

# Round Table and Group Discussion

## Glycemic Control Bootcamp December 9, 2016

PRESENTER 1: Welcome back. So my goal is that we take up to 25 minutes max to get us to 2:15, and then I will-- I just have a few wrap up slides, and we'll get you guys out of here by 2:30 at the very latest.

So we have some options. Dr. Franco and Dr. Kulasa were thinking we could do-- there's more cases. There's a few cases. Or there's a game. Or an open forum, just more questions. So who would like-- let's do raise of hands-- more cases. OK. We're getting a little fatigue. I can feel it myself, too. Game? Yeah. OK. And going home now is not an option yet, so there's not a D. No. I'm just kidding. And then just open forum, which would be questions.

So we can always try the game, right? And then-- sounds exciting. I've never played a glycemic control game before. Take it your next holiday party. So is the game after the cases, ladies? I presume. OK.

I don't know if I should actually be the one leading this, since I've never seen this game, but it sounds fun. We need the music. This is so exciting. OK, I'm going to--

We're all winners here.

PRESENTER 2: Who wants to be an impatient glycemic control millionaire? All right. All of us. Let's see.

PRESENTER 1: Other way.

PRESENTER 2: Oh, you guys, I'm totally worthless. OK. Starting with our \$200 question. Which of the following is the most difficult patient barrier to overcome when initiating insulin therapy?

Let's start with A, fear of pain with injection. B, fear of weight gain. C, fear of complications. Or D, loss of flexibility of lifestyle. OK. Everyone who guessed D, \$200.

Here's for \$1,000. Insulin represents what percent of medication errors that cause harm to the patient? I don't know [INAUDIBLE]. About all I can do is Jeopardy.

PRESENTER 1: How many for A, 22? How many for B, 27%? With enthusiasm, man. How many for C, 39%? OK. And D, 51%? The Cs have it, C as in cat. All right. Who's still in? Who has \$1,200? All right.

PRESENTER 2: \$4,000. Prandial insulin analogs should be given-- A, 15 minutes before the meal, B, 15 minutes after, C, at first bite, or D, plus or minus 15 minutes of first bite. OK. How many say A? B? C? And D? The D's have it.

PRESENTER 1: There's a strong hold back of some sleepers, man. They're getting every one.

PRESENTER 2: \$32,000. The best way to prepare the finger for blood sugar monitoring is-- A, Purell. B, alcohol wipe. C, warm soap and water. Or D, 3% hydrogen peroxide. A, B, C, D. Absolutely. C is the right answer.

\$64,000. In order for a patient to be safely sent home on insulin for the first time, which is the most important? A, ordering a visiting nurse. I see this a lot. B, have patient watch a video of how to use an insulin pen. C, have a CDE instruct the patient. Or D, have the patient self administer insulin with a nurse. A, B, C, and D. Absolutely. D's have it.

PRESENTER 1: So \$250,000. Your patient's blood glucose is 43. He doesn't have any symptoms. What is the next thing you should do? A, give 15 grams glucose. B, give three glucose tabs. C, give juice. Or D, recheck. How, many for A, gel? How many for B, tabs? How many for C, juice? And how many for a recheck? D, recheck it. It's unlikely that he would be that low without symptoms. 43 is really, really low.

PRESENTER 2: And a million. All right. We're all going to leave happy. The FDA currently requires glucose meters to be within what percentage of the real value if the blood sugar is greater than 75 milligrams per deciliter? Now, we're talking home meters. Home glucose meters. A, 7%. B, 10%. C, 15%. Or D, 20%. So how many say seven? How many say B, 10? How many say C, 15? And D, 20? Shockingly, 20% is good enough for the FDA.

PRESENTER 1: Below 75, it's 15.

PRESENTER 2: Below 75, it's 15, and most of our inpatient meters are 15. Just recently. Just recently.

PRESENTER 1: Now we can have an open discussion or do cases. We'll go open forum.

AUDIENCE: So we have lots of providers at our institution that want more guidance on what to do for steroids at discharge, especially when they're tapering. Most of these patients are not diabetics or may not have been on insulin prior to admission. Would do you usually recommend for those type of patients?

