DRUGS USED IN TREATMENT OF DIARRHOEA

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Introduction

- Diarrhoea is a condition characterized by an increased passage of loose relative to the person's usual bowel habit
- Diarrhoea can be acute or chronic having its severity from mild to life threatening
- Diarrhoea is not a disease but a sign of underlying problem such as an infection or gastrointestinal disorder
- The stool is usually loose with the frequency being more than 3 times in a day
- The frequency of elimination and consistency of stools vary from person

Types and causes of diarrhoea

- **Infective diarrhoea**
  - Bacterial
  - Viral

- **Non infective diarrhea**
  - Drugs
  - Disease conditions
    - Inflammatory bowel disease
    - Colorectal cancer
    - Malabsorption syndromes

- Acute gastroenteritis is most common in children but the precise incidence is not known as many causes are self limiting
- Many cases among adults are thought to be food related with 22 % claiming to be food poisoning
- Traveller's diarrhoea is another common cause of diarrhoea for high risk travel to areas such as Africa, Asia and South America

Microbial causes

- Rotavirus
- Small structured virus (SRSV)
- Campylobacter
- E.coli
- Salmonella typhii
- Shigella
- Clostridium pefringens

SERCS

Symptoms of diarrhea

- Loose stool
- Anorexia
- Nausea
- Vomiting
- Abdominal cramps
- Flatulence or bloating
- Blood stains which mostly signify dysentery which is indicative of invasive organisms such as campylobacter , Salmonella or E.coli 0157
- Dehydration – moderate cases presenting with dry mucous membranes, sunken eyes, decreased skin turgor (Pinch test of 1 – 2 seconds longer), thirst long with tiredness, dizziness and postural hypotension

Complications

- Severe dehydration – More pronounced symptoms of dehydration including hypovolemic shock, oliguria or anulia, cool extremities, rapid or weak pulse and low or undetectable blood pressure
- Electrolyte disturbance
- Base deficit acidosis
- Malnutrition
- Kidney failure
- Organ damage
- Toxic ileus
- Cerebral damage and cerebral venous thrombosis
- Convulsions

KTC BOMBS

Treatment

- Acute infective diarrhea including traveler's diarrhea is usually self limiting disorder
- Depending on the causative agent, specific complications may have to be dealt with

Rehydration therapy

- This is the many stay treatment of diarrhea as it is the fluid and electrolyte imbalance that may lead to loss of life
- Rehydration may either be oral (ORS) or intravenous (I.V) fluids
- Decision to select oral or I.V route to control dehydration is dependent on the clinical presentation of diarrhea in terms of severity
- High carbohydrate foods such as bread and pasta can also be recommended as they promote glucose and sodium co-transport

Anti-motility agents

Examples

- Loperamide
- Diphenoxylate
- Codeine and morphine

Mechanism of action

- These drugs bind to the opiate receptors in the gut wall leading to the reduced propulsive peristalsis
- This further increases intestinal transit time, enhanced water and electrolyte reabsorption, reducing gut secretions and increasing anal sphincter tone

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Indications of anti-motility agents

- Symptomatic control in adults who have mild to moderate diarrhoea requiring relief from associated abdominal cramps
- Should be avoided in severe gastroenteritis or dysentery because of the risk of ileus or mega colon
- Loperamide is the drug of choice as its free from CNS effects at therapeutic doses though CNS depression has been reported in children

Diphenoxylate

- This is a synthetic opioid available as co-phenotrope in combination with a sub therapeutic dose of atropine
- Atropine is present as part of the combination to discourage abuse but may cause atropinic effects in susceptible individuals
- Administration of co-phenotrope at the recommended doses carries minimal risk of dependence
- However, prolonged use of high doses may produce a morphine type dependence
- Concurrent use with mono amine oxidase inhibitors can precipitate hypertensive crisis while the effects of CNS depressants like barbiturates, tranquilisers and alcohol are enhanced

Codeine and morphine

- The constipation side effects of the opioid analgesics codeine and morphine may be used to treat diarrhea
- Both are susceptible to misuse and given in large doses may induce tolerance and physiological and physical dependence
- Morphine is sometimes available in combination with adsorbents like kaolin however there is no evidence of the efficacy of this combination for treatment of diarrhea and hence should not be recommended

Adsorbent anti-diarrhoea drugs

Examples

- Activated charcoal
- Kaolin
- Pectin
- Aluminium silicilate
- Bismuth subsalicylate

BAKAP

Mechanism of action of adsorbents

- By definition, adsorption is the adhesion of molecules to the surface and is different from absorption where molecules dissolve and penetrate the surface
- Adsorbents work by coating the walls of GI tract and binding the causative bacteria or toxin which are then eliminated from through stool
- Bismuth subsalicylate also decrease the flow of fluids and electrolytes into the bowel and also reduces inflammation within intestines

Treatment of infective diarrhoea

- Adequate history and isolation of micro-organism should inform the diagnosis of infective type of diarrhea

- Some of these diarrhea fall within the notifiable diseases where authorities need to notified for quick response and where possible declare an break out of an epidemic

Examples of infective diarrhoea;

- Typhoid
- Dysentery
  - Bacillary
  - Amoebic
- Cholera
- HIV opportunistic infection
  - Isospora belli
  - Cryptosporidiosis
  - Mycrosporidiosis

Types of infectious diarrhoea and drugs used

Dysentery		Typhoid	Cholera
Bacillary dysentery (Shigella dysenterae)	Amoebic dysentery (Entamoeba hystolitica)		
Quinolones; nalidixic acid, ciprofloxacin, levofloxacin etc	Metronidazole, tinidazole	Quinolones; nalidixic acid, ciprofloxacin, levofloxacin etc	Tetracycline Erythromycin Azithromycin Ciprofloxacin
HIV Opportunistic infections			
Cystoisosporiasis (Isospora belli)	Microsporidiosis (Microsporidia)	Cryptosporidiosis (Cryptosporidia)	
Trimmethoprim+Sulfamethoxazole	Albendazole Fumagillin	Nitazoxanide	

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