Acute Diarrhea in children

Fb/General Medicine

Classification

- Diarrhoea is classified as
  - *acute* if <2 weeks,
  - *persistent* if 2–4 weeks,
  - *chronic* if >4 weeks

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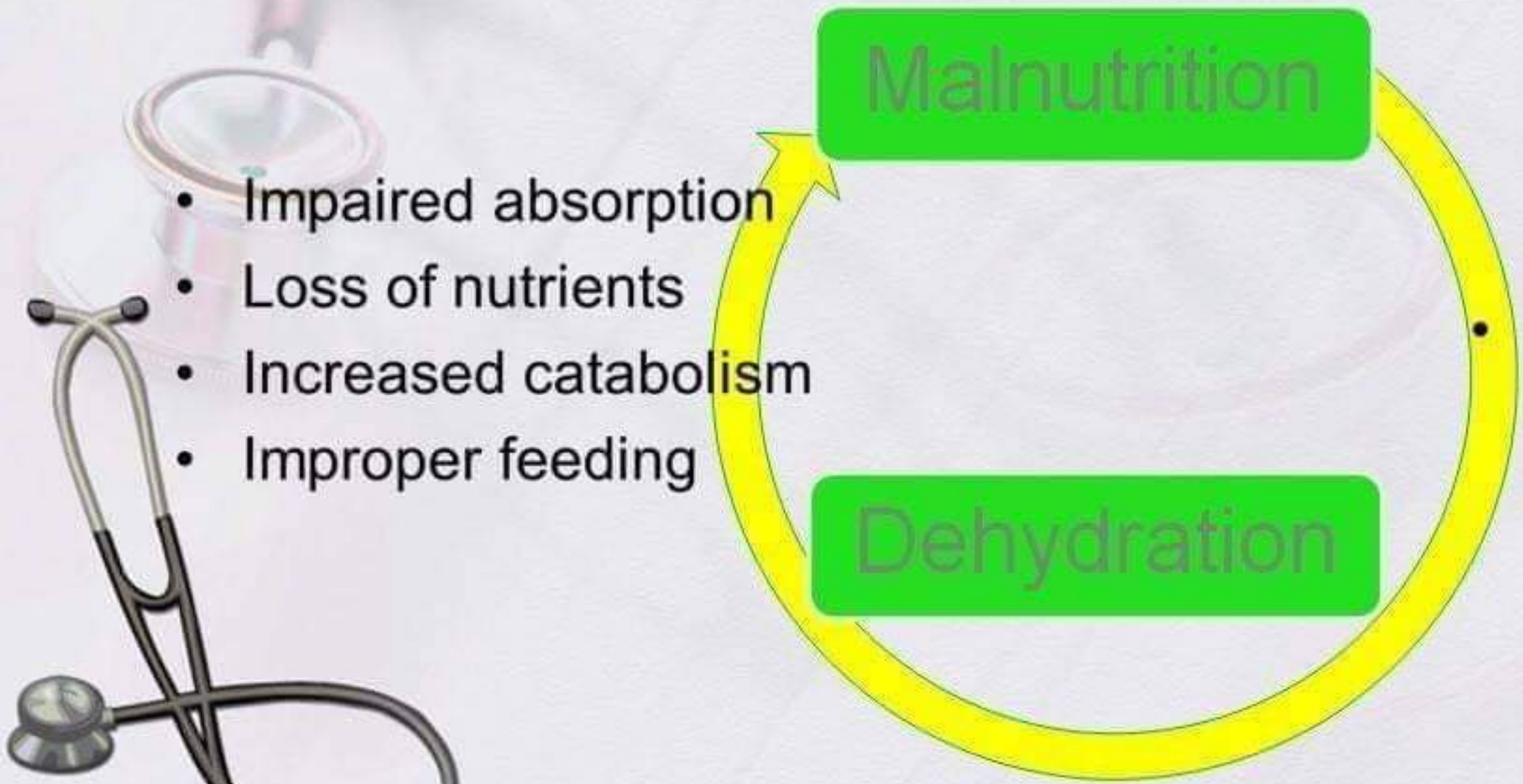
Magnitude of the problem: *World*

- Diarrhoeal disease is the 2nd leading cause of death in children under 5 yrs of age.
- Globally, there are about 3-5 Bn cases of diarrhoeal disease every yr.
- Diarrhoeal disease kills 2 Mn children every yr.
- Diarrhea accounts for over 20% of all deaths in under 5 children.
- It is both **preventable** and **treatable**.

