

# Lyumjev (insulin lispro-aabc [rDNA origin])



**NEW PRODUCT SLIDESHOW**

**MPR**

# Introduction

- **Brand name:** Lyumjev
- **Generic name:** Insulin lispro-aabc (rDNA origin)
- **Strength and Formulation:** 100 Units/mL, 200 Units/mL; soln for SC injection or IV infusion after dilution; contains zinc, m-cresol
- **Manufacturer:** Eli Lilly and Company
- **How supplied:** Lyumjev U-100: multiple-dose vials (10mL)—1; single-patient-use (cartridges [3mL], KwikPen [3mL], Junior KwikPen [3mL], Tempo Pen [3mL])—5; Lyumjev U-200: KwikPen (3mL)—2
- **Legal Classification:** Rx

# Lyumjev



# Indication

- To improve glycemic control in adults with **diabetes mellitus**.

# Dosage and Administration

- Individualize.
- Rotate injection sites (abdomen, thigh, upper arm, buttocks).
- For subcutaneous (SC) injection (Lyumjev U-100 or U-200): give at the start of a meal or within 20mins after starting a meal; use with intermediate or long-acting insulin.
- For intravenous (IV) injection (Lyumjev U-100 only): dilute to concentration of 1 Unit/mL; give only under medical supervision; closely monitor blood glucose and potassium.

# Considerations for Special Populations

- **Pregnancy:** Studies cannot definitely establish or exclude the absence of any risk.
- **Nursing mothers:** Available data suggest exogenous human insulin products, including insulin lispro, are transferred into human milk.
- **Pediatric:** Not established.
- **Geriatric:** No overall differences in safety or effectiveness observed.
- **Renal & Hepatic impairment:** Increased risk of hypoglycemia; may require dose adjustment and more frequent glucose monitoring.

# Contraindications

- During episodes of hypoglycemia.
- In patients with hypersensitivity to insulin lispro-aabc or an excipient of Lyumjev.

# Warnings and Precautions

- Instruct patients on proper administration of insulin (check insulin label before each injection) and educate on the management of hypoglycemia.
- Prefilled pens, cartridges, or syringes should never be shared between patients, even if the needle is changed.
- Visual impairment: will need assistance with prefilled pens.
- Do not inject into areas of lipodystrophy or localized cutaneous amyloidosis.

# Warnings and Precautions

- Increased risk of hyperglycemia or hypoglycemia if changes in physical activity, meal patterns, concomitant medications, renal or hepatic function, insulin regimen, administration site, or if acute illness occurs: monitor glucose more frequently and may need to adjust dose.
- Monitor potassium levels in patients at risk for hypokalemia (eg, concomitant K<sup>+</sup>-lowering or K<sup>+</sup>-sensitive drugs).
- Discontinue if hypersensitivity reactions occur.

# Interactions

- Concomitant thiazolidinediones (TZDs) may cause fluid retention and heart failure; consider dose reduction or discontinue TZDs.
- Potentiated by oral antidiabetic agents, ACE inhibitors, angiotensin II receptor blockers (ARBs), disopyramide, fibrates, fluoxetine, monoamine oxidase inhibitors (MAOIs), pentoxifylline, pramlintide, salicylates, somatostatin analogues (eg, octreotide), sulfonamide antibiotics.
- Concomitant  $\beta$ -blockers, clonidine, guanethidine, or reserpine may blunt signs/symptoms of hypoglycemia; monitor.

# Interactions

- Antagonized by atypical antipsychotics, corticosteroids, danazol, diuretics, estrogens, glucagon, isoniazid, niacin, oral contraceptives, phenothiazines, progestogens, protease inhibitors, somatropin, sympathomimetics, thyroid hormones.
- Variable effects with  $\beta$ -blockers, clonidine, lithium salts, alcohol, pentamidine.
- Do not mix with any other insulin.

# Adverse Reactions

- **Most common ( $\geq 5\%$ ):** Hypoglycemia, injection site reactions, allergic reactions, rash, pruritus, lipodystrophy, weight gain.
- **Others:** Hypokalemia.

# Mechanism of Action

- Insulin lispro-aabc lowers glucose by stimulating peripheral glucose uptake by skeletal muscle and fat, and by inhibiting hepatic glucose production.
- Insulins inhibit lipolysis and proteolysis, and enhances protein synthesis.

# Pharmacokinetics

- Insulin lispro-aabc appeared in circulation approximately 1 minute after SC injection.
- Time to 50% maximum concentration: 13 minutes
- Time to maximum concentration: 57 minutes
- Maximum concentration and time to maximum concentration were comparable for the abdomen and upper arm regions; time to maximum concentration was longer and maximum concentration was lower for the thigh.
- Geometric mean (CV%) clearance: 32 L/hour (22%)
- Median half-life: 44 minutes

# Clinical Trials

- Efficacy and safety of Lyumjev was evaluated in two, 26-week, randomized, active-controlled phase 3 trials in adult patients with type 1 diabetes (PRONTO-T1D) or type 2 diabetes (PRONTO-T2D).
- **PRONTO-T1D** enrolled 1222 patients who were randomized to receive either blinded mealtime Lyumjev (N=451), blinded mealtime Humalog (N=442), or open-label postmeal Lyumjev (N=329), in combination with insulin glargine or insulin degludec.
- **PRONTO-T2D** enrolled 673 patients who were allowed to continue on metformin and/or a SGLT2 inhibitor and were randomized 1:1 to receive mealtime Lyumjev (N=336) or mealtime Humalog (N=337), in combination with insulin glargine or insulin degludec in a basal-bolus regimen.

# Clinical Trials

- Results showed that mealtime Lyumjev met the prespecified noninferiority margin (0.4%) compared with mealtime Humalog with regard to mean HbA1c reduction from baseline to week 26 (primary end point).
- *PRONTO-T1D*:
  - Adjusted mean change from baseline: -0.12 with Lyumjev vs -0.04 with Humalog; estimated treatment difference vs Humalog: -0.08 (95% CI, -0.16, 0.00).
- *PRONTO-T2D*:
  - Adjusted mean change from baseline: -0.36 with Lyumjev vs -0.38 with Humalog; estimated treatment difference vs Humalog: 0.03 (95% CI, -0.08, 0.13).

# New Product Monograph

- For more information view the product monograph available at:

<https://www.empr.com/drug/lyumjev/>