LAXATIVES AND CATHARTICS

Laxatives and cathartics are somewhat arbitrarily classified as bulk-forming laxatives, surfactant laxatives or stool softeners, saline cathartics, stimulant cathartics, lubricant or emollient laxatives, and miscellaneous. Individual drugs are listed in Drugs at a Glance: Laxatives and Cathartics.

Bulk-Forming Laxatives

Bulk-forming laxatives (eg, polycarbophil, psyllium seed) are substances that are largely unabsorbed from the intestine. When water is added, these substances swell and become gel-like. The added bulk or size of the fecal mass stimulates peristalsis and defecation. The substances also may act by pulling water into the intestinal lumen. Bulk-forming laxatives are the most physiologic laxatives because their effect is similar to that of increased intake of dietary fiber. They usually act within 12 to 24 hours, but may take as long as 2 to 3 days to exert their full effects.

Surfactant Laxatives (Stool Softeners)

Surfactant laxatives (eg, docusate calcium, potassium, or sodium) decrease the surface tension of the fecal mass to allow water to penetrate into the stool. They also act as a detergent to facilitate admixing of fat and water in the stool. As a result, stools are softer and easier to expel. These agents have little if any laxative effect. Their main value is to prevent straining while expelling stool. They usually act within 1 to 3 days and should be taken daily.

Saline Laxatives

Saline laxatives (eg, magnesium citrate, milk of magnesia) are not well absorbed from the intestine. Consequently, they increase osmotic pressure in the intestinal lumen and cause water to be retained. Distention of the bowel leads to increased peristalsis and decreased intestinal transit time for the fecal mass. The resultant stool is semifluid. These laxatives are used when rapid bowel evacuation is needed. With oral magnesium preparations, effects occur within 0.5 to 6 hours; with sodium phosphate–containing rectal enemas, effects occur within 15 minutes.

Saline laxatives are generally useful and safe for short-term treatment of constipation, cleansing the bowel prior to endoscopic examinations, and treating fecal impaction. However, they are not safe for frequent or prolonged usage or for certain patients because they may produce fluid and electrolyte imbalances. For example, patients with impaired renal function are at risk of developing hypermagnesemia with magnesium-containing laxatives because some of the magnesium is absorbed systemically. Patients with congestive heart failure are at risk of fluid retention and edema with sodium-containing laxatives.

Polyethylene glycol–electrolyte solution (eg, NuLytely) is a nonabsorbable oral solution that induces diarrhea within 30 to 60 minutes and rapidly evacuates the bowel, usually within 4 hours. It is a prescription drug used for bowel cleansing before GI examination (eg, colonoscopy) and is contraindicated with GI obstruction, gastric retention, colitis, or bowel perforation.

Polyethylene glycol solution (MiraLax) is an oral laxative that may be used to treat occasional constipation. Effects may require 2 to 4 days. It is a prescription drug and should not be taken longer than 2 weeks.

Stimulant Cathartics

The stimulant cathartics are the strongest and most abused laxative products. These drugs act by irritating the GI mucosa and pulling water into the bowel lumen. As a result, feces are moved through the bowel too rapidly to allow colonic absorption of fecal water, so a watery stool is eliminated. These drugs should not be used frequently or longer than 1 week because they may produce serum electrolyte and acid–base imbalances (eg, hypocalcemia, hypokalemia, metabolic acidosis or alkalosis).

Oral stimulant cathartics include bisacodyl, cascara sagrada, castor oil, and senna products. These products produce laxative effects in 6 to 12 hours. As a result, a single bedtime dose usually produces a morning bowel movement. Rectal suppository products include bisacodyl, which produces effects within 15 minutes to 2 hours, and glycerin. In addition to irritant, stimulant effects, glycerin exerts hyperosmotic effects in the colon. It usually acts within 30 minutes. Glycerin is not given orally for laxative effects.

Lubricant Laxative

Mineral oil is the only lubricant laxative used clinically. It lubricates the fecal mass and slows colonic absorption of water from the fecal mass, but the exact mechanism of action is unknown. Effects usually occur in 6 to 8 hours. Oral mineral oil may cause several adverse effects and is not recommended for long-term use. Mineral oil enemas are sometimes used to soften fecal impactions and aid their removal.

Miscellaneous Laxatives

Lactulose is a disaccharide that is not absorbed from the GI tract. It exerts laxative effects by pulling water into the intestinal lumen. It is used to treat constipation and hepatic encephalopathy. The latter condition usually results from alcoholic liver disease in which ammonia accumulates and causes stupor or coma. Ammonia is produced by metabolism of dietary