Consequences

- Impaired absorption
- Loss of nutrients
- Increased catabolism
- Improper feeding



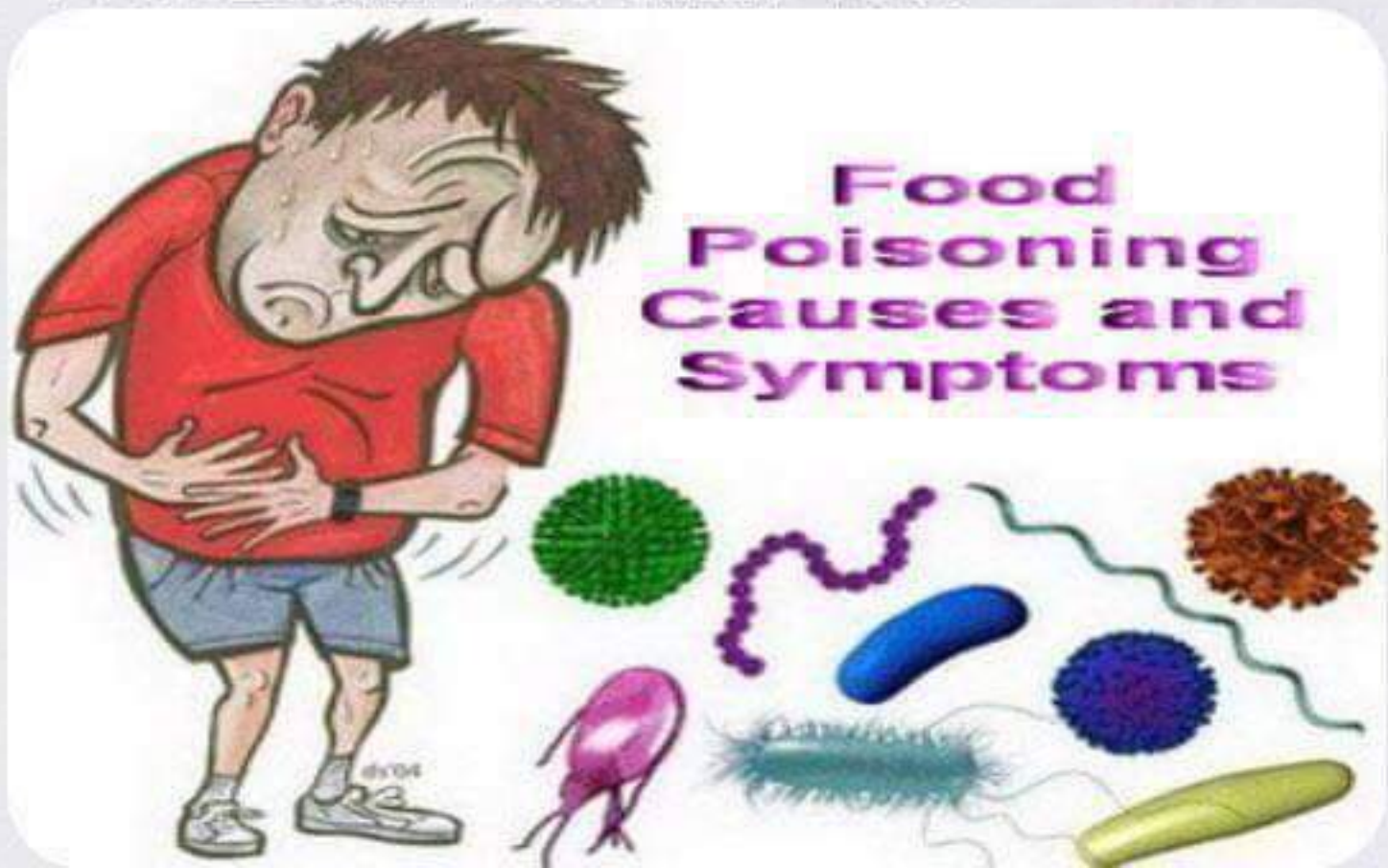
- diarrhea

Risk Factors

- Poor sanitation & personal hygiene
- Contaminated food & drinking water
- Low rates of BF & immunization
- Malnutrition in younger children (2yr)
- For prolonged episodes
- Presence of hypo or achlorohydria (d/t H.pylori or use of PPI's)
- Selective IgA deficiency
- HIV infection
- C.difficile infection (d/t antibiotic usage)

