Summer Gastroenteritis and its Management

Abstract: *The summer causes various discomforts to the human race in terms of physical complaints mainly gastrointestinal system. In this season many epidemic diseases develop under unfavorable circumstances of the nature. Gastroenteritis, the common gastrointestinal ailment in the summer has been described from its practical point of view along with management and Homoeopathic treatment.*

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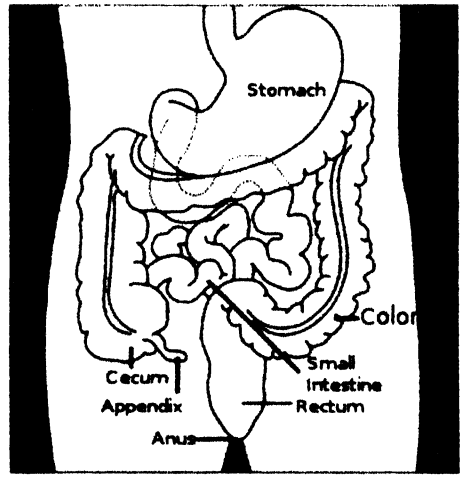
Introduction

In the summer season extremes of heat causes hyperthermia to the body. There are varieties of heat-related gastrointestinal illnesses which develop in the summer eg acute gastroenteritis, diarrhoea, dysentery, cholera, vomiting, food poisoning etc. Other heat-related health problems include heat stroke and heat exhaustion, heat cramps, heat rash and sunburn etc. Summer can bring heat waves with unusually high temperatures that last for days and sometimes weeks. High temperatures put people at risk. The common gastrointestinal ailments which develop during summer seasons are described below with their management and Homoeopathic treatment.



Gastroenteritis is inflammation of the gastrointestinal tract, involving both the stomach and the small intestine and resulting in acute diarrhoea. The inflammation is caused most often by infection with certain viruses, less often by bacteria or their toxins, parasites, or adverse reaction to something in the diet or medication. Worldwide, inadequate treatment of gastroenteritis kills 5 to 8 million people per year, and is a leading cause of death among infants and children under 5 years. At least 50% of cases of gastroenteritis as food borne illness are due to norovirus. Another 20% of cases, and the majority of severe cases in children, are due to rotavirus. Other significant viral agents include adenovirus and astrovirus. Different species of bacteria can cause gastroenteritis, including Salmonella, Shigella, Staphylocccus, Campylobacter jejuni, Clostridium, Escherichia coli, Yersinia and others. Some sources of the infection are improperly prepared food, reheated meat dishes, seafood, dairy, and bakery products. Each organism causes slightly different symptoms but all result in diarrhoea. Colitis, inflammation of the large intestine, may also be present. Risk factors include consumption of improperly prepared foods or contaminated water and travel or residence in areas of poor sanitation. It is also common for river swimmers to become infected during times of rain as a result of contaminated runoff water. The incidence is 1 in 1,000 people.

Epidemiology Of Gastroenteritis In Summer

Globally, gastroenteritis caused 4.6 million deaths in children in 1980 alone, most of these in the third world, where the lack of adequate safe water and sewage treatment capacity contribute to the spread of infectious

gastroenteritis. The global death rate has now come down significantly to approximately 1.5 million deaths annually, largely due to global introduction of proper oral rehydration therapy. The incidence in the developed countries is as high as 1-2.5 cases per child per year and a major cause of hospitalization in this age group. Age, living conditions, hygiene and cultural habits are important factors. Aetiological agents vary depending on the climate. Furthermore, most cases of gastroenteritis are seen during the winter in temperate climates and during summer in the tropics.

