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PATIENT EDUCATION HANDOUTS

Acute Gastroenteritis/Oral Rehydration

What is gastroenteritis?

Gastroenteritis is an infection of the bowel (intestines) that causes diarrhea and sometimes vomiting. It is common in infants and children. It is more serious in infants and young children than it is in adults. Diarrhea and vomiting can cause the loss of important fluids and minerals the body needs (dehydration). Infants and children lose fluids and minerals quicker than adults. Since water makes up most of an infant's or child's weight this can lead to serious illness and require hospitalization.

What causes gastroenteritis?

Gastroenteritis is more common in the winter and early spring. Most gastroenteritis is caused by a virus or one of several kinds of bacteria that get into the intestinal tract (bowels). Bacteria or viruses get to the intestinal tract by putting dirty hands, toys or other objects near or into the mouth. It is not possible to keep a child from being exposed to the germs that cause gastroenteritis. Proper hand washing by the whole family is the best way to prevent the spread of disease. When a family member is sick, extra care should be taken to wash hands often. Hands should be washed briskly with soap and water for at least 10-15 seconds then dried on a clean towel.

What are the symptoms of gastroenteritis?

The most common symptoms are:

- Diarrhea (frequent, loose, watery stools) lasting 2-3 days but usually not more than a week
- Nausea and vomiting lasting 1-2 days
- Abdominal/stomach pain
- Possibly, fever

What can I do for the infant or child with gastroenteritis?

Usually, diarrhea and vomiting last only a short time. Therefore, you can safely care for your child at home. The child's diet may not need to change if the diarrhea is mild. If your infant is breast-feeding, continue to feed on demand. If your infant is bottle-fed, continue feeding as usual with full-strength formula. Older children can continue their normal diet but should avoid foods that may make diarrhea worse, such as foods high in fat or sugar. The BRAT diet alone is no longer recommended because it does not provide enough nutrition for a child. Research has shown that this combination of foods given alone does not reduce diarrhea. The BRAT diet may be used for a short period while the child is recovering from recent episodes of emesis.

If diarrhea continues or becomes worse, offer your infant or child oral rehydration solutions (ORS) such as Naturalyte, Pedialyte, Rehydralyte, Infalyte, or a generic brand. ORS are available in a variety of flavors, and freezer pops and can be found at supermarkets, pharmacies, and discount stores. The child with mild diarrhea and no signs of dehydration may not like the taste of ORS. If this is the case, ORS can be flavored using low sugar additives such as sugar-free Kool-Aide. However, not all clear liquids are good to give the child with diarrhea, vomiting or signs of dehydration. Avoid giving only clear liquids such as tap water or weak tea. They don't replace necessary minerals lost from diarrhea or vomiting. Also avoid giving apple juice, carbonated drinks, Jell-O water, chicken broth or sports drinks. They contain sugars or fat that may make diarrhea worse or lack important minerals necessary for the infant or child who is dehydrated.

Foods good to offer your child are:

- Cereals, bread, potatoes, lean meats
- Plain yogurt, bananas, fresh apples
- Vegetables

(Foods may be better tolerated in smaller more frequent feedings.)

Children may need twice as much fluid as usual when they are vomiting or have diarrhea. To get more fluid in the child, continue regular feedings while giving them an oral rehydration solution (ORS) frequently between meals.

Oral rehydration and early re-feeding:

These guidelines apply to otherwise healthy children with acute gastroenteritis from ages 1 month to 5 years. Oral rehydration followed by early re-feeding is the treatment of choice for children with mild to moderate dehydration. **Intravenous (IV) rehydration is generally not required** in these patients. Also non-physiologic fluids, such as Gatorade, Jello-water, flat Seven-up, apple juice, soup broth should not be used. And also note that the prolonged clear liquid diet is contraindicated.

