

Prokinetic and Antiemetic Medications Proposed in Consensus Guidelines for the Treatment of Gastroparesis*

Class of Agent^θ	Examples	Usual Dose^π	Main Side Effects and Contraindications	Comments
PROKINETIC				
Dopamine D2-receptor antagonists (I)	Metoclopramide (Reglan) ^f , domperidone (Motilium) ^ω	Start with 5mg thrice daily; usual dose is 10-20mg thrice daily, 15 min before meals	Anxiety; depression; galactorrhea; extrapyramidal symptoms; rarely, tardive dyskinesia	Antiemetic action also contributes to symptom relief; metoclopramide (10mg) also can be used intramuscularly, intravenously, and subcutaneously
Motilin-receptor agonists	Erythromycin	Erythromycin, 200-250mg thrice daily, 30 min before meals.	Abdominal cramping, loss of appetite Erythromycin contraindicated when drug interactions are anticipated, owing to P4503A4-mediated metabolism (e.g. interactions with grapefruit juice, antifungal agents, cisapride, anticancer drugs such as tamoxifen (Nolvadex), antidepressants such as fluoxetine (Prozac) and midazolam (Versed), agents against the human immunodeficiency virus such as ritonavir (Norvir), or antihypertensive agents such as verapamil (e.g. Calan))	Tolerance reached rapidly; erythromycin useful for acute gastroparesis (3mg/kg by intravenous infusion every 8 hr); clarithromycin and azithromycin not formally tested in diabetic gastroparesis
5-HT₄-receptor agonists (III)	Tegaserod (Zelnorm) Cisapride (Propulsid)	Cisapride, 10-20mg thrice daily, 15 min before meals	Diarrhea, abdominal pain, potential for cardiac dysrhythmia with cisapride Cisapride contraindicated when drug interactions are anticipated (see erythromycin above)	Cisapride only available through a compassionate-use or limited-access program, when other drugs fail
Muscarinic-receptor agonists (III)	Bethanechol (Urecholine)	10-20mg thrice daily before meals	Cholinergic side effects (e.g. sweating or bladder dysfunction)	Stimulates gastric emptying; side effects are dose limiting; efficacy against symptoms unclear
Acetylcholinesterase inhibitors	Pyridostigmine (Mestinon), neostigmine methylsulfate (Prostigmin)	Pyridostigmine, 30mg four times daily; neostigmine methylsulfate, 0.5-1mg intramuscularly	Cholinergic side effects (e.g. sweating or bladder dysfunction)	Unclear efficacy

<i>ANTIEMETIC</i>				
Dopamine D2-receptor antagonists (I)	Promethazine and Prochlorperazine (Phenergan and Compazine)	Prochlorperazine, 5-10mg by mouth thrice daily of 5-25mg as required every 12 hr as rectal suppository;	Extrapyramidal effects; rarely, jaundice	
Serotonin 5-HT3-receptor antagonists (III)	Ondansetron (Zofran), granisetron (Kytril), dolasetron (Anzamet), tropisetron (Novoban)	Ondansetron 4-8mg thrice daily as required; granisetron, 1mg twice daily; dolasetron, 50-100mg as required only; tropisetron, 2-5mg intravenously	Constipation with regular use	Unclear efficacy as compared with D2-receptor antagonists; also available intravenously
Muscarinic M1-receptor antagonists (III)	Scopolamine (Scopderm HS) patch	1mg every three days	Drowsiness, headache, dry mouth (may be worse on withdrawal) Contraindicated with glaucoma or bladder-emptying problems	Unclear efficacy for nausea or vomiting from gastroparesis
Histamine H1-receptor antagonists (II)	Dimenhydrinate (Dramamine), meclizine (Antivert), promethazine (Phenergan)	Dimenhydrinate, 50mg thrice daily as required; meclizine, 12.5-25mg thrice daily as required; promethazine, 12.5-25mg intramuscularly as required	Drowsiness, blurred vision, headache or dry mouth Contraindicated with glaucoma or bladder emptying problems	Also available as a suppository
Benzodiazepines (III)	Lorazepam (Ativan)	0.5-1mg as required	Sedation	Unclear efficacy for gastroparesis
Neurokinin-1-receptor antagonist	Aprepitant (Emend)	125mg	Weakness, bowel dysfunction, reduced efficacy of oral contraceptives Contraindicated with astemizole (Hismanal), cisapride, and pimozone (Orap)	Unclear efficacy for gastroparesis

* Recommendations are based on guidelines of the American Motility Society and the American Gastroenterological Association.

These guidelines also list antidepressants and cannabinoid agonists. However, these two classes of drugs may retard gastric emptying and are of unclear efficacy for gastroparesis; cannabinoids may cause problems with memory and learning, distorted perception, anxiety, or panic attacks.

θ Roman numerals refer to the line of therapy, from first (I) to third (III), recommended on the basis of drug efficacy, cost, ease of administration, and adverse effects.

π Dose is by mouth, unless otherwise indicated.

f Metoclopramide is the only medication approved by the FDA for gastroparesis

ω Domperidone is not approved by the FDA for gastroparesis