 days**

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2. Anti-Migraine Treatments (Best for migraine-related CVS)
Use early when symptoms begin.
Non-Specific Options (NSAIDs/analgesics)

- **Ibuprofen**: 10 mg/kg/dose q6–8h (max **600 mg**)
- **Naproxen**: 5–7 mg/kg/dose q8–12h (max **500 mg**)
- **Acetaminophen**: 15 mg/kg/dose q4–6h (max **1000 mg**)

Triptans (Specific abortive agents) Best for children with personal/family migraine history.
Rizatriptan

- <40 kg: 5 mg
- ≥40 kg: 10 mg
  (Max 2 doses/24hrs)

Zolmitriptan

- <40 kg: 2.5 mg
- ≥40 kg: 5 mg
  (Max 2 doses/24hrs)

Sumatriptan (nasal spray)

- <40 kg: 5 mg
- ≥40 kg: 20 mg

Almotriptan (≥12 years)

- 6.25–12.5 mg
  (Max 2 doses/24hrs)

Sumatriptan + Naproxen (≥12 years)

- 85/500 mg once/day

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3. Supportive Measures

- Quiet, dark room
- Small sips of clear fluids
- Rest
- Avoid strong smells and bright lights
- Consider non-oral meds early if vomiting begins

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4. When to Seek Emergency Care

- Unable to keep fluids down
- Severe dehydration
- Persistent vomiting >4–6 hours
- Severe abdominal pain
- Lethargy or difficulty waking
- Concern for worsening symptoms

ED treatment may include:

- **Immediate IV fluids**
- **IV ondansetron**
- **IV fosaprepitant**
- **Sedation (diphenhydramine, lorazepam)** if needed

PREVENTING FUTURE CVS EPISODES

1. Lifestyle Strategies

- Maintain consistent sleep schedule
- Avoid fasting; eat regular meals with protein
- Hydrate daily (goal ~8 cups water/day)
- Limit caffeine
- Manage stress; build predictable routines

2. Daily Supplements

(Use 3–6 month trial)

- **Magnesium (elemental)**: 9 mg/kg/day (max 600 mg)
- **Coenzyme Q10**: 1–3 mg/kg/day (max 200 mg)
- **Riboflavin (B2)**: 200–400 mg/day

3. Preventive Medications

Used when episodes are frequent, severe, or causing school absences.

First-Line Options

- **Propranolol**: 2–4 mg/kg/day divided TID (max 120 mg/day)
- **Cyproheptadine** (younger children)

Second-Line / Refractory Options

- **Amitriptyline**: 1 mg/kg/day (max 75 mg/day)
- **Aprepitant prophylaxis** (3× weekly)
- **Topiramate**: 2 mg/kg/day (max 200 mg/day)

Follow-Up

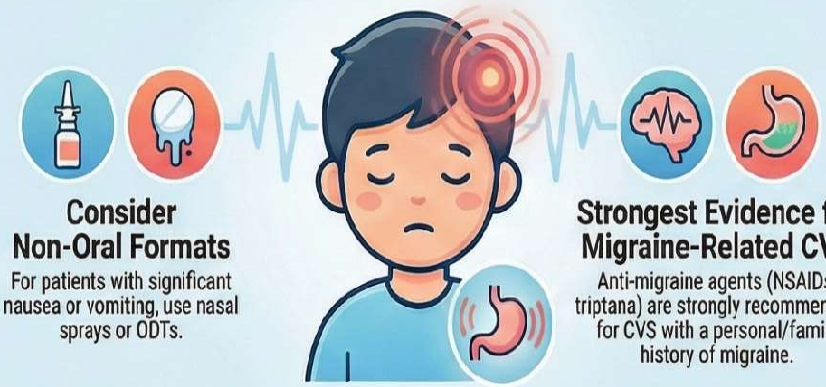
- Review symptom patterns every 3–6 months
- Assess school impact
- Evaluate for anxiety or stress triggers
- Adjust preventive medications as needed

Pediatric Migraine & Cyclic Vomiting Syndrome:
A Quick-Reference Treatment Guide

PAGE 1: MANAGING AN ACUTE ATTACK

Treat Early & Effectively

Administer abortive medications as soon as an attack starts for best results.



Consider Non-Oral Formats

For patients with significant nausea or vomiting, use nasal sprays or ODTs.

Strongest Evidence for Migraine-Related CVS

Anti-migraine agents (NSAIDs, triptana) are strongly recommended for CVS with a personal/family history of migraine.

Non-Specific Abortive Treatments

Ibuprofen
10 mg/kg/dose q6-8h
Max 600 mg/dose

Naprosen
5-7 mg/kg/dose q8-12h
Max 500 mg/dose

Acetaminophen
15 mg/kg/dose q4-6h
Max 1000 mg/dose

Specific Abortive Treatments (Triptans)

	<40kg	≥40kg
Rizatriptan (Tablets & ODT)	5 mg	10 mg
Sumatriptan (Nasal Spray)	5 mg	20 mg
Zolmitriptan (Tablets & ODT)	2.5 mg PO	5 mg PO

Anti-Nausea Abortive Treatments

Ondansetron
0.19 mg/kg/dose q4-6h
Max 8 mg/dose

Aprepitant
(8-dxy regimen)
80mg Day 1
40mg Days 2-3 (<15kg)
See source for full details

Metoclopramide
0.1-0.3 mg/kg/dose q6h
Max 10 mg/dose

PAGE 2: PREVENTING FUTURE EPISODES

Lifestyle is Key to Prevention

Consistent routines are the foundation of non-pharmacological daily headache prevention.

Sleep Hygiene
Establish a regular sleep/wake schedule and avoid screens 1 hour before bed.

Diet & Hydration
Eat regular meals with protein, drink 8 cups of water daily, and limit caffeine.

Daily Exercise
Aim for 30-60 minutes of moderate to high-intensity physical activity per day.

Prophylactic Supplements

Magnesium (elemental):
9 mg/kg/day
Max 600 mg/day

Coenzyme Q10
1-3 mg/kg/day
Max 200 mg/day

Vitamin B2 (Riboflavin)
200-400 mg/day
Max 400 mg/day

Prophylactic Pharmacological Treatments

Therapy should be trialed for 6-8 weeks at target dose.

Propranolol
2-4 mg/kg/day
Max 120 mg/day

Amitriptyline
1 mg/kg/day
Max 75 mg/day

Topiramate
2 mg/kg/day
Max 200 mg/day