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Hypoglycemia Risk Factors & Treatment Protocols: An Evaluation of Current ADA Guidelines

Announcer:
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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 discuss the latest guidelines from the American Diabetes Association on hypoglycemia risk factors and treatment protocols is Ms. Deborah Hinnen, an advanced practice nurse and certified diabetes educator at the University of Colorado Health in Colorado Springs. Ms. Hinnen, welcome to the program.

Ms. Hinnen:
Thank you. Glad to be here.

Dr. Turck:
To start us off, Ms. Hinnen, would you give us an overview of the current ADA guidelines? What do they tell us about glycemic control?

Ms. Hinnen:
The ADA guidelines related to hypoglycemia specifically are telling us to try to have A1cs less than 7, without hypoglycemia, or with minimal hypoglycemia. And so those standards of care have changed a little bit. In fact, in 2015, ADA changed the lower level of glucose recommended from 70 to 80. So now, for instance, a fasting glucose target would be 80 to 130. Again, all in an effort to try to minimize hypoglycemia.

Dr. Turck:
With that background in mind, what sort of practical effects does that hypoglycemia guidance have on management of type 1 and type 2 diabetes?

Ms. Hinnen:
Well, indeed, it does drive our practice, because we know hypoglycemia to have an effect on cognitive function, and in fact, mortality. So, we are very, very pleased to have medications now that are able to give good glycemic control with a very minimal risk of hypoglycemia. The SGLT-2 inhibitors, the GLPs, they're very much like a thermostat. So, they kick in and they shut off. That incretin effect prevents hypoglycemia to a great deal.

DR. TURCK:
And what are some risk factors for hypoglycemia that clinicians should keep in mind according to the current ADA guidelines?

Ms. Hinnen:
Well certainly anybody who's on insulin, whether they have type 1 or type 2 diabetes, would be at risk for hypoglycemia. And certainly, the secretagogues, the sulfonylureas, those pills, while they're not insulin, of course, squeeze insulin out of the pancreas. And so, anybody who's taking those medications would be at a much-increased risk. But it goes beyond that, certainly. People who are very careful, and they're maybe just even on basal insulin if they're not eating consistently, or our patients who are on swing shifts or night shifts, there's several studies that patients have reported, what's the number one cause of their severe hypoglycemia. And both in European studies in the U.S., it's dietary misadventures. I expected it might be hypoglycemia unawareness, or people taking their fast-acting insulin at bedtime instead of their basal. But the number one problem was related to food. And then certainly things like exercise without reducing the medication or increasing carbs before the exercise, stress. But really what we're noticing now that we have a lot of

CGM with our continuous glucose monitoring is glycemic variability. What we're noticing now, with continuous glucose monitoring is glycemic variability may indeed cause severe hypoglycemia or trigger that or lead to that. So that person who has an A1c of 8 and they're in time and range is much more increased than that person who has very lows and very highs, they may still have the same A1c, but that glycemic variability may trigger symptoms, may trigger adrenergic response, may trigger glycogen release, and so that may indeed put them at risk for severe hypoglycemia.

Dr. Turck:
For those just tuning in, you're listening to Diabetes Discourse on ReachMD. I'm Dr. Charles Turck, and today I'm speaking with advanced practice nurse, Ms. Deborah Hinnen, about hypoglycemia risk factors and treatment protocols according to the current ADA guidelines.

So Ms. Hinnen, turning our attention to treatment strategies, would you tell us what the guidelines recommend?

Ms. Hinnen:
Well, of course, that blood sugar of 70 or that person who begins to notice symptoms, maybe even at a slightly higher level, should treat their low blood sugar with fast-acting carbohydrates; 15 grams has kind of been the national recommendation. So, 15 to 20 grams of carbohydrate. Now my patients don't always understand carbohydrates. In fact, I had a patient recently say, 'Debbie, tell me about those carbon hydrates.' So always trying to think about patient teaching strategies, I will say, 'a sweet bite.' So that could be of course glucose as the number one recommendation, glucose tabs but a half a can of regular soda, a little bit of juice. Anything that's a fast-acting carbohydrate. I always asked my patients, 'what can you carry with you all the time.' So, juice or milk is not an easy choice. So, something like hard candy would work.

The newest things we have for treatment strategies are different ways to administer glucagon. So, 70 is that level-one treatment where people are typically fine to be able to take oral carbohydrates. But level two, a glucose level of 54 would be sometimes including cognitive impairment, and level three severe hypoglycemia, the person may not be able to help themselves. There's no specific glucose number attached to that, but people would need help; they would have mental and or physical impairment. So, the ADA guidelines say glucagon should be available to people who are at risk of having level two hypoglycemia.

Dr. Turck:
Now, you've mentioned some before but based on your experience, are there any other counseling strategies you've found to be effective when guiding your patients through treatment and around mitigating risk of hypoglycemia?

Ms. Hinnen:
I give homework assignments when I'm teaching about hypoglycemia. I asked my patients to identify their very first symptoms of low blood sugar. And that may be a headache, or it may be the traditional neuroendocrine kind of responses that are shaky, sweaty, hungry, crabby. But some people have hypoglycemia unawareness. And so, they may not actually notice symptoms. Their care partners may notice that they're tired or sluggish or not able to communicate as well. And those are neuroglycopenic symptoms that may be a lower glucose. Whatever it is, the patient needs to know that, and they need to know what is my blood sugar typically when I have those kinds of symptoms. So that's an important homework assignment. And then as I mentioned earlier, what can you carry with you all the time to treat low blood sugar. And then now as you were asking regarding the new treatments, we know that some of those, particularly Baqsimi, can be carried in and out of heat or cold. It's the same size as glucose tabs, so it goes in the pocket. So hopefully we have those emergency treatments more available. Hopefully, they're not at home, in the refrigerator, in the butter tub area.

So those kinds of coaching for patients are I think critical and that we review that at every clinical visit. Every clinical visit, according to ADA, and of course, our clinical practice dictates that we should assess hypoglycemia. So, we have a built into our EPIC template. How often have you had hypoglycemia in the last few weeks? What are your symptoms? What are you using to treat? So, our assessment then reinforces that education that we provided earlier.

Dr. Turck:
And finally, what are some key takeaways on managing hypoglycemia you'd like to leave our listeners with?

Ms. Hinnen:
First of all, I think our glycemic control is important. There's no A1c level that protects people from severe hypoglycemia, but there are medication treatments that drastically reduce the risk of hypoglycemia. And they provide not just glycemic control, but cardiovascular protection and renal protection.

So I think one of the most important takeaways is to use the most modern medications that we can with people. And then of course, for hypoglycemia specifically, that we're coaching patients around symptoms, around prevention, and around treatment. And then finally, that we are encouraging all of our providers to prescribe the newest glucagon treatment devices.

DR. TURCK:
Well, given just how important it is to stay up to date on hypoglycemia risk factors and treatment protocols in the management of diabetes. I want to thank you, Miss Hinnen, for coming on to share the latest guidelines with us. It was great having you on the program.

Ms. Hinnen:
Thank you.

Announcer:
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Thanks for listening.