Brand: Glyvom 80.2™

Generic Name: Gliclazide 80 mg + Metformin 500 mg + Voglibose 0.2 mg

(Fixed-dose combination)

Dosage Form:

- **Oral tablet.**

Composition of Glyvom 80.2™:

- **Gliclazide: 80 mg (an oral sulfonylurea).**
- **Metformin Hydrochloride: 500 mg (a biguanide).**
- **Voglibose: 0.2 mg (an α-glucosidase inhibitor).**

The combination of glimepiride (Glaclazide), metformin, and voglibose in Glyvom 80.2™ is used to manage type 2 diabetes mellitus. Here's a breakdown of their mechanisms of action (MOA):

1. **Glimepiride (Glaclazide):**
    - **Class: Sulfonylurea**
    - **MOA: Glimepiride stimulates the pancreas to release insulin by binding to the sulfonylurea receptor (SUR1) on beta cells in the pancreas. This receptor is a part of the ATP-sensitive potassium (K_ATP) channel. When activated, it causes the channel to close, leading to depolarization of the cell membrane, calcium influx, and insulin secretion. This helps to lower blood glucose levels by enhancing insulin availability.**
2. **Metformin:**
    - **Class: Biguanide**
    - **MOA: Metformin primarily works by reducing hepatic glucose production (gluconeogenesis) in the liver. It also increases insulin sensitivity in peripheral tissues like muscles and fat, improving glucose uptake. Additionally, it may slightly reduce intestinal glucose absorption. Metformin activates AMP-activated protein kinase (AMPK), which plays a central role in regulating energy balance and promoting the uptake of glucose.**
3. **Voglibose:**
    - **Class: Alpha-glucosidase inhibitor**
    - **MOA: Voglibose inhibits alpha-glucosidases, enzymes in the small intestine responsible for breaking down complex carbohydrates into simpler sugars (e.g., glucose). By inhibiting these enzymes, voglibose slows down carbohydrate digestion and absorption, leading to a slower rise in postprandial blood glucose levels after meals.**

Combined Effect:

- **Glimepiride increases insulin secretion to decrease blood glucose.**

- **Metformin decreases glucose production from the liver and increases insulin sensitivity in peripheral tissues.**
- **Voglibose reduces the rate of glucose absorption from the gastrointestinal tract, thus reducing post-meal glucose spikes.**

Together, this combination improves glycemic control by addressing multiple pathways involved in glucose regulation: insulin secretion, insulin sensitivity, and carbohydrate digestion/absorption.

Indications of Glyvom 80.2™:

- **Gliclazide 80 mg + Metformin 500 mg + Voglibose 0.2 mg is indicated for the treatment of type 2 diabetes mellitus (non-insulin-dependent diabetes):**
    - **In patients whose blood glucose levels are not adequately controlled with diet and exercise alone.**
    - **In patients already on a combination of Gliclazide, Metformin, and Voglibose or other antidiabetic therapy.**

The combination of these three agents helps to lower blood glucose by different mechanisms:

- **Gliclazide: Stimulates insulin release from the pancreas.**
- **Metformin: Reduces hepatic glucose production and improves insulin sensitivity.**
- **Voglibose: Inhibits intestinal enzymes that break down carbohydrates, slowing glucose absorption.**

Dosage and Administration: Glyvom 80.2™

- **Starting dose: One tablet once daily with meals. The dose may be adjusted based on the patient's blood glucose levels.**
- **Typical dosage range: The dose can be gradually increased depending on individual glycemic control, up to a maximum of one tablet twice daily.**
- **Administration: Take the tablet with or immediately after a meal to reduce gastrointestinal side effects, especially from Metformin and Voglibose.**
- **Renal and hepatic impairment: In patients with renal impairment (e.g., eGFR < 30 mL/min/1.73 m^2) or hepatic impairment, dosage adjustments or alternative therapies should be considered.**

Contraindications:

- **Hypersensitivity to Gliclazide, Metformin, Voglibose, or any other component of the tablet.**
- **Severe renal impairment (e.g., eGFR < 30 mL/min/1.73 m^2).**
- **Acute or chronic metabolic acidosis, including diabetic ketoacidosis.**
- **Diabetic coma or lactic acidosis (due to Metformin).**
- **Severe liver disease.**

