

Mondeprazole (delayed release capsules)

Composition:

Each delayed release capsule contains esomeprazole magnesium trihydrate equivalent to 20 mg or 40 mg of esomeprazole. **Mondeprazole granules excipients:** Hydroxyl propyl cellulose, Glycerol monostearate 40-50, Hydroxyl propyl methyl cellulose, Magnesium stearate, Methacrylic acid copolymer type C, Polysorbate 80, Sugar spheres, Talc, Triethyl citrate. **Mondeprazole capsules excipients:** Pellets ready for packing with the active ingredient.

Mechanism of action:

Esomeprazole is a proton pump inhibitor that suppresses gastric acid secretion by specific inhibition of the H⁺/K⁺-ATPase in the gastric parietal cell. The S- and R-isomers of omeprazole are protonated and converted in the acidic compartment of the parietal cell forming the active inhibitor, the achiral sulphenamide. By acting specifically on the proton pump, esomeprazole blocks the final step in acid production, thus reducing gastric acidity.

Pharmacokinetics:

Absorption: After oral administration peak plasma levels (C_{max}) occur at approximately 1.5 hours (T_{max}). The C_{max} increases proportionally when the dose is increased. At repeated once-daily dosing with 40 mg, the systemic bioavailability is approximately 90% compared to 64% after a single dose of 40 mg.

Distribution: Esomeprazole is 97% bound to plasma proteins.

Metabolism: Esomeprazole is extensively metabolized in the liver by the cytochrome P450 (CYP) enzyme system.

Excretion: The plasma elimination half-life of esomeprazole is approximately 1 to 1.5 hours. Less than 1% of parent drug is excreted in the urine. Approximately 80% of an oral dose of esomeprazole is excreted as inactive metabolites in the urine, and the remainder is found as inactive metabolites in the feces.

Indications:

Treatment of Gastroesophageal Reflux Disease (GERD):

1. Healing of Erosive Esophagitis: for the short-term treatment (4 to 8 weeks) in the healing and symptomatic resolution of diagnostically confirmed erosive esophagitis. For those patients who have not healed after 4 to 8 weeks of treatment, an additional 4 to 8-week course may be considered. In infants 1 month to less than 1 year, esomeprazole magnesium delayed-release capsules are indicated for short-term treatment (up to 6 weeks) of erosive esophagitis due to acid-mediated GERD.
2. Maintenance of Healing of Erosive Esophagitis: to maintain symptom resolution and healing of erosive esophagitis. Controlled studies do not extend beyond 6 months.
3. Symptomatic Gastroesophageal Reflux Disease: for short-term treatment (4 to 8 weeks) of heartburn and other symptoms associated with GERD in adults and children 1 year or older.

Risk Reduction of NSAID-Associated Gastric Ulcer: for the reduction in the occurrence of gastric ulcers associated with continuous NSAID therapy in patients at risk for developing gastric ulcers. Patients are considered to be at risk due to their age (≥ 60) and/or documented history of gastric ulcers. Controlled studies do not extend beyond 6 months.

Pathological Hyper-Secretory Conditions Including Zollinger-Ellison Syndrome: for the long-term treatment.

H. pylori Eradication to Reduce the Risk of Duodenal Ulcer Recurrence:

Triple Therapy: esomeprazole, in combination with amoxicillin and clarithromycin, is indicated for the treatment of patients with H. pylori infection and duodenal ulcer disease (active or history of within the past 5 years) to eradicate H. pylori. Eradication of H. pylori has been shown to reduce the risk of duodenal ulcer recurrence. In patients who fail therapy, susceptibility testing should be done. If resistance to clarithromycin is demonstrated or susceptibility testing is not possible, alternative antimicrobial therapy should be instituted.

Contraindications:

It is contraindicated in patients with known hypersensitivity to substituted benzimidazoles or to any component of the formulation.

Warnings and Precautions:

- Symptomatic response to therapy with esomeprazole magnesium does not preclude the presence of gastric malignancy.
- Atrophic gastritis has been noted occasionally in gastric corpus biopsies from patients treated long-term with omeprazole, of which esomeprazole is an enantiomer.
- Acute interstitial nephritis has been observed in patients taking PPIs including esomeprazole magnesium. It may occur at any point during therapy and is generally attributed to an idiopathic hypersensitivity reaction. The drug should be discontinued if acute interstitial nephritis develops.
- Daily treatment with any acid-suppressing medications over a long period of time (e.g., longer than 3 years) may lead to malabsorption of vitamin B-12 caused by hypo- or achlorhydria. This diagnosis should be considered if clinical symptoms consistent with vitamin B-12 deficiency are observed.
- Published studies suggest that PPI therapy like esomeprazole magnesium may be associated with an increased risk of Clostridium difficile associated diarrhea, especially in hospitalized patients. This diagnosis should be considered for diarrhea that does not improve. Patients should use the lowest dose and shortest duration of PPI therapy appropriate to the condition being treated.
- Several published observational studies suggest that proton pump inhibitor (PPI) therapy may be associated with an increased risk for osteoporosis-related fractures of the hip, wrist, or spine. The risk of fracture was increased in patients who received high-dose, defined as multiple daily doses, and long-term PPI therapy (a year or longer). Patients should use the lowest dose and shortest duration of PPI therapy appropriate to the condition being treated. Patients at risk for osteoporosis-related fractures should be managed according to established treatment guidelines.
- Hypomagnesemia, symptomatic and asymptomatic, has been reported rarely in patients treated with PPIs for at least three months, in most cases after a year of therapy. In most patients, treatment of hypomagnesemia required magnesium replacement and discontinuation of the PPI. For patients expected to be on prolonged treatment or who take PPIs with medications such as digoxin or drugs that may cause hypomagnesemia (e.g., diuretics), health care professionals may consider monitoring magnesium levels prior to initiation of PPI treatment and periodically.
- Drug-induced decrease in gastric acidity results in enterochromaffin-like cell hyperplasia and increased Serum Chromogranin A levels which may interfere with investigations for neuroendocrine tumors.

Drug Interactions:

Interference with Antiretroviral Therapy: Concomitant use of atazanavir and nelfinavir with proton pump inhibitors is not recommended. Co-administration of atazanavir with proton pump inhibitors is expected to substantially decrease atazanavir plasma concentrations and may result in a loss of therapeutic effect and the development of drug resistance. Co-administration of saquinavir with proton pump inhibitors is expected to increase saquinavir concentrations, which may increase toxicity and require dose reduction.

Tacrolimus: Concomitant administration of esomeprazole and tacrolimus may increase the serum levels of tacrolimus.

Drugs for Which Gastric pH Can Affect Bioavailability:

Due to its effects on gastric acid secretion, esomeprazole can reduce the absorption of drugs where gastric pH is an important determinant of their bioavailability. Like with other drugs that decrease the intragastric acidity, the absorption of drugs such as ketoconazole, atazanavir, iron salts, erlotinib, and mycophenolatemofetil (MMF) can decrease, while the absorption of drugs such as digoxin can increase during treatment with esomeprazole.

Co-administration of digoxin with esomeprazole is expected to increase the systemic exposure of digoxin. Therefore, patients may need to be monitored when digoxin is taken concomitantly with esomeprazole.

Co-administration of omeprazole in healthy subjects and in transplant patients receiving MMF has been reported to reduce the exposure to the active metabolite. Use esomeprazole with caution in transplant patients receiving MMF.

Effects on Hepatic Metabolism/Cytochrome P-450 Pathways:

Esomeprazole is extensively metabolized in the liver by CYP2C19 and CYP3A4.

Patients treated with proton pump inhibitors and warfarin concomitantly may need to be monitored for increases in INR and prothrombin time.

Esomeprazole may potentially interfere with CYP2C19, the major esomeprazole metabolizing enzyme. Coadministration of esomeprazole 30 mg and diazepam, a CYP2C19 substrate, resulted in a 45% decrease in clearance of diazepam.

Co-administration of cimetidine with esomeprazole is expected to increase concentrations of cimetidine and its active metabolite. Therefore, a dose reduction of cimetidine from 100 mg twice daily to 50 mg twice daily should be considered. Concomitant administration of esomeprazole and a combined inhibitor of CYP2C19 and CYP3A4, such as voriconazole, may result in more than doubling of the esomeprazole exposure. Dose adjustment of esomeprazole is not normally required. However, in patients with Zollinger-Ellison's Syndrome, who may require higher dose, adjustment may be considered.

Clarithromycin: Co-administration of esomeprazole, clarithromycin, and amoxicillin has resulted in increases in the plasma levels of esomeprazole and 14-hydroxylclarithromycin

St. John's Wort or Rifampin: Drugs which induce CYP2C19 or CYP3A4 (such as St. John's Wort or rifampin) can substantially decrease esomeprazole concentrations. Avoid concomitant use of esomeprazole magnesium with St. John's Wort, or rifampin.

Methotrexate: Literature suggests that concomitant use of PPIs with methotrexate may elevate and prolong serum levels of methotrexate and/or its metabolite, possibly leading to methotrexate toxicities. In high-dose methotrexate administration a temporary withdrawal of the PPI may be considered in some patients.

Clopidogrel: Avoid concomitant use of esomeprazole magnesium with clopidogrel and consider alternative anti-platelet therapy. Clopidogrel is a prodrug. The metabolism of clopidogrel to its active metabolite can be impaired by use with concomitant medications, such as esomeprazole, that inhibit CYP2C19 activity.

