Acute Gastroenteritis (AGE)

References:
3. National GC. Evidence-based care guideline for prevention and management of acute gastroenteritis (AGE) in children aged 2 months to 18 years. http://www guideline.gov/content.aspx?id=35123&search=%22acute+gastroenteritis%22+(child*+or+pediatr*+or+paediatr*);.

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OBJECTIVES:
1. Provide criteria for accurate diagnosis
2. Provide criteria for assessment of severity
3. Provide criteria for transfer to emergency care
4. Outline appropriate therapies
5. Prevent return visits for acute gastroenteritis and decrease overall costs

SUMMARY:
1. Classify patients into subgroups: no or minimal dehydration, moderate dehydration, or overt dehydration to guide management.
2. Prescribe probiotics as an adjunctive treatment in the management of children with diarrhea from acute gastroenteritis for 5 to 7 days.
3. Return to regular diet as tolerated.
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1. Inclusion Criteria
   a. Patient >3 months of age
   b. Recent onset of vomiting and/or diarrhea, with or without fever or abdominal pain, not due to chronic disease

2. Exclusion Criteria
   a. Toxic appearance; concern for sepsis or acute surgical abdomen
   b. Previously diagnosed disorders including immunodeficiency or those affecting major organ systems.
   c. Diarrhea and or vomiting accompanied by chronic metabolic disorders
   d. Diarrhea caused by chronic disease
   e. Bloody diarrhea
   f. Bilious emesis
   g. Diarrhea >14 days (consider chronic disease, malnutrition, or bacterial enteritis)

3. Assessment
   a. **Definition:** Acute gastroenteritis (AGE) is a diarrheal disease of rapid onset, with or without accompanying symptoms and signs, such as nausea, vomiting, fever or abdominal pain.
      i. Self-limited
      ii. Etiology likely an enteric viral infection
      iii. Main concern is the potential development of dehydration
   b. **Diagnosis:** Acute gastroenteritis is a clinical diagnosis determined by history and physical exam.
      i. Diarrhea is defined as three or more loose, watery stools a day.
      ii. Diarrhea usually lasts 5-7 days, and in most it stops within 2 weeks.
      iii. Vomiting usually lasts 1-2 days, and in most it stops within 3 days.
   c. **Diagnostic testing**
      i. Obtain vital signs (check weight, HR, RR, BP, temperature)
      ii. Do not routinely use laboratory testing or stool pathogen testing
         1. Obtain stool cultures in patients with bloody stools, or who are immunocompromised, or if the diagnosis of simple AGE is in doubt. Consider stool cultures in patients with suspected food poisoning.
         2. Consider stool testing in children who have recently travelled to a foreign country: stool O & P x3, giardia antigen (and other stool studies, as appropriate).
         3. Consider C. difficile testing in children older than 1 year with diarrhea who have recent exposure to antibiotics.
   d. **Assess severity**
      i. Body weight change

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1 *acute body weight change is considered the gold standard measure of dehydration in a child when a reliable pre-illness weight is available.*
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1. Minimal to no dehydration: Loss of <5% body weight
2. Mild to moderate dehydration: Loss of 5-10% body weight
3. Overt shock: Loss of >10% body weight

ii. Physical exam findings and history
   1. No to minimal dehydration
      a. Appears well: alert and responsive
      b. Normal urine output
      c. Moist mucous membranes
      d. Normal capillary refill time
      e. Normal blood pressure
   2. Mild to moderate dehydration
      a. Decreased urine output
      b. Dry mucous membranes
      c. Tachypnea, tachycardia
      d. Prolonged capillary refill time >2 seconds
      e. Abnormal skin turgor (tenting or inelastic skin)

