glipizide (glip-i-zide)
Glucotrol, Glucotrol XL

Classification
Therapeutic: antidiabetics
Pharmacologic: sulfonylureas

Pregnancy Category C

Indications
PO: Controls of blood sugar in type 2 diabetes mellitus when diet therapy fails. Requires some pancreatic function.

Action
Lowers blood sugar by stimulating the release of insulin from the pancreas and increasing the sensitivity to insulin at receptor sites. May also decrease hepatic glucose production. Therapeutic Effects: Lowering of blood sugar in diabetic patients.

Pharmacokinetics
Absorption: Well absorbed following oral administration.
Distribution: Unknown.
Protein Binding: 99%.
Metabolism and Excretion: Mostly metabolized by the liver.
Half-life: 2.1–2.6 hr.

TIME/ACTION PROFILE (hypoglycemic activity)
ROUTE ONSET PEAK DURATION
PO 15–30 min 1–2 hr up to 24 hr

Contraindications/Precautions
Contraindicated in: Hypersensitivity; Hypersensitivity to sulfonamides (cross-sensitivity may occur); Insulin-dependent diabetics; Diabetic coma or ketoacidosis.
Use Cautiously in: Severe cardiovascular or hepatic disease; Glucose 6-phosphate dehydrogenase deficiency (1% risk of hemolytic anemia); Geri: dosage may be reduced; Severe renal disease (1% risk of hypoglycemia); Alcohol use, stress, or changes in diet may alter requirements for control of blood sugar; Impaired thyroid, pituitary, or adrenal function; Malnutrition, high fever, prolonged nausea, or vomiting; OB: Lactation: Safety not established; insulin recommended during pregnancy.

Adverse Reactions/Side Effects

Interactions
Drug-Drug: Ingestion of alcohol may result in disulfiram-like reaction. Effectiveness may be impaired by concurrent use of diuretics, corticosteroids, phenothiazines, oral contraceptives, estrogen, oral anticoagulants, insulin, cimetidine, chloroquine, methotrexate, isoniazid, salicylates, celecoxib, indomethacin, NSAIDs, and warfarin. Elevation of plasma concentration of cyclosporine may occur when administered with glipizide. Concurrent use with warfarin may alter the response to both agents (7% of effects of both initially, then 6% activity); close monitoring recommended during any changes in dose. Beta-adrenergic blockers may mask the signs and symptoms of hypoglycemia. May delay thyrotoxicosis. See also drug interactions.

Route/Dosage
PO (Adults): 5 mg/day initially, titrate to 10 mg/day (range 2.5–40 mg/day); XL dose form is given once daily. Doses 15 mg/day may be given as 2 divided doses of regular-release product.

PO (Geriatric Patients): 2.5 mg/day initially.

NURSING IMPLICATIONS
Assessment
● Observe for signs and symptoms of hypoglycemic reactions (sweating, hunger, weakness, dizziness, tremor, tachycardia, anxiety). Patients on concurrent beta-blockade therapy may have very subtle signs and symptoms of hypoglycemia.
● Assess patient for allergy to sulfonamides.

● Lab Test Considerations: Monitor serum glucose and glycated hemoglobin periodically during therapy to evaluate effectiveness of treatment.

NURSE-FACED INDICATIONS
● Monitor patient for signs of hypoglycemia.

Cautions
● Monitor glucose level periodically.

Monitoring
Monitor glucose regularly.

Patient/Family Teaching
● Instruct patient to take as directed, at the same time each day, with or without food.
● Advise patient to notify prescriber of any unexplained weight loss, decreased appetite, or unusual tiredness.

Pharm/Mech
Sulfonylureas function by stimulating insulin release in the pancreas without causing hypersecretion of insulin. They are relatively nonglucose dependent and stimulate the beta cells to release increased quantities of insulin. Glipizide is a long-acting sulfonylurea with moderate lipophilicity that allows more complete absorption and is designed to cause less early hypoglycemia.

DOSAGE
PO (Adults): 5 mg/day initially, titrate to 10 mg/day (range 2.5–40 mg/day); XL dose form is given once daily. Doses 15 mg/day may be given as 2 divided doses of regular-release product (not XL).

PO (Geriatric Patients): 2.5 mg/day initially.

May cause an in AST, LDH, BUN, and serum creatinine.

Toxicity and Overdose: Overdose is manifested by symptoms of hypoglycemia. Mild hypoglycemia may be treated with administration of oral glucose. Treat severe hypoglycemia with IV D50W followed by continuous IV infusion of more dilute dextrose solution at a rate sufficient to keep serum glucose at approximately 100 mg/dL.

Potential Nursing Diagnoses
- Imbalanced nutrition: more than body requirements (indications)
- Noncompliance (patient/family teaching)

Implementation
- High Alert: Accidental administration of oral hypoglycemic agents to non-diabetic adults and children has resulted in serious harm or death. Before administering, confirm diagnosis patient has Type 2 diabetes.
- Patients stabilized on a diabetic regimen who are exposed to stress, fever, trauma, infection, or surgery may require administration of insulin.
- To convert from other oral hypoglycemic agents, gradual conversion is not required. For insulin dose of less than 20 units/day, change to glipizide can be made without gradual dose adjustment. Patients taking 20 or more units/day should convert gradually by receiving glipizide and a 25–30% reduction in insulin dose every day or every 2nd day with gradual insulin dose reduction as tolerated. Monitor serum or glucose and ketones at least 3 times/day during conversion.
- PO: Administer 30 min before a meal. Swallow extended-release tablets whole; do not crush, break or chew.

Patient/Family Teaching
- Instruct patient to take medication at same time each day. Take missed doses as soon as remembered unless almost time for next dose. Do not substitute if unable to eat.
- Explain to patient that this medication controls hyperglycemia but does not cure diabetes. Therapy is long-term.
- Review signs of hypoglycemia and hyperglycemia with patient. If hypoglycemia occurs, advise patient to drink a glass of orange juice or ingest 2–3 tsp of sugar, honey, or corn syrup dissolved in water or an appropriate number of glucose tablets and notify health care professional.
- Encourage patient to follow prescribed diet, medication, and exercise regimen to prevent hypoglycemia or hyperglycemic episodes.
- Concurrent use of alcohol may cause a disulfiram-like reaction (abdominal cramps, nausea, flushing, headache, and hyperglycemia). Instruct patient in proper timing of source glucose and alcohol. These tests should be closely monitored during periods of stress or illness and health care professional should be notified if significant changes occur.
- May occasionally cause dizziness or drowsiness. Caution patient to avoid driving or other activities requiring alertness until response to medication is known.
- Caution patient to avoid other medications, especially aspirin and alcohol, while on this therapy without consulting health care professional.
- Caution patient to use sunscreen and protective clothing to prevent photosensitivity reactions.
- Advise patient to inform health care professional of medication regimen prior to treatment or surgery.
- Advise patient to notify health care professional promptly if unusual weight gain, swelling of ankles, shortness of breath, muscle cramps, weakness, sore throat, rash, or unusual bleeding or bruising occurs.
- Simulate the recommended method of controlling blood glucose during pregnancy. Counsel female patients to use a form of contraception other than oral contraceptives and to notify health care professional promptly if pregnancy is planned or suspected.
- Advise patient to carry a form of sugar (sugar packets, candy) and identification describing disease process and medication regimen at all times.
- Emphasize the importance of routine follow-up exams.

Evaluation/Desired Outcomes
- Control of blood glucose levels without the appearance of hypoglycemic or hyperglycemic episodes.

Why was this drug prescribed for your patient?