

Transcript Details

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How Hypoglycemia Can Lead to Unsafe Driving Practices in T1D Patients

Dr. Buse:

Severe hypoglycemia can lead to dangerous challenges, one of them being an increase in vehicular accidents. Can a higher prevalence of this condition in adults with type 1 diabetes lead to unsafe driving practices?

Today we are joined by an expert in the field, who will share how safe driving education can help us avoid this obstacle.

Welcome to *Diabetes Discourse* on ReachMD. I'm Dr. John Buse. And joining us to talk about how the prevalence of severe hypoglycemia can impair driving in adults with type 1 diabetes is Dr. Viral Shah. Dr. Shah is an Associate Professor of Medicine and Pediatrics at the Barbara Davis Center for Diabetes.

Viral, thanks so much for joining us today.

Dr. Shah:

Yeah, thank you so much for having me, Dr. Buse.

Dr. Buse:

So, Viral, the issue of hypoglycemia and driving is really important to patients, providers, the public, and policymakers. Before we dive into the data, can you tell us what made you interested in researching hypoglycemia and driving practices in adults with type 1 diabetes?

Dr. Shah:

Sure. And I think this is a very important question. As a clinician, when we see patients with both type 1 and type 2 diabetes, I think we stumble upon how many people would have hypoglycemia and the vehicular mishaps. So I had a couple of patients last year that had a vehicular accident that led me to think about that, let me ask this question systematically in my clinic in trying to understand what's the prevalence of hypoglycemia in people with type 1 diabetes who are driving every day. And not only that, we were also interested to learn about how people with type 1 diabetes are practicing safe driving, and that's how this thought has become a study that was published in *Diabetes Care* earlier this year.

Dr. Buse:

It's a wonderful study. Can you tell us just a bit more about the design, methods, and the primary endpoints?

Dr. Shah:

Sure. So this is a cross-sectional study, and it was only at one center. That's the Barbara Davis Center for Diabetes located in Aurora. And this is a type 1 diabetes clinical and research center, so most people we see in center are type 1 diabetes. And we send a survey to all the adults with type 1 diabetes who are seen at our center at least once a year to fill out a long questionnaire that included information about their demographic characteristics, diabetes management, diabetes complications, and their driving practices.

We wanted to have about 450 individuals to participate in the study. Again, this was a feasibility study, so we didn't plan about any power or sample size, but 450 was mainly for logistic reasons, and we were surprised that once we sent out the survey, almost 436 individuals filled out that survey within 2 weeks, and we had to stop that study within 2 weeks, so we had a very high response rate.

The primary objective of this study, as I mentioned earlier, was number one, to understand the prevalence of hypoglycemia while driving in adults with type 1 diabetes and how many of those hypoglycemia might have led to the vehicular accidents, so that was the primary objective. And the secondary objective was how people with type 1 diabetes are using safe driving practices, which is what is

recommended by the American Diabetes Association. So are these people are following them in real life or not.

Dr. Buse:

Very good. With that as background, can you tell us what your results showed?

Dr. Shah:

Sure. So as I mentioned, 436 adults with type 1 diabetes responded to this survey. Of that, 69 percent were females, and that's very consistent with if you look at all these survey studies, the female response is generally higher than males. And really interestingly—and we were surprised by this—72 percent of participants reported having at least one hypoglycemic episode while driving. That's a lot. That means pretty much everyone had experienced hypoglycemia while driving. And not only that, 1 in 20 drivers had a vehicular accident from hypoglycemia. And we do believe that this number may be a little bit of an underestimate because some people may not want to report that this accident was probably due to hypoglycemia or they may not be aware that they had a hypoglycemia that led to this accident, so we believe that this number, even though it's high, may be slightly underrepresented in this survey.

The other thing we found is that I think most people do follow the safe driving practices, mainly checking their blood sugars prior to driving, keeping some form of carbohydrates, particularly sugar, juice, or some kind of a food, while they are driving so that in case they have a hypoglycemia, they can treat that immediately. However, again, we think that at the Barbara Davis Center we are trying our best to educate our patient, but the 40 percent of individuals say that they received some formal education on safe driving practices. That means 60 percent of the individuals didn't receive the appropriate education on safe driving practices, so that's something we felt that is a very important educational point here is that sometimes we are ignoring to provide an education around the safe driving practices among all these patients with type 1 diabetes, and I think that's really necessary.

