CYCLICAL VOMITING SYNDROME

Management Guidelines
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Last reviewed February 2011
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Cyclical vomiting syndrome is a functional gastrointestinal disorder that can be identified by the occurrence of three or more episodes of intractable nausea and vomiting lasting from hours to days, separated by symptom free intervals lasting weeks to months. Other symptoms such as lethargy, pallor, mild pyrexia, skin blotching, headache and abdominal pain may occur in conjunction with the nausea and vomiting.
To date there are no clinical, biochemical or instrumental markers of cyclical vomiting syndrome. The diagnostic criteria for cyclical vomiting syndrome are purely clinical and based on the history of symptoms described above, in the absence of any demonstrable gastrointestinal, neurologic, metabolic or urinary abnormality.
In the majority of patients with cyclical vomiting syndrome the onset is in the pre-school / early school age years (3-7 years).
Each patient's attacks tend to be stereotypical with regard to onset, periodicity, duration and intensity of symptoms.

The differential diagnosis includes:

- Brain tumours
- Intestinal malrotation
- Obstructive uropathies
- Recurrent pancreatitis
- Peptic ulcer disease
- Medium chain acetyl dehydrogenase deficiency (Mitochondrial disorders)
- Urea cycle defects and others

Diagnosis

The diagnosis of cyclical vomiting syndrome is not one for the emergency room. Generally the patients will have previously been seen and assessed by a paediatric specialist, and have been advised to present to the Emergency Department for treatment as soon as an episode of vomiting has started. If the diagnosis of cyclical vomiting syndrome has not been previously made, then they will require admission for treatment and further assessment. It is possible that patients with a presumptive diagnosis of cyclical vomiting syndrome may, on the advice of their specialist, present to the Emergency Department during an episode. Any further investigations which they would need should be outlined by their specialist.

Natural History

Many children grow out of CVS by their preteen or early teenage years. However, some authors report that up to 75% of children with CVS will go on develop migraine headaches by age 18.

Warning signs alerting to an alternative diagnosis:

1. Severe headaches
2. Altered mental status
3. Gait disturbances
4. Gastrointestinal bleeding
5. Progressive worsening and prolonged episode
6. Any change in pattern or symptoms

Treatment

- There are to date no controlled therapeutic trials on treatment of cyclical vomiting, and the treatment remains largely empirical.
- In patients who experience a prodrome, use of oral anti-emetics or non-steroidal anti-inflammatories may abort an episode before it becomes full-blown.
- Patients who are prone to severe attacks which cannot be controlled at home should be admitted to hospital, and treatment should be started as soon as possible. *The treatment regime that is instituted in individual patients is generally documented in their previous hospital records, and that treatment protocol should be followed.*
- Complications such as dehydration, acidosis, electrolyte imbalance and peptic oesophagitis can occur and need to be prevented by infusion of an appropriate volume of 2½ % dextrose and ½ normal saline solution. In calculating the fluid volume, allowance should be made for any dehydration , as well as ongoing losses from vomiting.
- Generally a proton pump inhibitor needs to be given.
  - Omeprozole 2 mg/kg stat IV (max 80 mg), then
  - 1mg/kg/dose (max 40 mg) 8-12 hourly IV is suitable.

- With an anti-emetic medication:

  - **Ondansetron**, a 5HT3 receptor antagonist, is generally the first line anti-emetic (patient age >2).

  This can be given as either a 6-8 hourly bolus dose, or as a continuous infusion.

  a) *Intermittent dosing:* Ondansetron 0.15 mg/kg/dose IV (infused over 15 minutes) every 6-8 hours
  b) *Continuous infusion:* Ondansetron 0.4 mg/kg (max 8 mg) IV over 15 minutes, then 1 mg/hour for 12-24 hours. Note that this is a standard 1 mg per hour, irrespective of the child's weight. This may need to be continued depending on the clinical status of the patient.

- Other anti-emetic medications that have been used include Chlorpromazine.
- In some patients a benzodiazepine such as Lorazepam may be useful. If IV Lorazepam is available, it may be given in the following dose:

  - 25 - 100 micrograms/kg/dose 6-hourly *(maximum 4 mg per dose)*