

## Constipation

Constipation is generally considered to be the difficult, infrequent (< 3 times a week) passage of stools that, can be hard or lumpy. The causes are many and varied and include a low fibre diet, low fluid intake, reduced mobility and drugs e.g. opioids. Drugs used in the treatment and prophylaxis of constipation (laxatives) vary in their mechanism of action but in general change the consistency of the stools or stimulate the bowel. Laxatives may be given orally or rectally. This bulletin focuses on oral laxatives, of which there are four main classes – bulk forming, softeners, osmotic and stimulants.

### Bulk forming laxatives

*psyllium hydrophilic mucilloid (Metamucil™, Mucilax™), sterculia (Normacol™), sterculia & frangula bark (Granocol™, Normacol Plus™), ispaghula (Isogel™)*

These laxatives are considered first line for use in most patients. They retain water within the stool and increase stool mass. This softens the stool and promotes peristalsis. The use of these agents may lead to faecal loading and incontinence in the elderly or those with atonic colon. In addition inadequate fluid intake and immobility (bed bound patients) may result in bowel or oesophageal obstruction. It may take 72 hours before a laxative effect is seen.

### Osmotic laxatives

*lactulose (Duphalac™, Laevolac™), macrogol 3350 (Movicol™)*

Lactulose is broken down by colonic bacteria into fructose and galactose. Formic and acetic acids are produced along with some carbon dioxide which acidifies the colon. This results in softened stool and stimulation of peristalsis. Flatulence, abdominal pain, nausea and vomiting are common. The time of onset of lactulose effect is 24 to 72 hours.

Macrogol 3350 (Movicol™) draws water into the stool, making it softer and bulkier. Abdominal distention, pain, borborygmi and nausea may occur. Fluid intake must remain high and each sachet must be dispersed in 125mL of fluid. Movicol™ contains sodium and potassium salts to reduce the chance of electrolyte imbalance.

Osmotic laxatives should be used second line, after bulk forming laxatives, and often cause abdominal bloating. Movicol™, although useful in some patients, should not be considered a first line osmotic laxative because it is not subsidised, and costs the patient \$1 to \$2 a day.

### Stool softener laxatives

*docusate (Coloxyl tablets™), poloxamer (Coloxyl drops™)*

The mechanism of action of these agents is that of a "wetting agent". They are generally surfactants which stimulate gut secretions and increase the penetration of fluid into the stool, making it softer and bulkier. Cramping and nausea may occur. These agents usually take 24 to 48 hours to produce an effect. These are third line laxatives.

### Stimulant laxatives

*bisacodyl (Dulcolax™), senna (Senokot™)*

Bisacodyl stimulates sensory nerve endings in the large intestine to produce parasympathetic reflexes which results in increased peristalsis of the colon. Adverse effects include cramping, diarrhea and electrolyte loss. The onset of action is 6 to 12 hours after oral administration.

Senna directly stimulates intestinal mucosa and colonic nerves which increases peristalsis and colonic motility. It also inhibits water and electrolyte absorption to soften stools. Electrolyte imbalance, griping abdominal pain, dependence and abuse may occur, so use should be limited to the short term. Onset of action

is usually 1 to 3 hours. Stimulant laxatives are usually used fourth line.

### Combination products

*Senna & docusate (Laxsol™, Coloxyl and senna™)*

It is common to combine a softener laxative with a stimulant, particularly in problem patients. Combination products are available and minimise the number of tablets taken by the patient.

### Laxative guidelines

Stepwise laxative guidelines have been developed by the Clinical Pharmacology and Gastroenterology departments for the treatment of uncomplicated constipation:

Review drug therapy and increase exercise, fluid intake and dietary fibre if appropriate

↓ *If ineffective or inappropriate*

add a bulk forming laxative

↓ *If ineffective or inappropriate, stop this and*

give an oral osmotic laxative

↓ *If ineffective or inappropriate, stop this and*

give a stool softening laxative

↓ *If ineffective or inappropriate*

add an oral stimulant laxative

↓ *if ineffective consider*

a rectal osmotic/stimulant laxatives e.g. phosphate enema, bisacodyl suppository or colonic lavage.

These guidelines should not be used for the treatment of constipation in immobilized patients, patients with neurological disease, in patients with spinal cord injury/compression or in those with opioid-induced constipation.

### Special circumstances:

#### • drug induced constipation e.g. opioid induced

Opioids cause constipation via opioid receptors in the gut. A stimulant (e.g. bisacodyl) plus a softener (e.g. docusate) are usually required. Combination products may be most useful (e.g. docusate/senna). Consider giving prophylactic laxatives on initiation of opioids.

#### • immobilised patients

Short term give glycerol suppositories and a stimulant laxatives.

### Costs

Psyllium	\$0.38 to \$1.16 per day
Lactulose	\$0.07 to \$1.04 per day
Macrogol 3350	\$0.59 to \$1.68 per day
Docusate	\$0.05 to \$0.14 per day
Bisacodyl	\$0.06 to \$0.12 per day
Senna	\$0.13 to \$0.25 per day
Docusate & senna	\$0.04 to \$0.08 per day