

Brand Name: Gertel 40

Generic Name: Telmisartan

Dosage Form: Oral Tablet

Strength of Gertel 40: Telmisartan 40 mg per tablet

Gertel 40 is an angiotensin II receptor antagonist (commonly known as an ARB), used primarily for the treatment of hypertension (high blood pressure) and cardiovascular diseases. It works by blocking the effects of angiotensin II, a potent vasoconstrictor, thereby helping to relax blood vessels and lower blood pressure.

Mechanism of Action (MOA) of Gertel 40:

1. Inhibition of Angiotensin II Receptor (AT1 Receptor):

- **Gertel 40 selectively and competitively blocks the angiotensin II type 1 (AT1) receptor. Angiotensin II is a hormone that binds to the AT1 receptor and is responsible for various effects, including:**
 - **Vasoconstriction (narrowing of blood vessels)**
 - **Aldosterone secretion (which causes salt and water retention)**
 - **Increased sympathetic nervous system activity**
 - **Proliferation and remodelling of vascular tissues (leading to vascular stiffness and hypertrophy)**
- **By blocking the AT1 receptor, telmisartan prevents these effects, resulting in vasodilation (widening of blood vessels), reduced secretion of aldosterone, and overall lowered blood pressure.**

2. Reduction in Blood Pressure:

- **By blocking angiotensin II action, telmisartan helps lower blood pressure by relaxing the blood vessels and reducing the workload on the heart. This is beneficial in managing hypertension and reducing the risk of complications like stroke, heart attack, and kidney damage.**

3. Impact on Renal Function:

- **Angiotensin II plays a role in the regulation of kidney function, including constriction of the efferent arterioles (the vessels that carry blood away from the kidney glomerulus). By blocking this receptor, telmisartan reduces glomerular pressure and helps protect the kidneys, which is particularly beneficial in conditions like diabetic nephropathy and chronic kidney disease.**

4. Long-Acting Effects:

- **Gertel 40 has a long half-life, which allows for once-daily dosing. This extended effect helps maintain consistent blood pressure control over 24 hours.**

5. Additional Benefits:

- **Gertel 40 has been shown to have beneficial effects on the heart and blood vessels, potentially improving outcomes in patients with cardiovascular disease by preventing left ventricular hypertrophy (thickening of the heart muscle) and arterial stiffness.**

Summary of MOA:

- **Gertel 40 blocks the angiotensin II type 1 (AT1) receptor, inhibiting the vasoconstrictor and aldosterone-secreting actions of angiotensin II, resulting in vasodilation, lowered blood pressure, and kidney protection. It is used to treat hypertension, heart failure, and chronic kidney disease while offering a long-acting effect, allowing once-daily dosing.**

1. Indications

- **Hypertension:** Gertel 40 is used to treat high blood pressure (hypertension). It can be used alone or in combination with other antihypertensive agents.
- **Cardiovascular Risk Reduction:** It is also used for reducing the risk of cardiovascular events in patients who are at high risk for heart disease, such as those with a history of stroke, heart attack, or diabetes.
- **Heart Failure:** It may be prescribed for managing heart failure to help the heart pump more efficiently.

2. Dosage and Administration

- **Initial Dosage:** The recommended starting dose for hypertension is **40 mg** once daily.
- **Maintenance Dosage:** The dose can be adjusted to a maximum of **80 mg** once daily based on the patient's response.
- **Patients with Renal Impairment:** In patients with severe renal impairment, dose adjustment may be required.
- **Missed Dose:** If a dose is missed, it should be taken as soon as possible unless it's near the time for the next dose. Do not take two doses at once.

3. Contraindications

- **Hypersensitivity:** If the patient is allergic to telmisartan or any of its components.
- **Pregnancy:** Telmisartan is contraindicated in pregnancy, especially in the second and third trimesters, due to the risk of fetal harm.
- **Severe Renal Impairment:** Contraindicated in patients with severe renal impairment (creatinine clearance < 30 mL/min) or in patients on dialysis.

4. Warnings and Precautions

- **Hypotension:** It can cause excessive lowering of blood pressure, especially after the first dose, particularly in patients who are volume-depleted or on diuretics.
- **Renal Function:** Monitor renal function regularly, especially in patients with pre-existing renal impairment.
- **Hyperkalemia:** Can cause elevated potassium levels in the blood; monitor serum potassium levels.

- **Pregnancy:** Should not be used during pregnancy as it may cause harm to the developing fetus (Category D in the second and third trimesters).
- **Liver Disease:** Caution in patients with hepatic impairment.

5. Adverse Reactions

Common side effects include:

- Dizziness
- Fatigue
- Headache
- Diarrhea
- Hyperkalemia (high potassium levels)
- Low blood pressure (especially after the first dose)

Serious side effects include:

- Angioedema (swelling of deeper layers of skin)
- Liver dysfunction
- Renal failure

6. Drug Interactions

- **Diuretics and other antihypertensives:** May enhance the blood-pressure-lowering effect.
- **Potassium-sparing diuretics, and potassium supplements:** May increase the risk of hyperkalemia.
- **Lithium:** Telmisartan may increase lithium levels, requiring careful monitoring.
- **NSAIDs:** Use with nonsteroidal anti-inflammatory drugs (NSAIDs) may reduce the antihypertensive effect and increase the risk of renal impairment.

7. Use in Specific Populations

- **Pregnancy:** Not recommended during pregnancy, especially in the second and third trimesters.
- **Lactation:** Use caution, as it is not known whether telmisartan is excreted in human milk.
- **Pediatrics:** The safety and effectiveness in pediatric patients have not been established.
- **Geriatrics:** No specific dose adjustments are required for elderly patients, but renal function should be monitored closely.

8. Overdose

- Symptoms of overdose may include hypotension, tachycardia, and dizziness.

- In the case of an overdose, symptomatic treatment should be initiated, and the patient should be monitored for hypotension. Dialysis is not expected to significantly enhance clearance.

9. Pharmacology

- **Mechanism of Action:** Gertel 40 is an angiotensin II receptor blocker (ARB). It works by blocking the action of angiotensin II, a hormone that causes blood vessels to constrict, thus helping to lower blood pressure and improve heart function.
- **Absorption and Metabolism:** It is well absorbed after oral administration, with peak plasma concentrations occurring about 1 hour post-dose. It undergoes extensive metabolism in the liver, with its major metabolite being inactive.

10. Storage

- Store at room temperature (15°C to 30°C) in a dry place.
- Keep out of reach of children.

11. Packaging:

- Each Alu-Alu strip of Gertel-40 contains 10 tablets.
- Each box of Gertel-40 contains 10 strips.

Note: This summary provides general prescribing information.