Common Causes Of Gastroenteritis

Most of the cases of gastroenteritis are food-borne illnesses which are caused by eating food contaminated by certain types of bacteria or viruses leading to infection. Foods can also cause illness if they contain a toxin or poison produced by bacteria growing in food. Common bacteria causing poisoning and acute gastroenteritis are:

- Salmonella and Campylobacter: Normally found in warm-blooded animals such as cattle, poultry and swine and may be present in raw meat, poultry, eggs or un-pasteurized dairy products.
- Clostridium perfringens: May be present in raw meat, poultry, eggs, or un-pasteurized dairy products, as well as in vegetables and crops that come into contact with soil. Infection may occur when soups, stew, and gravies made with meat, fish, or poultry are stored improperly or left un-refrigerated for several hours.
- Staphylococci: Occur normally on human skin and in the nose and throat. These bacteria are transmitted to food when handled.
- Escherichia Coli: Found in the intestines of healthy cattle. An infection is caused by eating undercooked beef (especially ground beef) or un-pasteurized milk.
- Botulism is a rare but deadly form of food poisoning caused by Clostridium botulinum, which is found almost everywhere, including in soil and water. Low acid foods, such as meat, fish, poultry, or vegetables, which are improperly canned, may be breeding grounds for these bacteria.

Symptoms And Signs Of Summer Gastric Upset

Most cases of gastroenteritis mimic food poisoning and many people with mild cases of food poisoning think they have the "stomach flu." However, the onset of symptoms is usually very sudden and abrupt, often within hours of eating the contaminated food. Major symptoms include nausea and vomiting, diarrhoea and abdominal cramps. These symptoms are sometimes also accompanied by fever and overall weakness. Gastroenteritis often involves stomach pain or spasms (sometimes to the point of being incapacitated), diarrhoea and/or vomiting, with noninflammatory infection of the upper small bowel, or inflammatory infections of the colon. The following are the most common signs and symptoms of acute gastroenteritis. However, each individual may experience symptoms differently.

Signs and Symptoms of Acute Gastroenteritis

Nausea and vomiting	Run a low grade fever
Watery and/or bloody diarrhoea	Tachycardia
Loss of appetite	Reduced skin turgor
Abdominal pain or cramps	Skin discoloration
Abdominal distention	Sunken eyeballs fontanelles
Fainting and Weakness	Darkened eye circles
Suffer lack of sleep	Glassy eyes
Lethargic	Poor perfusion and ultimately shock

General Management

Rehydration: The principal treatment of gastroenteritis in both children and adults is rehydration, ie replenishment of water lost in the stools. Depending on the degree of dehydration, this can be done by giving the person Oral Rehydration Therapy (ORT) or through intravenous route.

Assessment of Dehydration

Descriptions	Mild Dehydration	Severe Dehydration
Patient's appearance	Thirsty, alert, restless	Drowsy, limp, cold, sweaty, may be comatose
Radial Pulse	Normal rate and volume	Rapid, feeble, sometimes impalpable
Blood pressure	Normal	Less than 80 mm of Hg. may be unrecordable
Skin elasticity	Pinch retracts immediately	Pinch retracts very slowly (more than seconds)
Tongue	Moist	Very dry
Anterior fontanelle	Normal	Very sunken
Urine flow	Normal	Little or no
% body weight loss	4-5%	10% or more
Estimated fluid deficit	40-50 ml/kg	100-110 ml/kg

Oral Rehydration Solution

Contents	ORS–Bicarbonate	Contents	ORS - Citrate
Sodium Chloride	3.5 gm	Sodium Chloride	3.5 gm
Sodium bicarbonate	2.5 gm	Trisodium citrate dehydrate	2.9 gm
Potassium chloride	1.5 gm	Potassium chloride	1.5 gm
Glucose (dextrose)	20.0 gm	Glucose (dextrose)	20.0 gm
Potable water	1 lit	Potable water	1 lit

Oral rehydration therapy is based on the observation that glucose given orally enhances the intestinal absorption of salt and water, and is capable of correcting the electrolyte and water deficit. The inclusion of trisodium citrate in place of sodium bicarbonate has made the product more stable. The composition of oral rehydration fluids recommended by WHO is given as follows:

