

Transcript Details

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Enhancing Insulin Regimen Adherence in Type 2 Diabetes

Announcer:

You're listening to *Diabetes Discourse* on ReachMD, and this episode is sponsored by Lilly. Here's your host, Dr. Charles Turck.

Dr. Turck:

Welcome to *Diabetes Discourse* on ReachMD. I'm Dr. Charles Turck, and here with me today to share how we can improve our patients' adherence to their insulin regimens is Dr. Javier Morales. Dr. Morales is an Associate Clinical Professor of Medicine at the Donald and Barbara Zucker School of Medicine at Hofstra Northwell on Long Island. He's also the Vice President and Principal Clinical Trial Investigator at Advanced Internal Medicine Group in East Hills, New York. Dr. Morales, welcome to the program.

Dr. Morales:

Hi, thanks very much for the wonderful introduction, and thanks for having me.

Dr. Turck:

Well, to start us off, Dr. Morales, would you tell us how you determine if insulin is the right treatment option for a patient with type 2 diabetes?

Dr. Morales:

It's a pretty loaded question because basically, insulin could be used in any situation that you feel like. There's nothing bad about insulin. Insulin has been a life-saving agent for, wow, over 100 years now. We just celebrated the centennial of the availability of insulin, which is fantastic. But anyway, all factors considered, who really should be on insulin therapy are going to be people who may be significantly insulin resistant, or who have evidence of glucotoxicity. What do I mean by glucotoxicity? Typically, those who may have polyuria, polydipsia, weight loss, super high blood glucoses, and even in the presence of the life-threatening ketoacidosis. So I think most patients that we encounter in our day-to-day lives in clinic hours may have elevated hemoglobin A1Cs, and oftentimes, we could be taken back by the magnitude of how high that hemoglobin A1C may be, especially if we're seeing people whose hemoglobin A1Cs are 9 or 10% or maybe even a little bit higher.

But if the hemoglobin A1C is elevated, and there's no evidence of glucotoxicity, then we probably should be using other agents besides basal insulin in order to achieve control, or insulin in general. We're in the caveat now where we have other agents that actually work to improve and refine beta cell responsiveness to glucose challenges, as well as potentially mitigating or reducing the amount of circulating glucagon which, as you know, does have an effect of producing hyperglycemia by stimulating glycogenolysis.

So the long and the short of it is, since these newer agents like GLP-1 receptor agonists do offer a glucose centric mechanism of action, and in addition, shut off some of these drivers that are provoking persistent hyperglycemia, they probably should be used first line or earlier on in the therapy of patients with type 2 diabetes before considering a basal insulin.

Dr. Turck:

Well, once a patient is prescribed insulin therapy, what factors might lead to nonadherence?

Dr. Morales:

Well, it's a great question. I think the big challenge that we often have in patients that are using basal insulins tend to be the fear of hypoglycemia. That is always a major wall to climb for most of our patients that suffer with type 2 diabetes who may be on insulin therapy. And oftentimes patients may be underdosing their insulins or may be even skipping it in its entirety because they just are fearful of potentially having a hypoglycemic event, particularly at night while they're asleep where it goes unrecognized.

The earlier long-acting basal insulins like Lente and Ultralente were often challenged with hypoglycemic events because of the stacking effect. So that stacking effect basically means that while the 24-hour period of the day is finishing up and you're getting ready to give another injection, the lingering effect of the previous injection is still there with the new injection on top of it, creating a stacking effect. And that stacking effect can ultimately lead towards the development of hypoglycemia. So then we started using intermediate-acting insulins, particularly at night to shut down hepatic glycogenolysis and nocturnal hepatic glucose output.

But insulin has evolved so much that we are now able to protract the duration of insulin and allow these insulins to be more predictable with less variability in terms of their level of activity. The greater the variability, the greater the predisposition towards developing hypoglycemia.

Dr. Turck:

Let's take a look at how we can improve our patients' adherence to their insulin regimens. Dr. Morales, what are some minimally disruptive medicine tactics we might use here?

Dr. Morales:

Well, for the most part, it's just basically the discussion of how insulin for those who need it tend to be extremely helpful. And by achieving good glycemic control, we actually can reduce some of the microvascular complications that patients often experience with uncontrolled diabetes for many years. And those are the microvascular complications, which include retinopathy, effect on the kidney with diabetic nephropathy, as well as peripheral neuropathy. Of course, macrovascular complications are reduced to a large degree, but in the long term, not so much in the short, but also in the long term.

