Outpatient Acute Gastroenteritis Care Guideline

CHOC Children's

Inclusion Criteria

- Age 3 months to 18 years, suspicion for acute viral gastroenteritis fever, or abdominal pain

Exclusion Criteria

- < 3 months old, toxic appearance or shock, suspected bacterial colitis, blood in stool, persistent localized abdominal pain or sings of obstruction (e.g. bilious emesis), diarrhea for > 7-10 days, other major co morbid medical conditions, recent abdominal or head trauma

Vomiting without diarrhea

Consider other diagnoses (e.g. elevated ICP or gastrointestinal obstruction)

Assess for degree of dehydration

Minimal or no dehydration

(HR, skin turgor, cap refill, mental status normal, slightly dry mucous membranes ad slight decrease in urine output)

Mild to Moderate dehydration

(HR increased, delayed cap refill, dry mucous membranes, listless, and decreased urine output)

Severe Dehydration

(HR increased, extremities cool/mottled, dry mucous membranes, lethargic, minimal urine output

Maintenance Oral Replacement Therapy (ORT)

- 10 ml/kg for each watery stool
- 2ml/kg for each emesis
- Maintain usual diet as tolerated, including milk

If emesis within the last hour, consider oral dose of Odansetron before starting ORT

8-15 kg – 2 mg

>15-30 kg – 4 mg

>30 kg – 8 mg

May consider prescription for additional 1-2 oral doses

Refer to the Emergency Department

Consider IV fluid bolus (NS 20ml/kg over 10 mins), if equipped while awaiting transport for Intravenous fluids

- Educate regarding fluids, diet, signs of dehydration and expected course of illness
- Educated regarding indications for return to medical care

Oral Rehydration Therapy - ORT

- Goal is 50-100 mL/kg over 3-4 hrs
- 1st hour give 12-25 mL/kg
- Start with 1-2 mL/kg over 5 minutes

Tolerating ORT over 1 hour and VS normal, took indicated fluid volume, ≤ 1 episode of vomiting

Yes

Consider Probiotics

Lactobacillus GG 10¹º daily x 5-7 days

No

- Consider dose of odansetron, if not given previously, restart ORT
- Consider IV fluid bolus (20 mL/kg over 1 hr) in the office and restart ORT
- Refer to ED if unable to give odansetron or IVF, or fails ORT challenge

Discharge home

- Complete ORT over 2-3 hours
- Conside5r additional ORT for each episode of vomiting and diarrhea over next 1-2 days
- Educate regarding fluids, diet, signs of dehydration and expected course of illness
- Educate regarding indications for return to medical care

See pages 2-6 For notes on Outpatient Management of AGE

Reassess the appropriateness of Care Guidelines as condition changes. This guideline is a tool to aid in clinical decision making. It is nota standard of care. The provider should deviated from the guideline when clinical judgment so indicates.

Approved EBM Committee 1-20-16, revised 5-29-19

Notes for Outpatient Management of AGE

Epidemiology

- Historically > 1.5 million Outpatient visits and 200,000 hospitalizations and 300 deaths each year in the United States
- 12% of hospitalizations in children under age 5
- 10% of all visits to pediatric emergency departments
- 1/3 of this attributed to rotavirus in the pre vaccine era
- 75-90% viral (rotavirus, astrovirus, enteric adenovirus, sappovirus, and norovirus—which is now the leading cause of viral gastroenteritis since the reintroduction of the rotavirus vaccine)
- Viral AGE peaks in the winter
- 10-20% bacterial (salmonella, shigella, campylobacter, yersinia, E. coli, and clostridium difficile)
- 0-5% are parasites (giardia and cryptosporidium are the most common)

Focus On Prevention

- Encourage infants to be routinely vaccinated against rotavirus
    - 3 doses of Rotarix licensed since 2006
    - 2 doses of Rotarix licensed since 2008
- Instruct families on hand hygiene in the prevention of transmission in the home and daycare via fecal oral route
- Breastfeeding as protective practice against severe AGE

Rehydration

- Oral rehydration solutions using reduced osmolarity are superior to high osmolarity solutions
- Commercially available solutions such as Pedialyte are generally safer than homemade solutions, as errors in preparation may occur
- Coca cola, apple juice, chicken broth and original Gatorade are not appropriate as only intake for rehydration therapy

Referral for evaluation should occur when there are risk factors

- Young age < 6 months
    - Infants are more prone to dehydration given their higher body surface to volume ratios, higher metabolic rate, and relatively smaller fluid reserves
- Prematurity or chronic medical conditions
- Fever > 38 degrees if < 3 months or > 39 degrees for ages 3-36 months of age
- Visible blood in the stool
- High output diarrhea
- Persistent vomiting
- Care giver's report of signs suggesting dehydration
- Change in mental status
- Poor response to oral rehydration at home

