Chapter 1
Gastrointestinal System

TABLE OF CONTENTS

Table of Contents 1
1 Chronic Bowel Disorders 2
1.1 Inflammatory bowel disease 2
1.1.1 Aminosalicylates 2
1.1.2 Mesalazine 2
1.2 Irritable bowel syndrome 2
1.3 Clostridium difficile infection 2
2 Constipation 2
2.1 Light Liquid Paraffin 2
3 Diarrhoea 2
4 Disorders of gastric acid and ulceration 2
4.1 Dyspepsia 2
4.2 Gastro-oesophageal reflux disease 3
4.3 Gastric and duodenal ulceration 3
4.3.1 Helicobacter pylori infection 3
4.3.2 NSAID-associated ulcers 3
4.3.3 Antisecretory drugs and mucosal protectants 3
4.4 Sucralfate 3
5 Liver disorders and related conditions 3
5.1 Biliary disorders 3
5.2 Oesophageal varices 3
6 Obesity 3
7 Rectal and anal disorders 4
8 Exocrine pancreatic insufficiency 4
8.1 Pancreatin 4

Chapter 1
Gastrointestinal System

1 Chronic Bowel Disorders

1.1 Inflammatory bowel disease

Inflammatory bowel diseases include Crohn's disease (affecting any part of the digestive tract) and Ulcerative colitis (limited to the colon).

1.1.1 Aminosalicylates

(sulfasalazine, meslazine, balsalazide, olsalazine)

Side effects – Blood disorders

Patients advised to report any unexplained bleeding, bruising, purpura, sore throat, fever or malaise that occurs during treatment. A blood count should be performed and the drug stopped immediately if there is suspicion of a blood dyscrasia.

1.1.2 Mesalazine

There is no evidence to show that any one oral preparation of mesalazine is more effective than another. If it is necessary to switch a patient to a different brand of mesalazine, the patient should be advised to report any changes in symptom

1.2 Irritable bowel syndrome

IBS is a chronic condition, common in people aged between 20 and 30, mostly women. Symptoms include abdominal pain or discomfort, disordered, passage of mucus, and bloating.

A high fibre diet, and exercise is important in self-management of IBS. Antispasmodics are also used as intestinal smooth muscle relaxants; e.g. alverine, mebeverine, peppermint oil, and the antimuscarinics dicycloverine, hyoscine, and propantheline. All antispasmodics should be avoided in paralytic ileus.

1.3 Clostridium difficile infection

Caused by colonisation of C. difficile in the colon. It often follows antibiotic therapy, and is a hazard of ampicillin, amoxicillin, co-amoxiclav, second- and third-generation cephalosporins, clindamycin, and quinolones. Treatment options include metronidazole, vancomycin, and fidaxomicin

2 Constipation

Misconceptions about bowel habits have led to excessive laxative use. Abuse may lead to hypokalaemia.

Pregnancy

If dietary and lifestyle changes do not control constipation, a bulk-forming laxative is recommended first-line, osmotic, then stimulant may also be tried.

2.1 Light Liquid Paraffin

Less suitable for prescribing

Side effects

anal seepage of paraffin and consequent anal irritation after prolonged use; lipoid pneumonia

3 Diarrhoea

Main aim is to reverse fluid and electrolyte depletion, especially important in infants, frail, and elderly. Oral rehydration preparations are used to replenish lost electrolytes.

Antimotility drugs such as Loperamide are commonly used in uncomplicated diarrhoea, but not in children under 3. Routine prophylaxis against travellers' diarrhoea is not recommended, but ciprofloxacin can be used.

4 Disorders of gastric acid and ulceration

4.1 Dyspepsia

This refers to upper abdominal pain, bloating, and nausea. Alarm symptoms are bleeding, dysphagia, recurrent vomiting, and weight loss. In patients over 55 with new-onset dyspepsia, consider GP referral. Treatment includes antacids, PPIs, and H_2 receptor antagonists.

Antacids

Magnesium containing preparations tend to be laxative, and aluminium containing preparations constipating. Long-term use of calcium antacids can cause hypercalcaemia and alkalosis.

