Acute Diarrhea: an Integrative Approach

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Founder, AAP Section on Integrative Medicine
Objectives

• Describe the recipe for homemade oral rehydration solution
• Specify the role of yogurt and probiotics in preventing and treating diarrhea
• Use evidence-based resources to answer patients’ questions about the role of dietary supplements, herbs and homeopathic remedies in treating diarrhea
Suzanne, sloppy stools

• Suzanne is in day care
• The morning after family picnic, Suzanne awoke with new onset of sloppy stools, running out of cloth diaper and down her leg. No blood.
• No vomiting, no fever. No one else sick
• Advice?
  – Grandmother: flat soda
  – Neighbor: stop milk
  – Aunt: feed whatever she wants
Acute or Chronic?

Acute < 10 days
Chronic 10+ days

• Suzanne had *acute* diarrhea, making it UNLIKELY she has lactose intolerance, celiac disease, or IBD as cause of her diarrhea
Epidemiology of Diarrhea

- US: >200 million cases annually
- 300 deaths due to diarrhea in US each year, down from 3000 since which two vaccines?
- 450,000 deaths world wide
- Vast majority of cases are self-limited
Signs of Dehydration?

- Voiding less than ½ normal amount or less than 4 times daily
- No tears with crying
- Lost weight
- Thirsty
- Sunken eyes, fontanelle
- Dry lips, tongue; stringy saliva
- Cool hands and feet; poor circulation; HR; BP late
Common Causes

- **Infectious**: rotavirus, bacteria (Shigella, Salmonella, Campylobacter, HIV), parasites; UTI
- **Toxin**: Staph (food poisoning), Ex-Lax, vitamin C, Mg, antibiotic side effect; excessive xylitol, sorbitol
- **Genetic**: food intolerance, gluten sensitive enteropathy
- **Dietary**: excess fruit juice
- **Inflammatory**: Crohns, UC
- **Psychological**: Stress
- **Mixed**: Irritable Bowel Syndrome
Prevention

- **Hygiene**: toilets, clean water, hand and kitchen safety – clean sink and cutting boards with bleach
- **Breast feeding** for 12 months
- **Pasteurization**
- **Vaccines**: rotavirus, HepA
- **Food safety**: proper cooking of meat (avoid E coli from rare burgers); refrigeration
- Avoid excessive **fruit juice** and “sugarless” products

http://www2.cdc.gov/mmwr/international/relres.html
Goals of Therapy -1

- Prevent problems: *extra fluids* to prevent dehydration
- Manage or relieve symptoms: *Imodium? Pectin?*
- Promote resilience/vitality/healthy development: breastfeed; pro-biotics; adequate rest; exercise; stress management; *maintain caloric intake*
- Cure disease: selectively use *Antibiotics* to kill bacteria (careful not to prolong disease or carrier state); use *probiotics* to displace pathogenic bacteria
Goals of Therapy - 2

• Eliminate toxins: Lactose? Fructose? “sugarless” products
• Support feeling of presence/connection: reassurance, touch; hugs
• Inner peace/harmony: prayer; family/cultural remedies
• Combinations of above

FOR DIARRHEA - FOCUS ON PREVENTING DEHYDRATION and RESTORING NORMAL BOWEL FLORA AND FUNCTION
Integrative Approach

• *Lifestyle*: diet, exercise, environ, mind-body, social, spiritual

• *Biochemical*: meds, dietary supplements

• *Biomechanical*: massage, DC/DO, surgery

• *Bioenergetic*: acup, TT, prayer, homeopathy
## Framework for Therapies

| SAFE | EFFECTIVE | | |
|------|-----------|-----------|
|      | YES       | NO        |
| YES  | Use/Recommend (2+ RCTs) | Tolerate |
| NO   | Monitor   | Avoid     |

Treatment strategies FOCUS ON DIET AND DIETARY SUPPLEMENTS:

• Traditional: stop milk, stop solids, BRAT (bananas, rice, apple juice, toast/tea) diet, rehydrate
• Treat underlying cause
• Modern: keep feeding (unless severe); po rehydration, probiotics
Should Suzanne STOP MILK?

For most children with mild to moderate dehydration, should milk/dairy products be reduced or severely limited? **No**, not unless diarrhea is severe.

What are the data on benefits and costs of this strategy?
Fig 2. Relative risk of treatment failure with undiluted milk diet, by initial severity of dehydration vs diluted milk diet.
Should Suzanne start the BRAT Diet?

• Bananas, Rice, Applesauce, Tea/toast
• No convincing scientific studies of benefits
• Several studies show it’s safe to feed breastmilk and usual diet throughout diarrhea.
• Even rice and beans are OK.
• Some studies suggest benefits for preventing weight loss by continuing feeding with rice, yogurt, beans, lentils, potatoes
Objective 1: Homemade oral rehydration solutions (ORS)

- Sugar-based
- Cereal based
- May be frozen; some kids like pops!
- May add 1/4 tsp - 1 TBL flavored gelatin for flavor
- AVOID sugary drinks, excessive fruit juices or soda because poor electrolyte balance; NO PEAR or PRUNE JUICE!
Sugar based RHS

- 1 liter/quart clean water
- 1/2 tsp salt OR 1/4 tsp salt + 1/4 tsp baking soda OR 1/4 tsp salt + 1/4 tsp salt substitute
- 4 - 8 tsp (~ 30 grams) sugar (I use 2 tablespoons)
- Small amounts frequently
Rice-cereal-based RHS