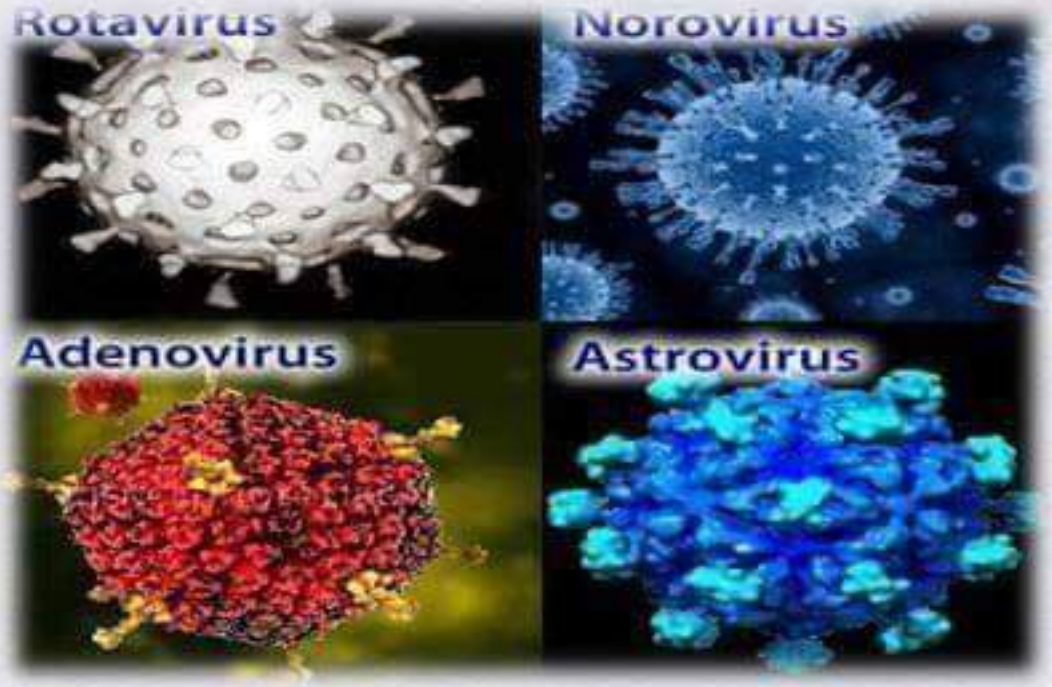
Etiology

- Viral: 70-80% of infectious diarrhea in developed countries
- Bacterial: 10-20% of infectious diarrhea but responsible for most cases of severe diarrhea
- Protozoan: less than 10%



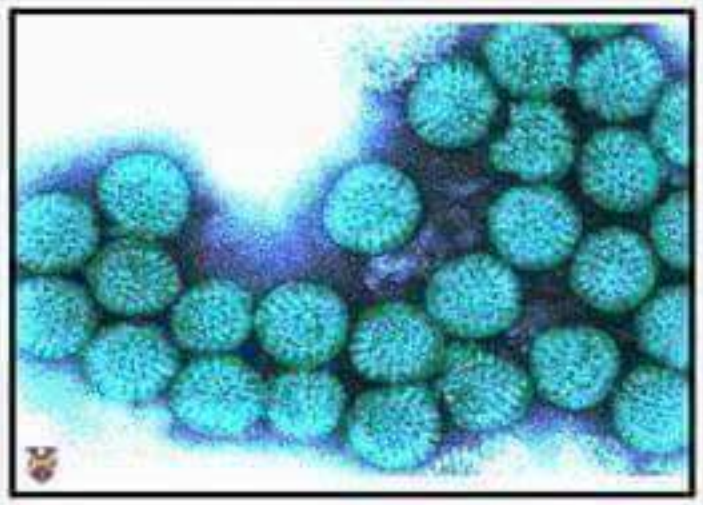
Viral Diarrhea

- Rotavirus
- Norovirus (Norwalk-like)
- Enteric Adenovirus (serotypes 40 & 41)
- Astrovirus



