INSULIN GLARGINE (Systemic)

Indications

Accepted

Diabetes mellitus (treatment)¾Insulin glargine is indicated in the treatment of diabetes mellitus for the control of hyperglycemia in adult and pediatric patients with type 1 diabetes and in adult patients with type 2 diabetes who require insulin 1.

Precautions to Consider

Carcinogenicity

Two-year carcinogenicity studies were performed in mice and rats 1.

Doses up to 0.455 mg/kg were used which is for the rat approximately 10 times and for the mouse approximately 5 times the recommended human subcutaneous starting dose of 10 International Units (0.008 mg/kg/day) based on mg per square meter of body surface area (mg/m2) 1.

For female mice, the findings were not conclusive because excessive mortality occurred in all dose groups 1.

Histiocytomas developed at injection sites in male rats (statistically significant) and male mice (not statistically significant) in groups receiving the acid vehicle 1.

Female animals, saline control, or insulin comparator groups using a different vehicle did not develop histiocytomas 1.

The relevance of these findings to humans is unknown 1.

Mutagenicity

Insulin glargine was not mutagenic in tests for detection of gene mutations in bacteria and mammalian cells (Ames- and HGPRT-test) and in tests for detection of chromosomal aberrations (cytogenetics in vitro in V79 cells and in vivo in Chinese hamsters). 1

Pregnancy/Reproduction

Pregnancy¾Studies have not been done in humans. 1

However, women with diabetes or a history of gestational diabetes must be educated about the necessity of maintaining good glycemic control before conception and during pregnancy to improve fetal outcome. Insulin requirements often are decreased during the first trimester and increased during the second and third trimesters. 1

Administration of insulin glargine to female rats before mating, during mating, and throughout pregnancy at doses up to 0.36 mg per kilogram of body weight (approximately 7 times the recommended human subcutaneous starting dose of 10 International Units [0.008 mg/kg] based on mg/m 2) per day did not generally have effects that differed from regular human insulin. In Himalayan rabbits, doses of 0.072 mg per kilogram of body weight (approximately 2 times the recommended human subcutaneous starting dose of 10 International Units [0.008 mg/kg] based on mg/m 2) per day were administered during organogenesis. While the effects did not generally differ from regular human insulin, five rabbit fetuses from two litters of the high-dose group exhibited dilation of the cerebral ventricles. Otherwise, early embryonic development appeared normal. 1

FDA Pregnancy Category C. 1

Breast-feeding

It is not known whether insulin glargine is distributed into breast milk. Women who are breast-feeding may require adjustments in their dosages of insulin glargine, in their meal plans, or in both. 1

Pediatrics

Studies performed in patients 6 to 11 years of age with type 1 diabetes have not demonstrated pediatrics-specific problems that would limit the use of insulin glargine in children. 1

Adolescents

Studies performed in patients 12 to 15 years of age with type 1 diabetes have not demonstrated adolescent-specific problems that would limit the use of insulin glargine in teenagers. 1

Geriatrics

Appropriate studies performed to date have not demonstrated geriatrics-specific problems that would limit the usefulness of insulin glargine in the elderly. Compared to the entire study population, patients 65 years and older had an expected higher incidence of cardiovascular events in the insulin glargine and NPH human insulin-treated groups. Because hypoglycemia may be more difficult to detect in the elderly, the initial dose, dose increments, and maintenance dose should be conservative to minimize the chance of hypoglycemic reactions. 1

Medical considerations/Contraindications

The medical considerations/contraindications included have been selected on the basis of their potential clinical significance (reasons given in parentheses where appropriate)¾ not necessarily inclusive (>> = major clinical significance).
Except under special circumstances, this medication should not be used when the following medical problem exists

>> Hypoglycemia 1

Risk-benefit should be considered when the following medical problems exist

>> Diabetic ketoacidosis 1

(short-acting insulin administered intravenously is the preferred treatment for this condition 1 )

Hypersensitivity to insulin glargine 1

Intercurrent conditions, such as:

Emotional disturbances 1

Infection 1 or

Stress 1

(may require adjustments in insulin or insulin glargine dosage)

Hepatic function impairment 1 or

Renal function impairment 1

(adjustment of insulin glargine dosage may be necessary 1 )

Patient monitoring

The following may be especially important in patient monitoring (other tests may be warranted in some patients, depending on condition; >> = major clinical significance):
>> Glucose concentrations, blood 1

(monitoring essential as a guide to therapeutic efficacy 1 )

>> Glycosylated hemoglobin (hemoglobin A 1c) determinations 1

(periodic monitoring recommended to assess long-term glycemic control 1 )

Side/Adverse Effects

The following side/adverse effects have been selected on the basis of their potential clinical significance (possible signs and symptoms in parentheses where appropriate)¾not necessarily inclusive:
Those indicating need for medical attention

Incidence more frequent

Hypoglycemia 1 (anxiety; behavior change similar to drunkenness; blurred vision; cold sweats ; coma; confusion ; cool, pale skin; difficulty in concentrating; dizziness or lightheadedness; drowsiness; excessive hunger; fast heartbeat; headache ; nausea; nervousness; nightmares; restless sleep; seizures; shakiness; slurred speech; tingling in the hands, feet, lips, or tongue)