acarbose (aye-**kar**-bose)

Precose

Classification

Therapeutic: antidiabetics
Pharmacologic: alpha-glucosidase inhibitors

Pregnancy Category B

Indications

Management of type 2 diabetes in conjunction with dietary therapy; may be used with insulin or other hypoglycemic agents.

Action

Lowers blood glucose by inhibiting the enzyme alpha-glucosidase in the GI tract. Delays and reduces glucose absorption. **Therapeutic Effects:** Lowering of blood glucose in diabetic patients, especially postprandial hyperglycemia.

Pharmacokinetics

Absorption: <2% systemically absorbed; action is primarily local (in the GI tract).
Distribution: Unknown.
Metabolism and Excretion: Minimal amounts absorbed are excreted by the kidneys.
Half-life: 2 hr.

TIME/ACTION PROFILE (effect on blood glucose)

ROUTE	ONSET	PEAK	DURATION
PO	unknown	1 hr	unknown

Contraindications/Precautions

Contraindicated in: Hypersensitivity; Diabetic ketoacidosis; Cirrhosis; Serum creatinine >2 mg/dL; ***OB, Lactation, Pedi:*** Safety not established.
Use Cautiously in: Presence of fever, infection, trauma, stress (may cause hyperglycemia, requiring alternative therapy).

Adverse Reactions/Side Effects

GI: abdominal pain, diarrhea, flatulence, ↑ transaminases.

Interactions

Drug-Drug: Thiazide diuretics and **loop diuretics**, **corticosteroids**, **phenothiazines**, **thyroid preparations**, **estrogens (conjugated)**, **progestins**, **hormonal contraceptives**, **phenytoin**, **niacin**, **sympathomimetics**, **calcium channel blockers**, and **isoniazid** may ↑ glucose levels in diabetic patients and lead to ↓ control of blood glucose. Effects are↓ by **intestinal adsorbents**, including **activated charcoal** and **digestive enzyme preparations (amylase, pancreatin)**; avoid concurrent use. ↑ effects of **sulfonylurea hypoglycemic agents**. May ↓ absorption of **digoxin**; may require dosage adjustment.
Drug-Natural Products: Glucosamine may worsen blood glucose control. **Chromium** and **coenzyme Q-10** may ↑ hypoglycemic effects.

Route/Dosage

PO (Adults): 25 mg 3 times daily; may be increased q 4–8 wk as needed/tolerated (range 50–100 mg 3 times daily; not to exceed 50 mg 3 times daily in patients ≤60 kg or 100 mg 3 times daily in patients >60 kg).

NURSING IMPLICATIONS

Assessment

- Observe patient for signs and symptoms of hypoglycemia (sweating, hunger, weakness, dizziness, tremor, tachycardia, anxiety) when taking concurrently with other oral hypoglycemic agents.
- ***Lab Test Considerations:*** Monitor serum glucose and glycosylated hemoglobin periodically during therapy to evaluate effectiveness.
- Monitor AST and ALT every 3 mo for the 1st yr and then periodically. Elevated levels may require dose reduction or discontinuation of acarbose. Elevations occur more commonly in patients taking more than 300 mg/day and in female patients. Levels usually return to normal without other evidence of liver injury after discontinuation.
- ***Toxicity and Overdose:*** Symptoms of overdose are transient increase in flatulence, diarrhea, and abdominal discomfort. Acarbose alone does not cause hypoglycemia; however, other concurrently administered hypoglycemic agents may produce hypoglycemia requiring treatment.

Potential Nursing Diagnoses

Imbalanced nutrition: more than body requirements (Indications)
Noncompliance (Patient/Family Teaching)

Implementation

- Patients stabilized on a diabetic regimen who are exposed to stress, fever, trauma, infection, or surgery may require administration of insulin.
- Does not cause hypoglycemia when taken while fasting, but may increase hypoglycemic effect of other hypoglycemic agents.
- **PO:** Administer with first bite of each meal 3 times/day.

Patient/Family Teaching

- Instruct patient to take acarbose at same time each day. If a dose is missed and the meal is completed without taking the dose, skip missed dose and take next dose with the next meal. Do not double doses.
- Explain to patient that acarbose controls hyperglycemia but does not cure diabetes. Therapy is longterm.
- Review signs of hypoglycemia and hyperglycemia (blurred vision; drowsiness; dry mouth; flushed, dry skin; fruit-like breath odor; increased urination; ketones in urine; loss of appetite; stomachache; nausea or vomiting; tiredness; rapid, deep breathing; unusual thirst; unconsciousness) with patient. If hypoglycemia occurs, advise patient to take a form of oral glucose (e.g., glucose tablets, liquid gel glucose) rather than sugar (absorption of sugar is blocked by acarbose) and notify health care professional.
- Encourage patient to follow prescribed diet, medication, and exercise regimen to prevent hypoglycemic or hyperglycemic episodes.
- Instruct patient in proper testing of serum glucose and urine ketones. Monitor closely during periods of stress or illness. Notify health care professional if significant changes occur.
- Caution patient to avoid using other medications without consulting health care professional.
- Advise patient to inform health care professional of medication regimen before treatment or surgery.
- Advise patient to carry a form of oral glucose and identification describing disease process and medication regimen at all times.
- Emphasize the importance of routine follow-up examinations.

Evaluation/Desired Outcomes

- Control of blood glucose levels without the appearance of hypoglycemic or hyperglycemic episodes.

Why was this drug prescribed for your patient?