

Table 21.5 Medications Used to Treat Diabetic Enteropathy

Medication	Dosing	Side effects affecting rehab	Other side effects or considerations
Antidiarrheal medications for diabetic diarrhea: Patients with autonomic dysfunction of the gastrointestinal tract are taught to eat very small meals several times a day. In severe cases, reducing dietary fiber to near zero may improve symptoms. Diabetic diarrhea is a diagnosis of exclusion and can be difficult to control. A high-fiber diet, along with diphenoxylate, loperamide, or clonidine, can be helpful. Should not be used to treat diarrhea associated with bacterial infections.			
Atropine–diphenoxylate (Lomotil)	2 tablets 4 times/day as needed for diarrhea.	Cog: + S: + A: ++ Motor: ++ D: ++ Com: + F: ++	Maximum of 8 tablets per day to reduce chance of development of tolerance. Blurred vision, constipation, insomnia, dizziness, drowsiness, nausea, loss of taste, xerostomia, tachycardia.
Loperamide (Imodium)	4 mg (2 capsules) for initial dose followed by 2 mg (1 capsule) after each unformed stool. Maximum dose of 8 capsules/day.	Cog: + S: + A: ++ Motor: ++ D: ++ Com: + F: ++	Tightness in chest, constipation, nausea, vomiting, abdominal cramps, decreased urination, skin reactions, bloating, drowsiness, dizziness. Do not use to treat diarrhea caused by bacterial infections.
Antibiotics for bacterial overgrowth: Small bowel stasis contributes to bacterial overgrowth, causing diarrhea.			
Amoxicillin	250-500 mg by mouth 3 times/day. Antibiotic treatment is recommended for a period of 2 wk.	Cog: + S: 0 A: + Motor: + D: ++ Com: + F: +	Nausea, vomiting, diarrhea, colitis, allergic reactions, agitation, insomnia, confusion, dizziness. Take before meals.
Metronidazole (Flagyl)	250-500 mg 3times/day. Antibiotic treatment is recommended for a period of 2 wk.	Cog: + S: 0 A: + Motor: ++ D: ++ Com: + F: ++	Seizures, peripheral neuropathy with prolonged use, nausea, anorexia, diarrhea, vomiting, abdominal cramping, dizziness, vertigo, ataxia, depression, weakness, insomnia, bone marrow suppression, confusion, urinary incontinence. Avoid alcohol; can result in severe nausea and vomiting similar to that caused by Antabuse (Antabuse effect).
Ciprofloxacin (Cipro)	250 mg twice/day. Antibiotic treatment is recommended for a period of 2 wk.	Cog: + S: 0 A: + Motor: ++ D: ++ Com: + F: ++	Nausea, vomiting, rash, restlessness, dizziness, tremor, ataxia, hallucinations, insomnia, depression, dysphagia, arthralgias, foot pain, pain in the extremities. Space by 2 h from intake of products containing calcium, aluminum, or magnesium, iron supplements, multiple vitamins, dairy products, or sucralfate.
Doxycycline (Vibramycin)	100 mg by mouth twice/day. Antibiotic treatment is recommended for a period of 2 wk.	Cog: 0 S: 0 A: 0 Motor: 0 D: ++ Com: + F: 0	Photosensitivity, nausea, vomiting, loss of appetite, glossitis, dysphagia, esophageal ulceration, rash, bone marrow suppression. Space by 2 h from intake of products containing calcium, aluminum, or magnesium, iron supplements, multiple vitamins, dairy products, or sucralfate.
Macrolide antibiotic for diabetic gastroparesis: Binds to and activates motilin receptors; duplicates the action of endogenous motilin that promotes gastrointestinal motility.			
Erythromycin (E-Mycin,	250 mg by mouth 4 times/day given 30 min	Cog: 0 S: 0	Nausea, vomiting, abdominal pain, diarrhea, hepatotoxicity (rare), rash, ototoxicity with high doses or

From L. Carl, J. Gallo, and P. Johnson, 2014, *Practical Pharmacology in Rehabilitation: Effect of Medication on Therapy* (Champaign, IL: Human Kinetics).

Medication	Dosing	Side effects affecting rehab	Other side effects or considerations
Erythrocine, Ery-Tab, EES)	before meals.	A: + Motor: 0 D: ++ Com: 0 F: 0	renal dysfunction, QT prolongation with intravenous form, nightmares. Intravenous administration enhances the emptying rate of both liquids and solids. Effect can be seen with oral erythromycin. Substitution of the enteric-coated form may be tolerated better by the patient.
Serotonin receptor agonist: Used to treat diabetic gastroparesis; available via a limited-access treatment by manufacturer. Was removed from the market because treatment resulted in serious cardiac arrhythmias due to QT prolongation.			
Cisapride (Propulsid)	10-20 mg by mouth 4 times/day given 30 min before meals and at bedtime.	Cog: ++ S: ++ A: ++ Motor: ++ D: + Com: + F: ++	Arrhythmias, headache, somnolence, dizziness, fatigue, extrapyramidal symptoms, insomnia, anxiety, depression, urinary frequency, bone marrow suppression. Risk of QT prolongation and arrhythmia increases when cisapride is combined with clarithromycin, erythromycin, nefazodone, fluconazole, itraconazole, ketoconazole, indinavir, or ritonavir.
Dopamine agonist that acts as a prokinetic agent: Stimulates acetylcholine release in the myenteric plexus; acts centrally on chemoreceptor triggers in the floor of the fourth ventricle, which provides important antiemetic activity.			
Metoclopramide (Reglan)	Adults and children >14 yr: 10-30 mg by mouth 4 times/day given 1 h before meals and at bedtime. Dose for children 6-14 yr: 2.5-5 mg by mouth 4 times/day given 1 h before meals and at bedtime. Dose for children <6 yr: 0.1 mg/kg by mouth 4 times/day given 1 h before meals and at bedtime.	Cog: ++ S: 0 A: ++ Motor: +++ D: ++ Com: + F: +++	Tardive dyskinesia, dystonias, neuroleptic malignant syndrome, extrapyramidal symptoms, galactorrhea, impotence, changes in heart rate and blood pressure, nausea, diarrhea, urinary frequency or retention. Avoid use in patients with Parkinson's disease. Reduce dose by 50% and monitor for extrapyramidal side effects in elderly or in patients with creatinine clearance <30 ml/min.
Serotonin agonist used for chronic ileus: Temporarily withdrawn from the U.S. market in March 2007; now available only as outlined by the manufacturer and the FDA REMS program.			
Tegaserod (Zelnorm)	6 mg by mouth twice/day before meals for 4-6 wk.	Cog: ++ S: ++ A: 0 Motor: ++ D: ++ Com: ++ F: ++	Abdominal pain, diarrhea, flatulence, headache, dizziness, fatigue, migraine, leg pain, back pain, arthropathy, rash.

Cog = cognition; S = sedation; A = agitation or mania; Motor = discoordination; D = dysphagia; Com = communication; F = falls; FDA = U.S. Food and Drug Administration; REMS = risk evaluation and mitigation strategy.

The likelihood rating scale for encountering the side effects is as follows: 0 = Almost no probability of encountering side effects. + = Little likelihood of encountering side effects. +/+ = Low probability of encountering side effects; however, probability increases with increased dosage. ++ = Medium likelihood of encountering side effects. +++ = High likelihood of encountering side effects, particularly with high doses. ++++ = Highest likelihood of encountering side effects; best to avoid in at-risk patients.