4. Management
   a. If vomiting
      i. No to minimal dehydration
         1. Oral rehydration challenge continued and advanced at home for a minimum period of 4 to 6 hours, then transition to regular diet as tolerated
      ii. Moderate dehydration
         1. Provide Ondansetron if emesis is the primary complaint
            a. Do not prescribe for patients who have known prolonged QT syndrome
         2. Start oral rehydration challenge (see below) and re-assess after 20 minutes
         3. If oral rehydration trial tolerated, advancement of hydration continued at home for the first 6 hours with transition to a regular diet as tolerated
         4. Recommend probiotics if they begin to have diarrhea
      iii. Overt shock – start above while arrange EMS transfer to local ED
   b. If diarrhea
      i. Provide rehydration with ORT if vomiting (as above), or if not vomiting, with volumes as tolerated
      ii. Probiotics (Lactobacillus) for 5 days

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2 Oral ondansetron in moderately dehydrated patients with AGE may facilitate earlier oral rehydration and decrease the need for IV rehydration.

3 Probiotics in the form of lactobacillus GG, Saccharomyces boulardii, and L acidophilus LB result in reducing the duration of diarrhea, and reducing the risk for protracted diarrhea and hospitalization.
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1. Given these are usually not covered by insurance, suggest over-the-counter adult capsules of lactobacillus – 1 per day sprinkled on food
2. Consider OTC liquid formulation if sprinkles not tolerated
3. There is no systematic evidence to support yogurt as a probiotic after acute gastroenteritis.
   iii. If diarrhea severe and prolonged, children may develop a secondary lactose-intolerance, so consider low-lactose diet including lactose-free formula until diarrhea resolves (as is recommended for children who are hospitalized with diarrhea)
   iv. Anti-diarrheal and antimicrobial\(^3\) agents NOT recommended
   v. Assess skin and diaper region for irritant contact dermatitis, and provide barrier cream to prevent skin breakdown

5. Oral rehydration trial (ORT)* – if vomiting, start slowly as described below; if not vomiting then allow them to drink and eat as tolerated
   a. Initial ORT if vomiting
      i. <10kg start with 5mL every 5 minutes
      ii. >10kg start with 10mL every 5 minutes
      iii. Reassess after 20 minutes and advance if tolerated (as below)
   b. Advancing ORT challenge
      i. <10kg increase by 10mL every 5 minutes
      ii. >10kg increase by 20mL every 5 minutes
      iii. Assess every 30-60 minutes
   c. Types of ORT fluid recommended:
      i. Use low-osmolarity ORS solution (240-250mOsm/L)
      ii. Consider supplementation with usual fluids (including milk or water), but not fruit juices or carbonated drinks.

6. Disposition
   a. To home
      i. Patient must meet the following criteria:
         1. Clinical status improved or stable
         2. Tolerating oral rehydration
            a. Avoid the use of fruit juices or carbonated soda
            b. Continue breastfeeding or formula, may give full-strength milk
            c. Reintroduce the child’s usual solid diet
               i. There is no evidence that restarting feeds early affects diarrhea duration or output.
               ii. If prolonged diarrhea, may suggest avoiding lactose-containing foods as above
      ii. Provide verbal and written education materials for caregivers

\(^3\) Antimicrobial therapies only used for selected patients with confirmed evidence of serious bacterial infection, Giardia lamblia or Cryptosporidium.
iii. As always, consider family’s ability to return for appropriate follow up, or seek/access emergency care
iv. Provide probiotic prescription for 5 days
v. Ensure teaching around hand washing to prevent transmission and remind parents children cannot return to school or day care until 24 hours after resolution of fever, vomiting and diarrhea
vi. No specific follow-up is needed unless not tolerating ORT, caregiver concern for dehydration or prolonged symptoms (>7 days)

b. **Transfer to emergency department if:**
   i. Moderate dehydration not tolerating oral rehydration trial challenge

7. **Indicators for diagnosis other than gastroenteritis**
   a. Course of illness not improving within 7 days
   b. Blood in stool (concern for HUS)
   c. Bilious emesis (concern for obstruction)
   d. Abdominal distension, localized severe pain, or rebound tenderness (concern for surgical abdomen)