

Insulin Therapy: The Question This Issue

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Note: The goal of this section of *Insulin* is to provide answers to frequently asked questions regarding insulin therapy in diabetes. Readers are encouraged to submit their own questions by visiting www.InsulinJournal.com or by e-mailing insulin@elsevier.com. One or more questions will be addressed each issue.

Question:

I'm very confused by the presence of so many insulins on the market. How and when do I start a patient on insulin therapy?

Answer:

Type 2 diabetes mellitus (DM) is a progressive disease, and most patients will eventually need insulin. Glycemic control remains poor due to many reasons. One of the major reasons is the issue of clinical inertia, especially when initiating insulin therapy. It is estimated that, on average, a person spends ~5 years with a glycosylated hemoglobin (A1C) level >8.0% and a mean of 10 years at a level >7.0% before insulin therapy is initiated. The medical community, therefore, has clearly been guilty of not starting patients on insulin soon enough. The author suggests starting insulin when changes and/or maximization of the patient's oral antidiabetic agents have failed to achieve glycemic control (ie, an A1C level >0.5% above the target) over a period of 3 to 6 months.

Question:

What choices of insulin regimen do I have?

Answer:

The choices (not all-inclusive) while initiating insulin therapy are as follows:

1. One injection of long-acting basal insulin at bedtime (insulin glargine, insulin detemir, or neutral protamine Hagedorn [NPH]); this is the regimen most commonly used for initiation. The author typically recommends that patients self-titrate their dose every 3 days based on morning blood sugar levels (eg, "if your morning blood sugars are more than 120 for 3 days in a row, increase bedtime dose by 2 units"). This leads to much faster achievement of glycemic targets.
2. One injection of premixed insulin (human or analogue bolus insulin along with its NPH version) at suppertime.
3. Injections of premixed insulin at breakfast and supper.
4. Intensive insulin therapy with long-acting basal insulin given once to twice daily and bolus insulin before meals.
5. Bolus insulin at supper. Although this regimen is currently not used much for initiation of insulin therapy, it is likely to become popular with the recent launch of inhaled insulin.

It is likely that the majority of patients will start with 1 shot of insulin and eventually need more shots.

Question:

How do I decide which regimen to start with?

Answer:

Several factors determine the choice of insulin regimen:

1. Current A1C: In general, patients with higher A1C levels need more shots. Patients with an A1C level >9.0% are more likely to need >1 shot, while patients with an A1C level <8.0% can usually achieve control with 1 shot. A regimen for patients with A1C values between 8.0% and 9.0% can be determined based on their personal preference and the factors discussed below.
2. Trends and patterns of current blood sugar levels:
 - a. For a patient with predominantly fasting hyperglycemia, with not much additional increase in blood sugars during the day, use bedtime basal insulin.
 - b. For a patient with high blood sugars at bedtime and in the morning, use premixed insulin OR inhaled insulin at supper.

- c. For a patient with hyperglycemia throughout the day and/or an A1C level >9.0%, use premixed insulin at breakfast and supper OR intensive insulin therapy.
3. Current medication regimen: A patient taking agents that affect postprandial control (eg, meglitinides, α -glucosidase inhibitors) has a better chance of achieving control with 1 shot of basal insulin.
4. Patient's daily regimen: Patients may have variable *times* of eating (due to unpredictable work schedules, personal habits, or travel) or may have a variable *intake* of food. These patients will do better with intensive insulin therapy.
5. Cost of medications versus cost of insulin.
6. Patient preference.

Question:

Do I need to make any changes in oral medications with initiation of insulin?

Answer:

The author recommends the following changes to oral medications with initiation of insulin:

1. Decrease the dose of thiazolidinediones if on the maximum dose; the incidence of edema and other adverse effects is much higher with maximum doses in combination with insulin (eg, decrease pioglitazone from 45 to 30 mg and rosiglitazone from 8 to 4 mg).
2. Once the patient is on complete basal-bolus coverage with insulin, stop use of the sulfonylureas/meglitinides.
3. It may be beneficial to change from a sulfonylurea to a meglitinide when putting a patient on 1 shot of bedtime basal insulin. This may help maximize the dose of basal insulin and also provide better postprandial coverage.
4. The author continues patients on metformin unless the patient has a contraindication. Metformin tends to prevent the weight gain that accompanies insulin therapy.

Question:

How should I convince a patient to start insulin?

Answer:

1. Never use insulin as a threat or a punishment. The medical community as a whole has been guilty of projecting insulin as a threat, which has led to significant psychological resistance to its use.
2. Suggest that most patients with DM will eventually need insulin at some point or another.
3. Portray insulin as a normal replacement therapy, as done in many other hormonal deficiencies (eg, levothyroxine for hypothyroidism).
4. Have patients speak to other patients currently taking insulin therapy to learn its benefits and address the barriers to its use.
5. Understand the true reasons behind a patient's refusal and address them.
 - a. Pain: Advise that the pain from taking an insulin injection is typically less than the pain from checking blood sugar levels.
 - b. Risk for complications: Some patients erroneously believe that one of their acquaintances with diabetes developed complications due to starting insulin. Explain that the complication happened not due to the use of insulin but due to a delay in the *initiation* of insulin, with resultant poor glycemic control.
 - c. Aversion to the idea of taking a shot: Have the patient talk to another patient for advice on how to overcome this barrier. Also, consider the use of inhaled insulin as a treatment option.
 - d. Fear of hypoglycemia: Provide a balanced description of the risk of hypoglycemia compared with long-term complications from hyperglycemia. Teach the patient to treat hypoglycemia correctly.

Summary:

- Patients with higher A1C levels at initiation will require more shots of insulin.
- Patients with a very variable daily routine will do better on intensive insulin therapy with 4 daily shots of insulin.
- Portray insulin as a normal replacement therapy, as done in many other hormonal deficiencies (eg, levothyroxine for hypothyroidism), and not as a threat.