Perspective

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Acute Gastroenteritis

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Perspective

Acute gastroenteritis kills millions of young children each year, primarily in impoverished countries. It is a common reason for visits to general practise or emergency departments, as well as hospital admission in developed countries. The most common and deadly complication is dehydration, which can be accompanied by electrolyte imbalances and metabolic acidosis. Dehydration and its negative consequences can be avoided with proper oral or intravenous fluid management. Anti-biotics, anti-diarrhoeal medicines, and anti-emetics are not indicated for routine usage and may cause harm. The key to reducing gastroenteritis is prevention, and the recently approved, highly effective rotavirus vaccines will have a significant impact on public health.

Fever, abdominal pain, and anorexia may accompany acute gastroenteritis, which is defined as diarrhoea or vomiting (or both) lasting more than seven days. The passage of overly liquid or frequent faeces with elevated water content is known as diarrhoea. In young children, stooling patterns vary greatly, and diarrhoea is a deviation from the norm. Each year, 3-5 billion instances of acute gastroenteritis and about 2 million fatalities in children under the age of five occur worldwide. Gastroenteritis causes over 10% (2,20,000) of hospital admissions, more than 1.5 million outpatient visits, and around 300 deaths in children under the age of five in the United States each year. In Australia, rotavirus causes roughly 10,000 hospital admissions, 22,000 emergency department visits, and 1,15,000 general practise appointments each year in the same age group. In the United Kingdom, gastroenteritis accounts for 204 of 1000 general practitioner appointments in children under the age of five, with an annual hospital admission rate of roughly seven per 1000 children. Children in childcare settings are frequently infected yet asymptomatic, and they may unknowingly pass infection on to others. Complications are more likely in children who are malnourished.

The majority of cases are caused by viral infection, with rotaviruses and noroviruses being the most prevalent. Viral infections destroy the enterocytes in the small intestine, resulting in a low-grade fever and watery diarrhoea without blood. In temperate climes, rotavirus infection is seasonal, peaking in late winter, while it occurs all year in the tropics. Seasonal and geographical differences in rotavirus strains exist within countries. The infection's peak age is between 6 months and 2 years, and it spreads by faecal-oral or respiratory routes. Bacterial infections including *Campylobacter jejuni* and *Salmonella spp* infect the small and large intestinal linings, causing inflammation. Children who have bacterial gastroenteritis are more likely to have a high temperature and faeces that contains blood and white blood cells. Bacterial pathogens can spread throughout the body, especially in young children. Haemorrhagic colitis (with severe bloody diarrhoea) can be caused by Shiga toxin-producing Escherichia coli or *Shigella dysenteriae* infection, which can be worsened by haemolytic uraemic syndrome. Severe onset of microangiopathic haemolytic anaemia, thrombocytopenia, acute renal impairment, and multisystem involvement characterise this condition, which is endemic worldwide. Enteric fevers (*Salmonella typhi* and *S paratyphi*) cause severe sickness in young children, with high swinging fevers, diarrhoea or constipation, leucopenia, and occasionally central nervous system involvement, including encephalopathy, a rare consequence of non-typhoid *Salmonella* infection . The toxin produced by *Vibrio cholerae* promotes chloride and water secretion from the small intestine without causing damage to the intestinal mucosa, resulting in “rice water” stools with high sodium content but no blood or white blood cells.

Gastroenteritis is transferred from person to person or acquired through the intake of tainted food or drink (food poisoning). Bacterial pathogens are commonly found in undercooked or improperly stored cooked or processed meats (chicken, beef, pork) and seafood. Food containing toxins produced by bacterial contamination (for example, *Staphylococcus aureus* in ice cream or *Bacillus cerus* in reheated rice) causes vomiting and diarrhoea to develop quickly (or both). Giardia lamblia, *cryptosporidium*, *V cholerae*, and *Entamoeba histolytica,* which cause amoebic

dysentery, are among the bacteria, viruses, and protozoa that can be found in water.

Clinical diagnosis is possible. Recent contact with people who have gastroenteritis, the kind and frequency of stool and vomitus, fluid intake and urine output, travel, and the use of antibiotics and other medicines that can induce diarrhoea should all be investigated. In youngsters, chronic constipation is frequent, and faecal overflow incontinence can show as false diarrhoea. In young children, diarrhoea and vomiting are non-specific symptoms, and the diagnosis of gastroenteritis should be questioned if the kid has a high temperature, long-term symptoms, or indicators that imply a surgical origin (such as severe abdominal pain, bilious vomiting, and abdominal mass). Vomiting can occur in children with diabetes mellitus and inborn metabolic abnormalities. Complications are more likely in children with underlying disorders, so a referral to a paediatric clinic should be explored. Taking stool samples from all children with gastroenteritis is not essential or practicable. During outbreaks, samples should be taken—especially in childcare, school, hospital, or home settings—where it is critical to identify the pathogen and determine its source for public health reasons. Bacteria should be cultivated, and viral pathogens should be examined.In most children's hospitals, quick antigen detection testing for rotavirus, norovirus, and occasionally other viruses is offered (such as enzyme linked immunosorbent assay). Rapid diagnosis enables for the child's isolation to prevent nosocomial infection, which is prevalent and frequently used as a metric for the efficiency of contact infection prevention measures. Children with bloody diarrhoea, a history of recent international travel, and young or immunocompromised children with high fever should all have stools samples taken. In many countries, doctors are required by law to report a variety of viral and bacterial diseases to public health authorities.