Notes for Outpatient Management of AGE Continued

Assessing for Dehydration

- History
  - Intake and presence of vomiting
  - Frequency of diarrhea and presence of blood
  - Urine output
  - Prior weight
- Physical exam
  - Heart rate
  - Respiratory rate (including deep respirations, which could implicate a metabolic acidosis)
  - Blood pressure
  - Current weight change from prior weight when available
  - Appearance of eyes
  - Mucus membranes
  - Capillary refill
  - Visualization of the stool for evidence of mucus and assessment of consistency
- Labs
  - Usually unnecessary
  - Stool cultures indicated in cases of dysentery (blood in the stool)
  - Consider CBC and urine or blood cultures when sepsis or UTI are concerns
  - Fecal leukocytes present do not discriminate infectious from non-infectious causes, but when present make **viral AGE** less likely

Dietary Therapy

- Breastfed infants should continue nursing on demand even during initial rehydration phase
- Formula fed infants should continue usual formula as soon as rehydrated sufficiently to satisfy energy requirements
- No clear advantage of lactose free or lactose reduced formulas
- The presence of reducing substances in stool is not diagnostic of lactose intolerance
- Soy based formulas may reduce liquidity of stools, but do not decrease stool output volume
- Foods high in simple sugars may increase osmotic load and worsen diarrhea
- Withholding foods for more than 24 hours is inappropriate
- Do not dilute milk or formula
- Clear liquid diet is not recommended
- Unrestricted and early feeding
  - Decreases changes in intestinal permeability caused by the infection
  - Reduces illness duration
  - Improves nutritional outcomes
- BRAT diet historically and commonly recommended is unnecessarily restrictive

Antimicrobial agents

- Generally should be avoided in pediatric patients as majority of AGE is viral
- Majority of cases of *bacterial* AGE are self limited, and not shortened by antimicrobial agents

Notes for Outpatient Management of AGE Continued

Antimotility agents

- Most common agent is *Loperamide*
- Not appropriate for children, as their use may prolong the course of some bacterial infections

Antisecretory drugs

- Most common agent is *Bismuth salicylates*
- Not appropriate for children

Absorbants or binding agents

- Most common agent is *Kaopectate*
- Evidence does not support the use of these agents in children

Antiemetics

- Are usually unnecessary, though controversial, however, may be effective on reducing hospitalizations when used early in AGE process
- *Ondansetron*
    - Considered safe as single oral dose in clinic, may consider 1-2 doses at home in next 24 hrs.
    - May increase the risk of developing prolongation of the QT interval, especially when:
        - Given IV
        - Multiple doses
        - In children with underlying heart conditions or family history of long QT
- Other antiemetics including *promethazine, metoclopramide*, and *prochlorperazine* should be used with caution due to their side effects and avoided in children under age 2

Supplemental zinc therapy

- Has proved beneficial in developing countries where malnutrition may play a larger role
- Further studies needed in developing countries

Probiotics

- Lactobacillus GG or Saccharomyces boulardii are most well studied and recommended
- Mechanism may include competition with pathogenic bacteria for receptor sites or intraluminal nutrients
- Not regulated by the federal government, and may provide a challenge to the prescribing physician
- May reduce duration of diarrhea by as much as 1-2 days
- Most helpful for rotavirus, less helpful for invasive bacterial diarrhea
- Many contain milk products, so check ingredients if milk allergic
- 10 billion CFU for lactobacillus (LGG) is the target daily dose

Prebiotics

- Complex carbohydrates which are used to preferentially stimulate the growth of health promoting intestinal flora

Notes for Outpatient Management of AGE Continued

Bloody Diarrhea (dysentery)

- Similar principles as treatment of acute watery diarrhea to treat dehydration
- Stool cultures are indicated
- 30% of cultures of bloody stools indentify a causative organism
  - ***Shigella*** – 15.3 percent (49 percent of isolates)
  - ***Campylobacter*** – 6.2 percent (20 percent of isolates)
    - Second most common foodborne illness
    - Undercooked poultry
  - ***Salmonella*** – 5.8 percent (19 percent of isolates)
    - Leading cause of foodborne illness in the US
    - Poultry, milk, eggs, and pet reptiles
  - ***E. Coli 0157:H7*** – 2.6 percent (8 percent of isolates)
    - Requires specific testing as routine cultures do not identify
  - ***Vibrio cholerae***
    - Endemic along the gulf coast of the United States, but clinical cased remain uncommon
- Food should not be withheld
- Higher protein diet may be useful during recovery phase
- Antimicrobial therapy shuld not be administered while awaiting the culture results as many bacterial forms are self limited and still not treated with antibiotics even when cultures are positive

Parasites

- Less common in the developed world
  - Giardia and Cryptosporidium
    - Two most common parasites in the US
    - Usually linked to waterborne outbreaks, may occur in daycare settings
  - Entamoeba histolytica
    - Seen more in immigrants or visitors to endemic countries

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References for Outpatient Management of AGE

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