Evaluation of dehydration (drying out):

- Mild dehydration (3-5%) – near normal alertness and activity, mild thirst, warm extremities
- Moderate dehydration (6-9%) – near normal alertness and activity to slightly listless, moderate thirst, dry mucous membranes (lips and mouth)
- Severe dehydration (\geq 10%) – listless to lethargic or comatose, very thirst or unable to indicate thirst, cool and mottled extremities, dry lips and mouth, sunken and dry eyes. Requires emergent IV hydration in the Emergency Department or clinic.

Oral Rehydration (giving fluids by mouth):

Acceptable oral rehydration solutions include: Pedialyte, Infalyte, Rehydralyte. Generally, children who refuse these solutions are not dehydrated. Initially, oral rehydration may seem more labor intensive than IV therapy and does take an investment of time. As a parent, you should be able to use this technique during future episodes of gastroenteritis for your children. This technique can be used in children with all but severe vomiting. Finally, remember that breast feeding can be continued during the rehydration phase discussed here.

- For mild dehydration.** Give at least one ounce of fluid per pound of child's weight over 4 hours. Start by giving 1 teaspoon of fluid every 1-2 minutes. If this goes well you may increase the amount of fluid and lengthen the duration between drinks.
- For moderate dehydration.** At least two ounces of fluid per pound of child's weight over 4 hours. Give in aliquots as noted above for mild dehydration. In each case use a syringe or teaspoon to give the solution. Time these aliquots using a clock.

Early Re-feeding:

Once initial rehydration is complete re-feeding should begin. As mentioned above the 24-48 hour or even longer clear liquid diet no longer has a place in management of acute gastroenteritis. In fact early re-feeding can decrease the stool output. Foods to start re-feeding with include breast milk, formula, and even cow's milk. A switch to soy formula is not necessary, nor generally beneficial. Other foods include complex carbohydrates such as rice, wheat, potatoes, bread and cereals. Also lean meats, yogurt, fruits and vegetables are okay. Note that these foods differ from those in the no longer recommended BRAT diet. Fatty foods and foods high in simple sugars should be avoided.

Antidiarrheal Compounds:

None are currently recommended for the treatment of gastroenteritis in children.

For your information below are the compositions of Pedialyte vs. non-physiologic liquids:

	Na(mEq/l)	K(mEq/l)	Glucose(mmol/l)	Osmolality
Pedialyte*	45	20	140	250
Apple juice	3	28	690	730
Tea	0	0	0	5
Ginger ale	3	1	500	540
Chicken broth	250	8	0	450
Gatorade	24	3	255	330

*Pedialyte, Infalyte, Rehydralyte have similar compositions.

How can I treat diaper rash caused by diarrhea?

- Generally avoid diaper wipes
- Cleanse the diaper area gently and thoroughly with soap & water; pat dry apply zinc-based ointment thickly after cleansing bottom gently and thoroughly. This keeps the diarrhea stool away from your child's skin. Baking soda sitz baths may comfort your child.
- Wash hands well after each diaper change

What if the problem continues?

Even with the best efforts to give fluids, the infant or child may become dehydrated (less fluid staying in the body than is going out of the body).

Call your doctor if:

- You are unable to get fluids into the child and diarrhea lasts longer than 24 hours
- You are able to get fluids into the child but diarrhea lasts more than 7-10 days
- Your child shows any of the following signs
 - less or no urine out in 8-12 hours
 - inside of mouth is dry
 - no tears when crying
 - eyes appear sunken
 - unusually drowsy or fussy
 - extreme thirst

Your doctor may ask to see your child or have your child seen in the emergency department. Your child will be examined and watched for signs of dehydration. Your child will be weighed. If diarrhea and vomiting continue and the child refuses fluids by mouth, he or she may need an I.V. An I.V. will let special fluids go into the child through a small vein until the child can take liquids by mouth. Other procedures may need to be done. If you have questions about what is being done, ask the staff.

Remember to comfort your child when he or she is sick.

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