Adverse Reactions:

Adult:

The most frequently occurring adverse reactions: were headache, diarrhea, Nausea, flatulence, abdominal pain, constipation, and dry mouth

Pediatrics:

Aged 1 to 11 years: The most frequently reported adverse reactions: were diarrhea, headache, and somnolence.

Aged 12 to 17 years: the most frequently reported adverse reactions: headache, abdominal pain, diarrhea, and nausea.

From birth to <1 year of age: abdominal pain, regurgitation, tachypnea, and increased ALT.

Combination Treatment with Amoxicillin and Clarithromycin: Diarrhea, taste perversion, and abdominal pain.

Pregnancy:

Teratogenic Effects: Pregnancy Category C

There are no adequate and well-controlled studies with esomeprazole magnesium in pregnant women, it should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers:

Esomeprazole is likely present in human milk; Caution should be exercised when esomeprazole magnesium is administered to a nursing woman.

Pediatric Use:

The safety and effectiveness of esomeprazole magnesium have been established in pediatric patients 1 to 17 years of age for short-term treatment (up to eight weeks) of GERD. The safety and effectiveness of esomeprazole magnesium have been established in pediatric patients 1 month to less than 1 year for short-term treatment (up to 6 weeks) of erosive esophagitis GERD. However, the safety and effectiveness of esomeprazole magnesium have not been established in patients less than 1 month of age.

Geriatric Use:

No overall differences in safety and efficacy were observed between the elderly and younger individuals.

Dosage and Administration:

The drug should be taken at least one hour before meals

For Delayed-Release Capsules: it can be swallowed whole or can be opened and mixed with applesauce and it shouldn't be hot and should be soft enough to be swallowed without chewing, the mixture shouldn't store for future use. The pellets should not be chewed or crushed.

For patients who have a nasogastric tube: the capsules can be opened and the only intact granules should be emptied into a 60 mL catheter tipped syringe and mixed with 50 mL of water. Replace the plunger and shake the syringe vigorously for 15 seconds. Hold the syringe with the tip up and check for granules remaining in the tip. Attach the syringe to a nasogastric tube and deliver the contents through the nasogastric tube, then nasogastric tube should be flushed with additional water.

Recommended Dosage Schedule:

	Indication	Dose	Frequency
Gastroesophageal Reflux Disease (GERD)	Healing of Erosive Esophagitis	20 mg or 40 mg	Once Daily for 4 to 8 Weeks The majority of patients are healed within 4 to 8 weeks. For patients who do not heal after 4 to 8 weeks, an additional 4 to 8 weeks of treatment may be considered.
	Maintenance of Healing of Erosive Esophagitis	20 mg	Once Daily (Controlled studies did not extend beyond six months)
	Symptomatic Gastroesophageal Reflux Disease	20 mg	Once Daily for 4 Weeks If symptoms do not resolve completely after 4 weeks, an additional 4 weeks of treatment may be considered.
	Risk Reduction of NSAID- Associated Gastric Ulcer	20 mg or 40 mg	Once Daily for up to 6 months (Controlled studies did not extend beyond six months)
	Pathological Hyper-secretory Conditions Including Zollinger-Ellison Syndrome	40 mg	Once Daily The dosage in each condition varies with the individual patient. Dosage regimens should be adjusted to individual patient needs
H. pylori Eradication to Reduce the Risk of Duodenal Ulcer Recurrence: Triple Therapy	esomeprazole	40 mg	Once Daily for 10 Days
	Amoxicillin	1000 mg	Twice Daily for 10 Days
	Clarithromycin	500 mg	Twice Daily for 10 Days

Hepatic Insufficiency:

- Mild to moderate liver impairment: no dosage adjustment is necessary.
- Severe liver impairment: a dose of 20 mg of esomeprazole should not be exceeded.

Overdose:

The symptoms described with overdose are transient; manifestations were variable, but included confusion, drowsiness, blurred vision, tachycardia, nausea, diaphoresis, flushing, headache, dry mouth, and other adverse reactions. No specific antidote for esomeprazole is known, it is not expected to be removed by dialysis. In the event of overdosage, treatment should be symptomatic and supportive.

Storage Conditions:

Store at 25°C.

Package:

20 delayed release capsules in carton package.

Rev. No:

THIS IS A MEDICAMENT
- The medicament is a product which affects your health, and its consumption contrary to instruction is dangerous for you.
- Follow strictly the doctor's prescription, the method of use and the instructions of the pharmacist who sold the medicament. The doctor and the pharmacist are experts in medicine, its benefits and risks.
- Do not by yourself interrupt the period of treatment prescribed for you.
- Do not repeat the same prescription without consulting your doctor.
KEEP THE MEDICAMENT OUT OF THE REACH OF CHILDREN

Council of Arab Health Ministers Arab Pharmacists Association

DIAMOND PHARMA – Damascus suburb – Syria