4.2 Gastro-oesophageal reflux disease

Associated with heartburn, acid regurgitation dysphagia, oesophagitis, ulceration, stricture formation may occur, and there is an association with asthma. Patients are first advised to adopt lifestyle changes; avoidance of aggravating foods such as fats, weight reduction, smoking cessation, and raising the head of the bed. Treatment includes antacids, PPIs, and H2 receptor antagonists.

Pregnancy

If dietary and lifestyle changes fail, an antacid can be used; Ranitidine can be tried if this is ineffective. Omeprazole is reserved for women with severe or complicated reflux disease.

4.3 Gastric and duodenal ulceration

If duodenal and gastric ulcers are not caused by NSAIDs, they are most likely caused by H. pylori infection.

4.3.1 Helicobacter pylori infection

The presence of H. pylori should be confirmed before starting treatment. For initial treatment, a one-week triple-therapy regimen that comprises a proton pump inhibitor, clarithromycin, and either amoxicillin or metronidazole can be used. Two-week triple-therapy is associated with higher side effects and lower compliance, and two-week dual therapy produces lower eradication rates.

4.3.2 NSAID-associated ulcers

Whenever possible, the NSAID should be withdrawn if an ulcer occurs. Patients at high risk of developing gastro-intestinal complications with a NSAID include those aged over 65 years, a history of gastro-intestinal complications, or those with serious co-morbidity (e.g. cardiovascular disease, diabetes, renal or hepatic impairment).

In patients at-risk of ulceration with NSAIDs, a proton pump inhibitor can be considered for gastric and duodenal protection; a H2-receptor antagonist or misoprostol are alternatives. Colic and diarrhoea may limit the dose of misoprostol.

4.3.3 Antisecretory drugs and mucosal protectants

- Chelates and complexes
  e.g. sucralfate, peptobismol, triopotassium dicitratobismuthate
  these drugs chelate and form ulcer-protecting complexes
- H2-receptor antagonist
  e.g. ranitidine, famotidine, cimetidine, nizatidine
  reduce gastric acid output through histamine H_2-receptor blockade
- Proton pump inhibitor
  e.g. lansoprazole, omeprazole, rabeprazole
  inhibit gastric acid secretion by blocking the hydrogen-pump of the gastric parietal cell

4.4 Sucralfate

Bezoar formation

Risk of indigestible material accumulating in the GI tract. Caution is advised in seriously ill patients, those under intensive care receiving enteral feeds, and those with predisposing conditions such as delayed gastric emptying

5 Liver disorders and related conditions

5.1 Biliary disorders

Ursodeoxycholic acid is used for the dissolution of gall stones, and in primary biliary cirrhosis. Cholic acid may be used to improve the flow of bile in those with congenital errors of bile synthesis.

5.2 Oesophageal varices

Treated with Terlipressin; a vasoconstrictor that reduces portal hypertension.

6 Obesity

Generally classified as (BMI) of ≥ 30 kg/m2. When diet, exercise, and behaviour changes fail to reduce weight, Orlistat is licensed in patients with a BMI of ≥30 kg/m2, or ≥28 in the presence of other risk factors. Treatment should be discontinued after 12 weeks if weight loss has not exceeded 5% of starting weight.

7 Rectal and anal disorders

Haemorrhoids

Treatment should focus on ensuring that stools are soft and easily passed. Bulk-forming laxatives are recommended, an osmotic is an alternative.

Topical preparations that contain a combination of local anaesthetics, corticosteroids, astringents, lubricants, and antiseptics are available.

Pregnancy
No preparations are licensed, but a simple soothing preparation can be considered.

8 Exocrine pancreatic insufficiency

The main clinical indicators are, maldigestion and malnutrition, associated with low circulating levels of micronutrients, fat-soluble vitamins and lipoproteins. Gastro-intestinal symptoms such as diarrhoea, abdominal cramps and steatorrhoea also occur.

Pancreatic enzyme replacement therapy; administered with meals and snacks, is the mainstay of treatment.

8.1 Pancreatin

Contains amylases, lipases, and proteases to assist the digestion of starch, fats, and protein. These enzymes are denatured by heat and gastric acid, therefore excessive heat should be avoided, and preparations are best to be taken with food.

It is important to ensure that patients on higher strength preparations maintain adequate hydration always.