- 1 quart clean water
- 1/2 tsp salt OR 1/4 tsp salt + 1/4 tsp baking soda OR 1/4 tsp salt + 1/4 tsp salt substitute
- 2 ounces (50 - 80 grams) or about 1 cup of baby rice cereal
Stress Management for stress-related symptoms

- Biofeedback
- Guided Imagery
- Meditation
- Yoga/Tai chi
- Groups
- Slow deep breathing
# Framework for Therapies

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Biochemical remedies

- Probiotics
- Bismuth subsalicylate (Pepto)
- Medications to manage symptoms
- IgG
- Antibiotics
Objective 2: Probiotics

- *Saccharomyces boulardii*, *Lactobacillus sp*, *Bifidobacterium sp*, *Strep thermophilus*
- Supplements, yogurt, kefir, kim chi
- **Effective prophylaxis** for antibiotic-associated diarrhea, traveler’s diarrhea, *C diff* diarrhea, NEC
- Helps **treat acute diarrhea** in adults and children

Elmer GW. Am J Health-Syst Pharm, 2001: 58(12): 1101-09
How do probiotics work?

- Survive stomach acids
- Adhere to intestinal mucosa and mucus
- Displace or reduce pathogenic adhesion
- Produce acids, hydrogen peroxide and bacteriocins antagonistic to pathogens
- Co-aggregate to form normal, balanced flora

- SEE CONSUMERLAB.COM for best brands
What are benefits of probiotics?

- Increased resistance to diarrheal and *H. pylori* pathogens
- Decreased duration of diarrhea
- Reduce blood pressure and cholesterol
- Reduced allergy, eczema, and asthma
- Enhanced phagocytosis by peritoneal and pulmonary macrophages
- Alleviation of Crohn’s symptoms
- Fewer diaper rashes, UTI’s, URTI’s, Vaginal yeast infections, less colic, NEC

Urbanska M. *Aliment Pharmaol Ther*, 2016
Probiotic doses?

- For children < 25 pounds, 1 capsule daily of freeze dried probiotics (eg. Align, Culturelle, Florastor, Nature’s Way Primadophilus, Ther-Biotic) OR BioGaia drops
- For children > 25 pounds, 2 caps daily
- Capsules may be broken into yogurt, applesauce, formula, rice cereal
- Yogurt: Activia and others with active cultures
**Fig 2.** Stool frequency (stools/24 hours) in children treated with oral immunoglobulin (●) and control children (○). Values are means ± SEM. *P < .05.
Medications to manage symptoms?

- **Pepto-Bismol** is controversial, but I often recommend it. **Caution**, Contains salicylate

- **Avoid** Paregoric, loperamide (Imodium), diphenoxylate (Lomotil) - can cause serious side effects such as ileus, coma, etc.

- **Tolerate**: Kaolin-pectin (Kaopectate) - thickens stools but no impact on cause or duration of infection

Antibiotics for Diarrhea?

• Can worsen E. Coli O157:H7
• Useful for Shigella, cholera, amebiasis, persistent Giardia
• CAREFUL

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Manage Stress  
Probiotics       |
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Pepto Bismol  
Antibiotics   |
|      | Avoid     
Diluting milk  
Excessively limiting diet  
Prune, pear juice;  
plain H2O  
Imodium, Lomotil |
Other Dietary Supplements

• Recommend **Zinc**: 20 mg BID in poorly nourished children, e.g. China, Pakistan (Lamberti, 2013; Crisinel, 2015) 10-20 mg/day

• **AVOID**: excessive vitamin C, Mg, copper

• **Vitamin A**: insufficient data to recommend in US; tolerate RDI, but not excess; lots of carrots are OK
Herbal Diarrhea Remedies

- Tannins may reduce diarrhea e.g., Tea, Carob (Aksit, 1998; Loeb, 1989)
- Antibacterial: goldenseal works for some bacterial diarrhea (e.g., cholera), but may displace bilirubin in babies; goldenseal is also going extinct; avoid
- Chamomile + apple pectin (Becker, 2006)
- Mints can ease GI spasms
- *Avoid* Chinese patent medicines
Diarrhea and Other Therapies

No convincing studies (in most cases, no studies at all) for

- Massage, Chiropractic
- Acupuncture, Healing prayer
- TOLERATE
Homeopathy for Diarrhea?

- Like treats like
  - eg. atropine for tachycardia and flushing
- Law of dilutions
  - more dilute is more potent

Common remedies: *Arsenicum album, Calcarea carbonica, Chamomilla, Pulsatilla, Sulfur*
Homeopathy and Diarrhea

- 2 RCT’s (Nicaragua and Nepal) demonstrate statistically significant improvement (Jacobs, 2003; Jacobs, 2006)
- Mechanism?
- Cost-benefit?
- More research needed in US
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Objective 3: Resources

• **Books**
  – *The Holistic Pediatrician*
  – *Integrative Pediatrics*
  – *Treatment Alternatives for Children*

• **Listservs**
  – AAP SOIM Listserv, tsalus@aap.org
  – IPIM Listserv (yahoo groups) Dr. L Rosen

• **Databases**
  – Natural Medicines database
  – www.ConsumerLab.com
Summary

- PREVENTION
  - HYGIENE, sanitation, pasteurization, vaccines, breast-feeding
- REHYDRATION
- KEEP FEEDING
- USE PROBIOTICS
- USE evidence-based resources
Thank you!