When obvious signs of dehydration exist, the water deficit is somewhere between 50 and 100 ml per kg body weight. If the child's weight is known, the amount of ORS solution required for rehydration during the first 4 hours may be calculated by setting the deficit at approximately 75 ml/kg. If the child's weight is not known, the approximate deficit may be determined on the basis of age, although this procedure is less accurate. The guidelines for oral rehydration therapy (for all ages) during the first 4 hours as follows:

Age	Weight (kg)	ORS solution(ml)
Under 4 mths	Under 5	200-400
4-11 months	5-7.9	400-600
1-2 years	8-10.9	600-800
2-4 years	11-15.9	800-1200
5-14 years	16-29.9	1200-2200
15 yrs & abv	30 or more	2200-4000

The actual amount given will depend on the patients desire to drink and by surveillance of signs of dehydration. Estimated amount of fluid replacement are as follows:

Treatment plan for oral rehydration therapy

Age	First give 30 ml/kg body weight in	Then give 70 ml/kg body weight in
Infants under 12 mths	1 hour	5 hours
Older	30 minutes	2½ hours

The greatest danger presented by gastroenteritis is dehydration. The loss of fluids through diarrhoea and vomiting can upset the body's electrolyte balance, leading to potentially life-threatening problems such as heart beat abnormalities (arrhythmia). The risk of dehydration increases as symptoms are prolonged. Dehydration should be suspected if a dry mouth, increased or excessive thirst, or scanty urination is experienced. If symptoms do not resolve within a week, an infection or disorder more serious than gastroenteritis may be involved. Symptoms of great concern include a high fever (102 ° F [38.9 °C] or above), blood or mucus in the diarrhoea, blood in the vomit,

COST EFFECTIVENESS OF ORAL REHYDRATION SOLUTIONS

Electrolyte content (mEq per l)

Liquid	Na^+	K^+	HCO_3	Carbohydrate (gm per L)	Osmolality (mOsm per kg)
Cola	2	0.1	15	50 to 150, glucose and fructose	550
[illegible]				[illegible] ucose and fructose	540
Apple juice	3	20	0	100 to 150, glucose and fructose	700
Chicken broth	250	5	0	0	450
Tea	0	0	0	0	5
Gatorade	20	3	3	45, glucose and other sugars	330

Na^+ = sodium; K^+ = potassium; HCO_3 = bicarbonate.Adapted with permission from Duggan C, Santosham M, Glass RI. The management of acute diarrhoea in children: oral rehydration, maintenance, and nutritional therapy. MMWR Morb Mortal Wkly Rep 1992;41:1-20.

and severe abdominal pain or swelling. These symptoms require prompt medical attention.

MAINTENANCE THERAPY

AMOUNT OF DIARRHOEA	AMOUNT OF ORAL FLUID
Mild diarrhoea (not more than one stool every 2 hrs or longer or less than 5ml stool per kg per hr)	100 ml/kg body weight per day until diarrhoea stops
Severe diarrhoea (more than one stool every 2 hrs or more than 5 ml of stool per kg per hr)	Replace stool losses volume; if not measureable give 10 - 15 ml/kg body weight per hr.

DIETARY THERAPY: Centre for Disease Control and Prevention recommendations are as follows:

- Breastfed infants should continue to be nursed on demand.
- Formula-fed infants should continue their usual formula immediately upon rehydration in amounts sufficient to satisfy energy and nutrient requirements and at the usual concentration. Lactose-free or lactose-reduced formulas usually are unnecessary.
- Children receiving semisolid or solid foods should continue to receive their usual diet during episodes of diarrhoea. Foods high in simple sugars should be avoided because the osmotic load might worsen diarrhoea; therefore, substantial amounts of soft drinks (carbonated or flat), juice, gelatin desserts, and other highly sugared liquids should be avoided. Fatty foods should not be avoided, because maintaining adequate calories without fat is difficult, and fat might have an added benefit of reducing intestinal motility. The practice of withholding food for more than 24 hours is yet to be proven more effective.
- The BART diet (bananas, rice, applesauce, toast and tea) was recommended in the past. It is no longer recommended, as it contains insufficient nutrients.