Dr. Buse:

Yeah, I think this is such an important study and such an important message. I do agree that hypoglycemia is sort of the underappreciated complication of diabetes. We spend so much time focused on preventing blindness, amputations, heart attacks, and strokes. We kind of forget that hypoglycemia can maim or kill a patient today as opposed to worrying about side effects 5 and 10 years down the line.

Dr. Shah:

And I hundred percent agree that I think we have focused a lot on hyperglycemia and with the intention of preventing long-term complication, but the hypoglycemia is the major problem, particularly in people with type 1 and type 2 diabetes who are on insulin therapy.

Dr. Buse:

For those just tuning in, you're listening to *Diabetes Discourse* on ReachMD. I'm Dr. John Buse, and today I'm joined by Dr. Viral Shah, who is sharing key clinical data on hypoglycemia and unsafe driving practices in adults with type 1 diabetes.

So, Viral, with the results in mind, how should clinicians incorporate these findings into their practice to improve the care of people with type 1 diabetes?

Dr. Shah:

I think this is an excellent question, and I think number one, the clinician should be aware that the hypoglycemia is common in people with type 1 diabetes, and it's common while they are performing some high-risk tasks—for example, driving—and so I think educating our patients on hypoglycemia prevention, hypoglycemia management, and some safe driving practices like again, testing the blood glucose prior to driving or making sure that they are pulling the car in case the blood sugar is dropping on a lower side, something like that is necessary.

And I think one-time education may not be enough because there are so many things that we talk about in a short period of time in the clinic that all these patients, they may not remember everything, so I think those repeated education, maybe at least once in a year, reminding that, you know: "This is the safe driving practices." "Are you following that?" "Do you have a glucagon with you?" You know, those kinds of stuff would be very important in preventing vehicular accidents in people with type 1 diabetes.

Dr. Buse:

Are there any resources that you can recommend on driving safety for patients with type 1 diabetes?

Dr. Shah:

It's an excellent point. And while we were doing this research, we also tried to look upon that what resources are available for people with type 1 to read, and I think there are two good resources that I would like to recommend. Number one is by the American Diabetes Association. They do have so-called driver's license information on their website. They also have a risk calculator called RADD; it stands

for Risk Assessment of Diabetic Drivers, and that's kind of like an online tool that you can just enter your demographic characteristics and the risk for hypoglycemia or how many times you have a hypoglycemia diabetes complication. Based on that it tells you whether you are at high risk or not. And it also tells you about how to prevent some of the vehicular mishaps when you have type 1 diabetes, so I would recommend that.

Another resource is by the JDRF. That's the Juvenile Diabetes Research Foundation. I think on their web page it's titled as Tips for Driving with Type 1 Diabetes. And it also provides state-wise some of the resources and requirements for the licensing when you have type 1 diabetes. So I think those two resources I found very helpful and would encourage people with type 1 diabetes to really read and learn.

Dr. Buse:

Viral, that is really so helpful. Is there anything else you'd like to share with our audience before we sign out?

Dr. Shah:

I think I will now reemphasize this point that hypoglycemia is very common, more than you probably would realize in people with type 1 and type 2 diabetes on insulin therapy or taking some medication like sulfonylurea. These people should be educated on safe driving practices, and that education I think should be repeated at some interval, making sure that they are safe.

Dr. Buse:

Thank you, Viral. These insights will not only help improve awareness of hypoglycemia risk in patients with type 1 diabetes, but they can even help reduce the rate of life-threatening vehicular accidents. As we come to a close, I want to thank you for sharing your insights on the need for driving safety education for patients with hypoglycemia and type 1 diabetes.

Dr. Shah, thank you for joining us.

Dr. Shah:

Thank you so much for having me, Dr. Buse.

Dr. Buse:

For ReachMD, I'm Dr. John Buse. To access this episode and others from our series, visit ReachMD.com/DiabetesDiscourse, where you can Be Part of the Knowledge. Thanks for listening.