Choice of insulin therapy in type 2 diabetes

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Clinical question
Are newer analog insulins more effective or safer than NPH insulin in patients with type 2 diabetes?

Evidence summary
In a retrospective observational study recently published in *JAMA*,¹ researchers from Kaiser Permanente Northern California reviewed medical records of 25,000 patients with type 2 diabetes and followed each patient for an average of 1.7 years. Outcomes studied included hospitalizations and emergency department visits related to hypoglycemia as well as HbA1c control. The study used "frequency matching" to create a population for analysis in which potential confounders (such as chronic renal disease, glycemic control, and demographics) were distributed similarly between the two groups.

This large observational study found no significant differences in safety and overall glycemic control between patients started on NPH insulin versus those who started on newer, more expensive insulin analogs. Some previous studies have shown lower rates of hypoglycemia (particularly nocturnal) with long-acting insulin analogs (glargine) versus NPH.²³ However, the KPNC study—conducted in a real-life cohort of patients similar to those in our practice—does not support a significant difference in important outcomes in patients with type 2 diabetes.

Recommendations
This data supports the approach taken at KPWA for the treatment of type 2 diabetes.

- When initiating insulin therapy, most of our members with type 2 diabetes will benefit from starting with NPH insulin, at much lower cost to the patient and the health care system than analog insulins.
- Many patients with type 2 diabetes joining our practice can be safely transitioned to NPH insulin from more expensive analog insulins such as glargine, detemir, or degludec.
- Patients should be educated on the safety and effectiveness of NPH insulin when entering our system so they feel confident with our evidence-based approach to insulin therapy in type 2 diabetes.
- Glargine remains the preferred basal insulin in type 1 diabetes.

How could this change my practice?
When initiating basal insulin in patients with type 2 diabetes, providers can feel confident in starting with NPH as an evidence-based and safe therapy.

Providers can also feel confident in transitioning new members with type 2 diabetes to NPH from the more expensive insulin analogs, as we are now armed with even more evidence that this is a safe and effective approach.
Why did we choose this topic?

The cost of insulin is a major burden for patients with diabetes. High out-of-pocket costs for medications can result in decreased adherence to those medications in the long term. As I often tell my patients, lower copays mean more money in their pockets for things that are important for health and quality of life, such as healthier groceries, gym memberships, and lessened financial stress.

From an organizational standpoint, if we prescribe equally effective and safe medications that are also lower in cost, health care dollars can be used more effectively to cover expensive therapies when they are necessary for our patients.

Resource

KPWA Type 2 Diabetes Guideline

References