- **Pregnancy and breastfeeding.**
- **Hypersensitivity or history of severe allergic reactions to sulfonylureas (e.g., Gliclazide).**

Warnings and Precautions:

- **Lactic acidosis: There is a risk of lactic acidosis in patients on Metformin, especially in those with renal impairment, severe dehydration, alcohol abuse, or liver disease. Discontinue Metformin if lactic acidosis is suspected.**
- **Hypoglycemia: Gliclazide can cause hypoglycemia, particularly in combination with other antidiabetic agents (e.g., insulin, sulfonylureas). Monitor for signs and symptoms of hypoglycemia.**
- **Renal function: Assess renal function before starting the treatment and regularly thereafter. Metformin should be avoided in patients with severe renal impairment.**
- **Gastrointestinal effects: Voglibose may cause mild gastrointestinal side effects, such as flatulence, bloating, or diarrhoea. These effects may be reduced by taking the medication with food.**
- **Pancreatitis: Rarely, there may be an increased risk of pancreatitis with Gliclazide or other sulfonylureas. Monitor for symptoms such as abdominal pain, nausea, and vomiting.**
- **Vitamin B12 deficiency: Prolonged use of Metformin may be associated with vitamin B12 deficiency. Periodic monitoring is recommended.**

Drug Interactions:

- **Gliclazide:**
    - **Other antidiabetic agents (e.g., insulin, sulfonylureas): May increase the risk of hypoglycemia.**
    - **CYP450 inducers/inhibitors: Medications like rifampicin or fluconazole may alter Gliclazide metabolism.**
    - **Beta-blockers: May mask signs of hypoglycemia.**
- **Metformin:**
    - **Iodinated contrast agents: Metformin should be discontinued before and after contrast imaging studies if renal function is compromised.**
    - **Diuretics, corticosteroids, and other drugs: May affect renal function or increase the risk of lactic acidosis.**
- **Voglibose:**
    - **Other antidiabetic agents: May increase the hypoglycemic effect when used with sulfonylureas, insulin, or biguanides like Metformin.**
    - **Digestive enzymes: Voglibose may interact with drugs that affect the gastrointestinal tract, including laxatives or antacids.**

Side Effects:

Common side effects may include:

- **Gliclazide: Hypoglycemia, weight gain, headache, dizziness, allergic reactions (e.g., rash).**
- **Metformin: Nausea, vomiting, abdominal discomfort, diarrhoea, metallic taste, and lactic acidosis.**
- **Voglibose: Gastrointestinal side effects, including flatulence, bloating, and diarrhoea.**

Serious side effects include:

- **Lactic acidosis (Metformin), which is a life-threatening condition.**
- **Hypoglycemia (Gliclazide), especially in combination with other antidiabetic agents.**
- **Pancreatitis (Gliclazide), though rare.**

Use in Specific Populations:

- **Pregnancy: Not recommended during pregnancy. Insulin is generally considered the preferred treatment during pregnancy.**
- **Breastfeeding: Not recommended. It is unknown if these medications pass into breast milk.**
- **Pediatrics: Safety and effectiveness have not been established in children.**
- **Geriatrics: Use with caution in elderly patients, particularly those with renal impairment.**
- **Renal and hepatic impairment: Use with caution in patients with renal or liver impairment. Metformin is contraindicated in severe renal impairment, and dosage adjustments may be required for Gliclazide and Voglibose.**

Overdose:

- **Gliclazide: Overdose may result in severe hypoglycemia. Immediate treatment is required, usually by administering glucose or glucagon.**
- **Metformin: Overdose may lead to lactic acidosis. Hemodialysis may be required to remove Metformin.**
- **Voglibose: Overdose may cause excessive gastrointestinal effects such as bloating and diarrhoea. Symptomatic treatment is usually sufficient.**

Storage:

- **Store at room temperature (15°C to 30°C / 59°F to 86°F).**
- **Keep it in its original container and away from light and moisture.**
- **Keep out of reach of children.**

Packaging:

- **Each Alu-Alu strip of Glyvom-80.2™ contains 10 tablets.**
- **Each box of Glyvom-80.2™ contains 10 strips.**

Note: This summary provides general prescribing information.