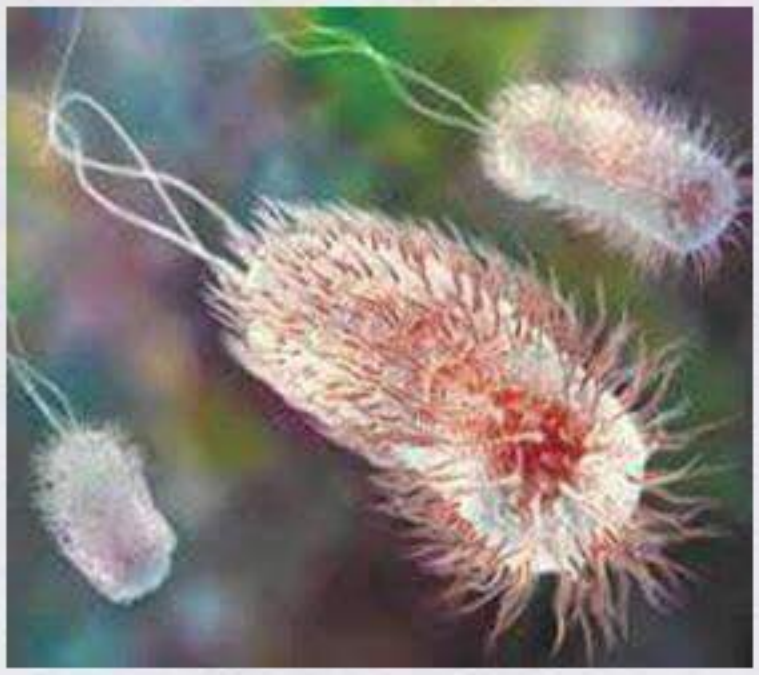
Summary of Viral Diarrhea

- Most likely cause of infectious diarrhea
- Rotavirus and Norovirus are most common
- Symptoms usually include low grade fever, nausea and vomiting, abdominal cramps, and watery diarrhea lasting up to 1 week
- Viral shedding can occur for weeks after symptoms resolve
- Feco-oral transmission.



Bacterial Diarrhea

- Escherichia coli (EHEC,ETEC)
- Shigella
- Vibrio cholera (serogroups O1 &O139)
- Salmonella
- Campylobacter



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Summary of Bacterial Diarrhea

- Can affect all age groups
- Fecal-oral transmission, often through contaminated food & water
- Typical symptoms include bloody diarrhea, severe cramping, and malaise
- Antibiotic treatment not always necessary

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Parasitic

- Giardia lamblia
- Cryptosporidium parvum
- Entamoeba histolytica
- Cyclospora cayetanensis
- Isospora belli

Pathophysiology

Infection factors → Entry and growth in the intestine → Hyperecretion of water and electrolytes

Malabsorption Factors carbohydrates, proteins, fats → Osmotic Pressure Rises → The movement of water and and electrolytes into the gut cavity

Food Factors → The toxin can not be abscebed → Hyper-peristaltic decrease the chance intestines to absorb food

Psychologic al Factors → Anxiety

Hyperecretion of water and electrolytes + The movement of water and and electrolytes into the gut cavity + Hyper-peristaltic decrease the chance intestines to absorb food → Diarrhea

Clinical Features

- Mild
- Slightly irritable & thirsty
- Moderate
- More irritable, pinched look, depressed fontanelle, sunken eyes, dry tongue, distended abd. urine output at longer intervals
- Extreme case
- Moribund look, weak and thready pulse, low blood pressure, reduced urine output

Assessment of Child

- Type of diarrhea
- Look for dehydration
- Assess for malnutrition
- Rule out systemic infection
- Assess feeding

History

- Onset, duration and no.of stools per day
- Blood in stools
- No. of episodes of vomiting
- Associated symptoms
- Oral intake
- Drugs or other local remedies taken
- Immunization history

Physical Examination

- Vitals, vitals, vitals!
- Abdominal exam
- Presence of occult blood
- Signs of dehydration

Laboratory Evaluation

- Can be managed effectively without lab investigations
- Stool microscopy in selected situations like
  - cholera (darting motion)
  - giardiasis (trophozoites)
- Stool culture to decide on antibiotic therapy in patients with *shigella* dysentery

Principles of Management

- 4 Major components:
- Rehydration and maintaining hydration
- Ensuring adequate feeding
- Oral supplementation of Zn
- Early recognition of danger signs and treatment of complications

Rehydration and maintaining hydration

- **Diarrhea with no dehydration** (Plan-A)
- normal diet and supplemental ORS with each diarrheal episode.
- **Diarrhea with some dehydration** (Plan-B)
- seek medical care, give ORS in the doctor's office, and cont. ORS and normal diet at home.
- **Severe dehydration** (Plan-C)
- consider intravenous hydration, especially if patient is also vomiting

