

Metoclopramide

Metoclopramide is an antiemetic and gastroprokinetic agent, which works as an antagonist at dopaminergic receptors, a 5HT blocker in the CNS as well as enhancing the sensitivity to acetylcholine in gastric tissue and increasing lower esophageal tone. The D₂ antagonist activity prevents stimuli at the chemoreceptor trigger zone in the CNS from causing nausea and vomiting along with the serotonin blockade. Additionally, this medication increases resting tone and contraction amplitude of gastric contractions by enhancing acetylcholine sensitivity. As this medication is a dopaminergic antagonist, patients may exhibit parkinsonian side effects, such as dystonia and involuntary movements. Furthermore, dopamine antagonism may lead to hyperprolactinemia and galactorrhea in patients. Metoclopramide is contraindicated in patients with small bowel obstructions, as well as those with Parkinson's disease, as it may worsen symptoms.



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Indications

Antiemetic

Ant-tie-medic

Metoclopramide works as a 5HT serotonin receptor antagonist the chemoreceptor trigger zone of the brain to prevent nausea and vomiting.

Promotility Agent

Pro-moto

Metoclopramide is helpful in gastroparesis and GERD, as it increases duodenal and jejunal peristalsis, improving the tone and amplitude of gastric contractions. This medication also increases the lower esophageal sphincter (LES) tone. It is important to also note it does these actions without increasing gastric secretions.

Mechanism

Increased Resting Tone

Up-arrow Resting Toned-GI

Gastroprokinetic activity with metoclopramide is due to increased resting tone of gastric contractions. The tone and amplitude of gastric contractions are increased, with relaxation of the pyloric sphincter and duodenal bulb. These effects combine to result in improved motility of gastric contents.

Antagonist at D₂ Receptor

Ant-toga with Doberman and (2) Tutu Receptor

This drug works as an antagonist at dopaminergic D₂ receptors, has serotonergic blocking activity in the chemoreceptor zone, as well as enhancing responsiveness to acetylcholine of gastric tissue. D₂ antagonism, combined with 5HT₃ inhibition in higher doses, blocks receptors in the chemoreceptor trigger zone (CTZ) of the CNS from causing nausea and vomiting. Furthermore, D₂ antagonism contributes to gastroprokinetic activity, but an enhancement of Ach leads to increased gastric emptying, though without an increase of gastric secretions.

Side Effects

Parkinsonian Symptoms

[Park-in-sun garage Symptom Sign](#)

As this medication is a dopaminergic antagonist, patients may display parkinsonian symptoms, such as involuntary muscle movements, facial grimaces and dystonic reactions.

Galactorrhea

[Lactating and Pumping Breast-milk](#)

Patients taking metoclopramide may experience galactorrhea. This occurs because by blocking dopamine, there is no negative inhibition of prolactin release from the anterior pituitary. Thus, patients taking this medication develop hyperprolactinemia, which can present with galactorrhea.

Contraindication

Small Bowel Obstruction

[Small Bowel-bowl Obstructed](#)

In a situation where improved gastric motility may be harmful, such as a small bowel obstruction, metoclopramide is contraindicated.

Parkinson's Disease

[Park-in-sun garage](#)

As this medication is a dopaminergic antagonist, it should be contraindicated or used very cautiously in patients with Parkinson's disease. Administration of metoclopramide may worsen symptoms in patients with Parkinson's disease.