WATER PURIFICATION: All water used for drinking, washing, or cooking should be sterilized by boiling or chlorination in any area where cholera may be present. Boiling, filtering, and chlorination of water kill the bacteria produced by cholera patients and prevent infections from spreading. Water filtration, chlorination, and boiling are by far the most effective means of halting transmission. Public health education and appropriate sanitation practices are important to help prevent and control transmission

ADVICE TO PATIENTS

- ✓ Drink only boiled water or water that has been treated with chlorine or iodine.
- ✓ Eat only thoroughly cooked food which is still hot, or fruits that you have peeled yourself.
- ✓ Avoid undercooked or raw fish or shellfish
- ✓ Make sure all vegetables are cooked properly, avoid salads.

Avoid foods and beverages from street vendors.
Do not bring perishable seafood.
Check for proper sanitation and water purification systems.
Give liquid bland foods, lemon, onions and mint to the patient.
Vegetables and fruits must be washed with solution of potassium permanganate.
New Vaccines for cholera are available and appear to provide a somewhat better immunity and fewer side-effects than the previously available vaccine.
Health education, behaviour change is an important component of cholera prevention and control.
Thoroughly wash hands before handling food.
Wash hands after using the toilet, smoking, blowing your nose, coughing, or sneezing.
Wash hands after touching raw meat, seafood, poultry, or eggs before touching other foods.
Do not use wooden cutting boards for cutting raw fish, poultry or meat.
Thoroughly clean any surface or utensil after each use.
Cook poultry, beef, and eggs thoroughly before eating.
Do not eat or drink foods made from raw or undercooked eggs, poultry, meat, or un-pasteurized milk, or other dairy products made from un-pasteurized milk.
Avoid cross-contamination of foods by keeping produce, cooked foods, and ready-to-eat foods separate from uncooked meats and raw eggs.

Leading Homoeopathic Remedies For Summer Gastroenteritis

Aloe-soc: Stool passes without effort, almost imperceptibly. Sense of insecurity in rectum, while passing flatus, uncertain whether gas or stool will come out. Jelly-like stools with soreness in rectum after stool. A lot of mucous with pain in rectum after stool. Abdomen feels full, heavy, hot, bloated. Great accumulation of flatus, pressing downwards, causes bearing down in rectum.

Ars-alb: Small, offensive, dark stools with much prostration. Worse at night and after eating and drinking; from chilling stomach, spoiled food. Stools very offensive, bloody. Great tenesmus with burning pain in rectum and anus. Cholera with intense agony, prostration and burning thirst, drinks much but little at a time. Can not bear the sight or smell of food. Vomiting of blood, bile, green mucous, or brown black mixed with blood. Gastralgia from slight food or drinks; stools immediately after eating and drinking.

Carbo-veg: Frequent, involuntary, cadaverous smelling stools, followed by burning; soft stool voided with difficulty. Acrid, corrosive moisture from rectum. Excessive accumulation of flatus > temporarily relief from belching. Faint gone feeling in stomach, not relieved by eating. The simplest food disagrees. Diarrhoea and cholera, best indicated in last stage when there is excessive cold perspiration and coldness of body, cyanotic appearance, which mimic the features of collapse.

Cinchona: Undigested, frothy, yellow, painless stools, worse at night, after meals, during hot weather, from fruits, milk, very weakening stool with much flatulence. Vomiting of undigested food, slow digestion. Feeling of hunger without appetite. Flatulence, belching of bitter fluid or regurgitation of food gives no relief. Hungry looking for food which lies undigested.