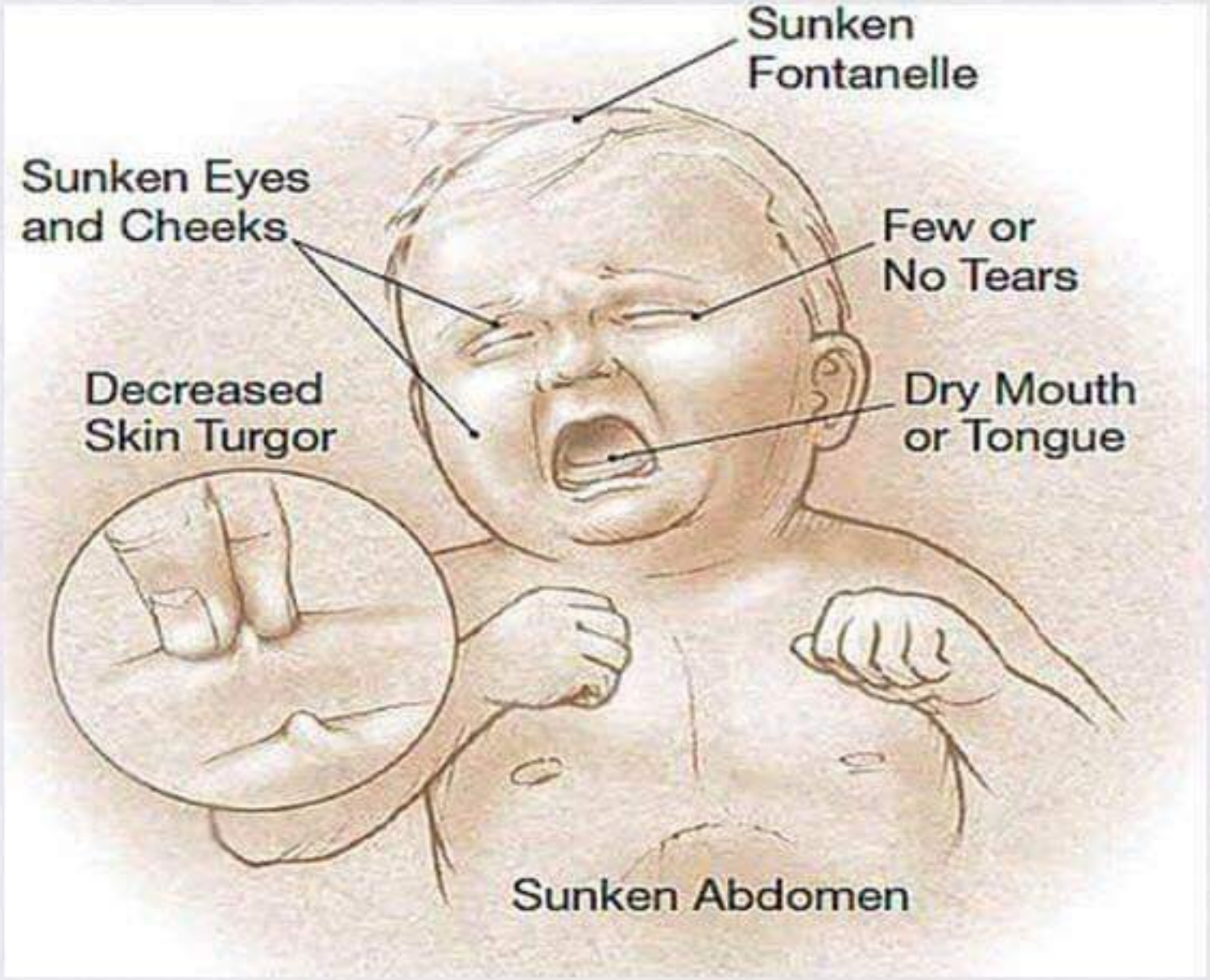
Early Refeeding

- Luminal contents help promote growth of new enterocytes and facilitate mucosal repair
- Can shorten duration of the disease
- Lactose restriction is not necessary except in severe disease

Oral Zn Supplementation

- 3-6 months 10mg daily x 2 weeks.
- >6 months 20mg daily x 2 weeks.

Danger signs



Prevention

- Keep your hands clean
- Boiling water
- Wash fruits and vegetables
- Refrigerate and cover food
- Eat well-cooked foods

Contd…

- Rotavirus and measles vaccination
- Early and exclusive breastfeeding
- Vitamin A supplementation
- Promotion of hand washing with soap
- Improved drinking water supply and safe storage of household food & water
- Community-wide sanitation promotion

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