So instructing these patients or helping them understand that intensification or appropriate intensification of therapy can mitigate some of these microvascular complications will make them more encouraged to continue with their current therapies.

Dr. Turck:

And how about emerging technologies in diabetes management? How might they help us improve our patients' adherence?

Dr. Morales:

Technology is always our friend, and we really shouldn't be intimidated by it. When it comes to adherence to therapies and also demonstrating potential pitfalls of where intensification may be needed for our patients with diabetes, and even to instill a certain level of comfort with our patients, we've actually embraced the use of continuous glucose monitors.

Two types of glucose monitors exist. Some of these are what we call personal glucose monitors where the patient actually uses it on their own. And it's oftentimes either attached to a reader which they can scan over their monitor depending on which one they're using, or it can actually upload the information continuously through your smartphone device, winds up being a really wonderful utility. For the most part, for those patients who may be concerned about the potentials of nocturnal hypoglycemia, they'll be quite ready to see on their CGM tracings that this may not be the case and instills a little bit of confidence and a little bit of comfort.

Furthermore, these CGM devices also do offer a little bit of protection because they do have alarm features. And that alarm is actually programmable based on what level glucose you wish to be alerted as a patient if you're using a CGM and on insulin. So it does instill quite a bit of confidence and comfort for both the patient and also the provider.

Dr. Turck:

For those just tuning in, you're listening to *Diabetes Discourse* on ReachMD. I'm Dr. Charles Turck, and I'm speaking with Dr. Javier Morales about how we can improve insulin regimen adherence for our patients with type 2 diabetes.

So Dr. Morales, once you ensure your patients are adherent to their treatment regimen, how do you assess the adequacy of the response and modify your approach accordingly?

Dr. Morales:

Well, one thing that we've always learned over the years, particularly when we're using basal insulins, is you need to fix that fasting first. So when we're starting a basal insulin, I think it's important to follow the recommendations, both by the American Association of Clinical Endocrinology as well as the American Diabetes Association, of using potentially a weight-based algorithm. So looking at either 0.1 or 0.2 units per kilogram to start or maybe even starting with 10 units. And these patients should be checking their fasting plasma glucoses every morning, and accordingly titrating.

Now there are many different algorithms for titration. If you're using one of these older generation basal insulins, such as glargine U100 or insulin detemir, then it's probably safe to say that increasing by 1 unit every day until a fasting glucose of let's say 100 is achieved. I think 100 is a pretty safe number because there's always a little bit of a leeway between 90 and 110 when we're shooting for that 100, then you're on the appropriate amount of basal insulin.

If you're using one of these newer-generation insulin analogs like insulin glargine U300 or insulin degludec, then by titrating, utilizing 2 units every 4 days would seem appropriate. Again, striving for that fasting plasma glucose target that you discuss with your patients to be in. For the most part, 100 tends to be a pretty safe number.

Dr. Turck:

Now we've certainly covered a lot of ground today. But before we close, Dr. Morales, do you have any final thoughts or takeaways you'd like to leave with our audience?

Dr. Morales:

Absolutely. Just remember, insulin should never be used as a threat for our patients. In fact, it's useful, it's lifesaving. It controls our metabolism to a very large degree. But insulin is not the appropriate agent to use for everybody. And if you're thinking about intensifying therapies with your patients in the absence of glucotoxicity, then using some of the newer glucose centric medications that work quite well would be the preferred way to go. And then you can intensify with a basal insulin later if you need to.

If you're going to intensify or if you're going to start patients with insulin, as we've learned in some of the clinical trials in the past, it probably would make sense to start with a basal insulin first, fix that fasting, and then we can introduce mealtime insulin on an as-needed basis, based on where those challenges may lie.

Please do not be discouraged or intimidated by technology. Technology is here to help us. Continuous glucose monitors really have paved the way in terms of comfort for both the patient and the prescriber to achieve the appropriate targets.

Dr. Turck:

Well as those key takeaways bring us to the end of today's program, I want to thank my guest, Dr. Javier Morales, for sharing his perspectives on enhancing insulin regimen adherence among our patients with type 2 diabetes. Dr. Morales, it was great speaking with you today.

Dr. Morales:

Thanks very much for the opportunity, and it was great speaking with you as well.

Announcer:

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