Exenatide (Byetta)

Exenatide (Byetta) is an injectable hypoglycemic drug indicated for patients with Type 2 diabetes. The medication functions as an incretin mimetic and GLP-1 synthetic analog. Side effects include hypoglycemia, nausea, vomiting, diarrhea, pancreatitis, and renal failure. Since exenatide delays gastric emptying, it should be administered at least one hour after giving other medications. Exenatide is considered adjunct therapy and administered with other antidiabetic drugs.



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Mechanism

Incretin Mimetic

Ink-crouton with Mime

Exenatide mimics the actions of the incretin hormones. Incretin is a metabolic hormone that stimulates a decrease in blood glucose levels by increasing postprandial insulin release from pancreatic beta cells. Other antidiabetic medications, such as sitagliptin, boost incretin actions by preventing breakdown of the hormone [refer to the Picmonic on "Sitagliptin (Januvia), Saxagliptin (Onglyza) (DPP-4 Inhibitors)"].

GLP-1 Synthetic Analog

big GuLP with (1) Wand On-a-log

Exenatide is a glucagon-like peptide-1 (GLP-1) synthetic analog that mimics the actions of incretin hormones. During normal physiologic conditions, incretins are released from GI tract cells after a meal. The actions of activating GLP-1 receptors include slowing gastric emptying, stimulating glucose-dependent release of insulin, inhibiting postprandial release of glucagon, and suppressing appetite.

Indications

Type 2 Diabetes

Dyed-bead-pancreas in (2) Tutu

Exenatide is used to help control glucose levels in patients with type 2 diabetes. The medication is indicated as adjunctive therapy to other antidiabetic medications such as metformin or sulfonylureas. The drug is used in addition to a lifestyle including caloric restriction, regular exercise, and weight loss.

Side Effects

Hypoglycemia

Hippo-glue-bottle

Combining exenatide with other medications, like sulfonylureas, commonly leads to dose-related hypoglycemia. Reducing the dosage of sulfonylureas minimizes the risk of hypoglycemia. Since exenatide is used as an adjunct therapy, the side effect of hypoglycemia should be remembered. It should be noted that exenatide can also result in hypoglycemia as a monotherapy, though this is rare, occurring in less than 5% of patients on this medication.

Nausea and Vomiting

Vomiting

Exenatide also causes gastrointestinal (GI) side effects such as nausea and vomiting. Thus, patients should be properly hydrated and warned when initiating this medication.

Diarrhea

Toilet

A significant percentage of patients taking exenatide experience diarrhea during administration.

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Thyroid Cancer

Thigh-droid with Tumor-guy

Exenatide has a black box warning of this medication's use being linked to thyroid cancer. Though this is not well studied, liraglutide, a drug in the same class as exenatide, has been linked to increased thyroid cancer rates.

Pancreatitis

Pancreas-on-fire

Exenatide increases the patient's risk of developing pancreatitis that may lead to pancreatic necrosis, pancreatic hemorrhage, and even death. The medication is contraindicated in patients with a history of pancreatitis. Instruct the patient to look out for symptoms such as severe and persistent abdominal pain and vomiting. Patients diagnosed with pancreatitis should stop taking exenatide.

Renal Failure

Dead Kidney

GI side effects caused by exenatide may decrease the patient's fluid volume and affect the kidneys. Administration of exenatide is contraindicated in patients with severe renal impairment or end-stage renal disease. Teach the patient symptoms of kidney problems including changes in urine color, fatigue, and swelling in the lower extremities.

Considerations

(Give Exenatide) One Hour After Other Medications

(1) Wand Clock with other Med-bottles

Since exenatide delays gastric emptying, the drug should be administered at least one hour after other medications. Exenatide may slow the absorption of oral drugs and cause decreased peak plasma levels. Since contraceptives and antibiotics require high peak concentrations for maximal effectiveness, exenatide prevents proper absorption and should not be administered concurrently. Additionally, SubQ preparation of the medication is injected 1 hour before morning and evening meals; never after the meal.

Adjunct Therapy

Adding-junk

Exenatide is used as adjunct therapy with other antidiabetic drugs. The drug helps improve glucose control in patients taking metformin or a sulfonylureas [refer to the Picmonics on "Metformin (Glucophage)" and "Glyburide & Glipizide (2nd Generation Sulfonylureas)"]. Their difference in mechanism of actions lowers blood sugar more effectively than either drug alone.

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