Insulin, regular (injection, concentrated)
(in-su-lin)
Humulin R, Novolin R, Humulin R Regular U-500

Classification
Therapeutic: antidiabetics, hormones
Pharmacologic: pancreatics

Pregnancy Category B

Indications
Control of hyperglycemia in patients with diabetes mellitus. Concentrated regular insulin U-500: only for use in patients with insulin requirements > 200 units/day.

Contraindications/Precautions
Contraindicated in:
- Hypoglycemia; Allergy or hypersensitivity to a particular type of insulin, preservatives, or other additives.

Use Cautiously in:
- Stress or infection—may temporarily ↑ insulin requirements; genetic impairment—may ↓ insulin requirements; Concurrent use with pregabalin or rosiglitazone (↑ risk of fluid retention and worsening HF); OB: Pregnancy may temporarily ↓ insulin requirements.

Adverse Reactions/Side Effects

Interactions
Drug-Drug: Beta blockers, clonidine, and reserpine may mask some of the signs and symptoms of hypoglycemia. Corticosteroids, thyroid supplements, exogenous, lithium, niasin, phenothiazines, and rifampin may ↓ insulin requirements. Alcohol, ACE inhibitors, MAO inhibitors, nitrates, or oral hypoglycemic agents, and sulfonylureas may ↓ insulin requirements. Concurrent use with pregabalin or rosiglitazone may ↑ risk of fluid retention and worsening HF.

Drug-Natural Products: Glucosamine may worsen blood glucose control. Fenugreek, chromium, and coenzyme Q-10 may produce additive hypoglycemic effects.

Route/Dosage
Dose depends on blood glucose, response, and many other factors.

Ketoacidosis—Regular (100 units/mL) Insulin Only
IV (Adults): 0.1 unit/kg/hr as a continuous infusion.
IV (Children): Loading dose 0.5 unit/kg, then maintenance continuous infusion 0.5–2 units/kg/hr, titrate to optimal rate of decrease of serum glucose of 80–100 mg/dL/hr.

Maintenance Therapy
Subcut, IV (Adults and Children): 0.5–1 unit/kg/day in divided doses. Adolescents during rapid growth—0.8–1.2 unit/kg/day in divided doses.

Treatment of Hyperkalemia
Subcut, IV (Adults and Children): 0.5–1 unit/kg/day combined with insulin 1 unit for every 4–5 g dextrose given.

NURSING IMPLICATIONS

Assessment
- Assess patient periodically for symptoms of hypoglycemia (anxiety, restlessness, tingling in hands, feet, lips, or tongue, chills, cold sweat, con-
Name /bks_53161_deglins_md_disk/insulinregular        02/14/2014 03:39PM     Plate # 0-Composite pg 2   # 2

-When mixing insulins, draw regular insulin into syringe first to avoid contamination of regular insulin.

-Use

-Do not confuse Humulin with Humalog. Do not confuse Novolin with NovoLog.

-High Alert:

-Implementation

-Noncompliance (Patient/Family Teaching)

-Potential Nursing Diagnoses

-Lab Test Considerations:

-Monitor body weight periodically. Changes in weight may necessitate changes in insulin dose.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.

-Excess of body weight may result in hyperglycemia.

-Excess of body weight may result in hypoglycemia.
CONTINUED

insulin, regular (injection, concentrated)


- Additive Compatibility: May be added to total parenteral nutrition (TPN) solutions.

Patient/Family Teaching

- Instruct patient on proper technique for administration. Include type of insulin, equipment (syringe, cartridge pens, alcohol swabs), storage, and place to discard syringes. Discuss the importance of not changing brands of insulin or syringes, selection and rotation of injection sites, and compliance with therapeutic regimen. Opened, unused insulin vials should be discarded if not after opening.

- Demonstrate technique for mixing insulins by drawing up regular insulin first and rolling intermediate-acting insulin vial between palms to mix, rather than shaking (may cause inaccurate dose).

- Explain to patient that this medication controls hyperglycemia but does not cure diabetes. Therapy is long term.

- Instruct patient on proper testing of serum glucose and ketones. These tests should be closely monitored during periods of stress or illness and health care professional notified of significant changes.

- Instruct patient to notify health care professional of pregnancy or suspected pregnancy or if breast feeding or planning to breast feed.

- Instruct patient on signs and symptoms of hypoglycemia and hyperglycemia and what to do if they occur.

- Advise patient to notify health care professional if pregnancy is planned or suspected or if breast feeding or planning to breast feed.

- Advise patient to notify health care professional if nausea, vomiting, or fever develops, if unable to eat regular diet, or if blood glucose levels are not controlled.

- Instruct patient to notify health care professional if nausea, vomiting, or fever develops, if unable to eat regular diet, or if blood glucose levels are not controlled.

- Emphasize the importance of compliance with nutritional guidelines and regular exercise as directed by health care professional.

- Advise patient to notify health care professional of all Rx or OTC medications, vitamins, or herbal products being taken and to consult health care professional before taking other RX, OTC, herbal products, or alcohol.

- Advise patient to notify health care professional prior to treatment or surgery.

- Instruct patient to notify health care professional if pregnancy is planned or suspected or if breast feeding or planning to breast feed.

- Advise patient to notify health care professional if nausea, vomiting, or fever develops, if unable to eat regular diet, or if blood glucose levels are not controlled.

- Emphasize the importance of regular follow-up, especially during first few weeks of therapy.

Evaluation/Desired Outcomes

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