ACUTE DIARRHOEA

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Introduction

Acute diarrhoea and vomiting may result from toxic (i.e., food poisoning) or infective insults (enteropathogens) to the gastrointestinal tract. It may also be part of systemic illness (i.e., pneumonia, urinary tract infection, see below). Infectious gastroenteritis (GE) may be caused by virus, bacteria or protozoa. The main problem with acute diarrhoea is the rapid fluid loss through stools in severe disease. The volume can vary from 5 ml/kg body weight/day to 200 ml/kg body weight/day. In addition to electrolytes loss. Dehydration and electrolyte losses in untreated diarrhoea are the main causes of morbidity and mortality in children, especially in the developing world.

Epidemiology

Acute GE (AGE) is the second most important cause of deaths in children younger than 5 years of age the world over. Each year, it is estimated that 560,000 deaths occurred as a result of acute diarrhoea. In Malaysia, the indigenous population (Orang Asli) is the most vulnerable group dying of acute diarrhoea.

Definition and types of Acute Diarrhoea (Table 50.1)

Diarrhoea is defined as the passage of unusually loose or watery stools, usually at least 3 times in a 24-hour period. The consistency of the stools is more important than the frequency of the stools in determining the morbidity. Frequent passing of formed stools is not considered diarrhoea. Similarly, breastfed babies may pass loose, ‘pasty’ stools up to 6 to 7 times a day and should not be considered as diarrhoea.

Table 50.1: Clinical Types of Diarrhoeal Diseases

<table>
<thead>
<tr>
<th>Type of Diarrhoea</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute watery diarrhoea</td>
<td>Lasts several hours or days. Main concern: dehydration and electrolyte imbalance.</td>
</tr>
<tr>
<td>Acute bloody diarrhoea (dysentery)</td>
<td>Bloody and mucous in the stools. Main concern: damages to the intestinal mucosa, sepsis and malnutrition. In some cases, dehydration may occur.</td>
</tr>
<tr>
<td>Persistent diarrhoea</td>
<td>Lasts 14 days or longer. Main concern: malnutrition and serious infection, dehydration present or absent.</td>
</tr>
<tr>
<td>Diarrhoea with severe malnutrition</td>
<td>Need to exclude severe systemic infection, dehydration, heart failure, vitamin and mineral deficiency and refeeding syndrome.</td>
</tr>
</tbody>
</table>

Pathophysiology (Table 50.2)

Osmotic diarrhoea: Caused by failure to digest or absorb nutrients, or ingestion of non-absorbable solutes (i.e., lactulose). The unsorbed solute creates an osmotic load, causing the stools to be watery, acidic and loose. Perianal excoriations are common due to passing of frequent acidic stools causing the breakdown of skin around the anus. Typically, the diarrhoea ceased during fasting. Examples include lactose intolerance, monosaccharide intolerance, lactulose overdose.

Secretory diarrhoea: This results from disturbance in the balance between absorption (villus epithelial cells) and secretion (crypt cells). Stools are watery with no leukocytes. Typically, diarrhoea persists during fasting. Examples include bacterial enterotoxins, cholera, enterotoxigenic Escherichia coli, shigella, non-typhoidal Salmonella, roavirus, etc.

Inflammatory diarrhoea: Presence of blood, mucus and leukocytes in the stools. May be accompanied by high fever. Examples: salmonella, Campylobacter jejuni, shigellosis, and chronic diseases such as inflammatory bowel disease (IBD).

Table 50.2: Pathophysiology of diarrhoea

<table>
<thead>
<tr>
<th>Types</th>
<th>Osmotic</th>
<th>Secretory</th>
<th>Inflammatory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Features</td>
<td>Typically stops when enteral feeding is discontinued</td>
<td>Diarrhoea continues when enteral feeding is discontinued</td>
<td>Presence of blood and mucus in the faeces</td>
</tr>
<tr>
<td>Stool volume</td>
<td>&lt; 200 ml/day</td>
<td>&gt; 200 ml/day</td>
<td>Variable, usually less than 150 ml/day</td>
</tr>
<tr>
<td>Stool sodium</td>
<td>&lt; 60 mmol/L</td>
<td>90 mmol/L</td>
<td>Variable</td>
</tr>
</tbody>
</table>

Note: As small bowel absorbs most of the water that reaches the gastrointestinal tract, disorders that interfere with absorption tends to produce large-volume, watery stools. In contrast, disorders that interfere with the absorption of the large intestine produce small volume stools, which may be bloody.

Assessment of Acute Diarrhoea

Aims of assessment:
1. Identify the presence of, the degree and type of dehydration
2. Identify the aetiological agent, if appropriate
3. Identify co-morbidity, complications, nutritional status
4. To decide the most suitable treatment

History:
• Onset, frequency, quantity and character of vomiting and diarrhoea (presence of blood or mucus).
• Oral intake (including breast milk and other fluids and food)
• Urine output; weight before illness (if available)
• Associated symptoms (fever, change in mental status)
• Past medical history (underlying medical problems, history of other recent infections, medications, immune compromised states)
• Social history, recent travel, drug history

Physical Examination:
• Body weight
• Vital signs (temperature, heart rate, respiratory rate, blood pressure) and general conditions
• Eyes: sunken eyes, presence / absence of tears
• Mucus membrane – moist or dry
• Respiratory pattern
• Bowel sounds
• Extremities (perfusion, capillary filling time)
• Skin turgor (anterior abdominal wall): Figure 50.1
• Inspection of soal (blood or mucus)