Gambogia: Profuse, watery, diarrhoea in hot weather, particularly in old people. Rumbling and rolling in abdomen. Dysentery, with pain in sacral region. Diarrhoea, with sudden and forcible ejection of bilious stools. Tenesmus after stool, with burning at anus. Tenderness in epigastrium. Pain and distension of abdomen from flatulence, after stool. Pain in stomach after food.

Croton-tig: Copius watery stools, with much

urging; always forcibly shot out, with gurgling in intestines; worse, drinking the least quantity, or even while eating. Constant urging to stool, followed by sudden evacuation. Swashing sensation in intestines; as from water, before stool.

Jatropha: Sudden, profuse, watery, like rice water. Diarrhoea, forced discharged; loud noise in abdomen like gurgling of water coming out of a bung-hole, associated with coldness, cramps, nausea, and vomiting. Nausea and vomiting; brought on by drinking, with acrid feeling from throat; very easy vomiting; great thirst. Heat and burning in stomach, with crampy, constrictive pain in epigastrium. Distended abdomen with gurgling noises.

Nux-vom: Frequent ineffectual urging for stools, feeling as if part remained unexpelled or passing but small quantities at each attempts. Dysentery, stools relieved pains for a time. Constant uneasiness in rectum. Sour taste, and nausea in the morning, after eating. Weight and pain in stomach; worse eating. Nausea and vomiting with much retching. Region of stomach is very sensitive to pressure.

Phosphorus: Diarrhoea as soon as anything enters in the rectum; profuse, pouring away as from a hydrant; watery with sago like particles; sensation as if anus remains wide open; involuntary during cholera time. Longs for cold food and drinks, juicy refreshing things; ice-cream > gastric pain. But as soon as water becomes warm in stomach it is thrown up. Throws up ingesta by the mouthfuls.

Pulsatilla: Watery diarrhoea, green-yellow, very changeable; as soon as they eat; only or usually at night. Diarrhoea from fruits, ice cream, cold food and drinks. Dysentery, mucous and blood, with chilliness. Averse to fat food; warm food, and drinks. Vomiting of food eaten long before. Pain in stomach an hour after eating; thirstlessness.

Podophyllum: Diarrhoea especially in morning, continues through forenoon, followed by natural stool in evening and accompanied by sensation of weakness or sinking in abdomen or rectum. Stool green, watery, foetid, profuse, gushing out; chalk like, jelly like, undigested; yellow meal-like sediment. Patient is constantly rubbing the region of liver.

Trombidium: Has a specific action in treating the cases of dysentery. Symptoms are worse by food and drinks. Much pain before and after stool; stool only after eating. Gripping in hypochondrium in morning; with urgent, loose stools on rising. Brown thin bloody stools with tenesmus. During stool, sharp pain in left side, shooting downward.

Verat-alb: Stools large, with much straining until exhausted, with cold sweat. Diarrhoea very painful, watery, copious, and forcibly evacuated, followed by great prostration. Evacuation of cholera morbus and true cholera when vomiting accompanies purging. Abdomen sensitive to pressure, swollen with terrible colic. Thirst for cold water, but is vomited as soon as swallowed. Copious vomiting and nausea, aggravated by drinking and least motion.

Zingiber: Diarrhoea with colic, extremely loose bowels; complaints from eating melons and drinking impure water. Diarrhoea with much flatulence, cutting pain, relaxation of sphincter. Anus red and inflamed. Stomach feels heavy like a stone, food remains undigested. Great thirst and emptiness feeling in stomach.

CONCLUSION: Summer diarrhoea, a very common and acute problem, often leads to dehydration and becomes life threatening when severe. It needs special care and management along with homoeopathic treatment. Some cases shows spontaneous remission especially when it is indisposition, but most of the cases need proper treatment and management with oral re-hydration solution. The medicines described here are very useful in our clinics to treat such cases successfully.