PRESENTER 2: So you've got to weigh risk benefit with how long they're going to be on the steroids, how high their sugars are, and the risk benefit of whatever you can put them on. So if it's going to be a pretty quick taper, they weren't diabetic to begin with, three days of hyperglycemia is not going to kill them. I just make it pretty clear that they need to not drink soda, juice, and really watch their carbs for those three days.

If they are a diabetic, it depends on their regimen. And we're talking about going home on steroids, not in hospital, right? So it depends on their regimen. And if you have a regimen that you can add some sort of easily titratable [INAUDIBLE] to for those three to five days. If it's going to be a long, like, one to two month taper, then it's a different game.

But some of my favorite medications that you don't really have to titrate that treat steroid-induced hyperglycemia very effectively are going to be your metformin, your TZDs. Now, you're not going to get them working in three days. And then your GLPs are pretty fun and good for that.

PRESENTER 1: If somebody is already on basal-bolus-- you know, the steroids would tend to affect your post-prandial sugars, so you can just-- we call a kind of nutritional stacking, where you just kind of put more in your nutritional bucket. And if you have somebody who's able to titrate that at home as the steroids come down, that's an option.

PRESENTER 2: They're already on basal-bolus, you know, jack up their lunch, dinner coverage for those three days. If they're on a 70/30 mix, maybe increase their morning dose for those couple of days.

PRESENTER 1: I'll adjust a dose of insulin. I don't add injections to a home regimen, just as my rough rule of thumb.

PRESENTER 2: For that short steroid.

PRESENTER 1: I was actually talking over here. Somebody from Western State hospital. They do inpatient psychiatric care. They have a number of patients on anti-psychotics. And some people in the community are reflexively putting non-diabetic patients on metformin if they're prescribing an anti-psychotic. I don't know that I-- because anti-psychotics are associated with hyperglycemia, I don't-- for steroids, certainly, I think it's a pretty clear relationship. I'm not sure I would reflexively treat that.

PRESENTER 2: I would monitor.

PRESENTER 1: Yes. You definitely want to have people monitor, so you're going to want to prescribe the supplies and get them a glucometer and stuff. And I usually have them checked twice a day the fasting, and then one two hours after eating. And for most people, that tends to be the bed time is the easiest logistically for checking. And then same thresholds with that little traffic light tool called if this, then that. Fairly straightforward instructions.

AUDIENCE: What about inpatient management [INAUDIBLE]?

PRESENTER 2: So this is going to be another standardization that you want to do at your institution. There are a couple of options out there you can use for steroids. The two most popular are just using your standard basal-bolus like we've talked about and adding a dose of NPH to cover the steroids.

At our institution, we use stacked nutritional insulin. So we will increase the doses of nutritional insulin to cover the steroid.

AUDIENCE: Do you have a starting parameter that you try to use, or do you used it based on [? AMI? ?]

PRESENTER 2: So it's mostly based on your steroid, and I have a slide. Not in this deck. But increasing by anywhere from 20% to 50%, increasing your total daily dose based on your Prednisone equivalent. And really for me, all of that extra insulin goes into lunch and dinner dosing for once daily, a.m. dosed steroid.

PRESENTER 1: We have an order set for it, and we use-- there's some good evidence for type twos on orals on steroids for, in particular, a COPD exacerbation. And we use a weight-based blood glucose adjusted NPH, and there's also a meta-analysis. So if somebody is not on insulin, that's our go-to. If they're already on basal-bolus, again, we just put more-- we just put more in the nutritional bucket.

It's been-- I think it's complex, and often our patients are not on once daily steroids. The [? NPH ?] trick-- you know, the peak of the NPH, the pharmacokinetics kind of-- those curves match nicely. But if you've got somebody on [? decadron ?] [? q6 ?] for spinal cord compression, it's not going to work. So then we just do the stacked approach.

PRESENTER 2: And a lot of times when you get into BID TID, or QID dosed steroid, I usually warn providers very much about increasing your basal dose to cover steroid, because it's really more of the nutritional basket you need to be doing. But when you're talking about BID, TID, or QID, it kind of has to be done.

PRESENTER 1: It's going to be high.

PRESENTER 2: But you have to watch and remember, because as your titrating steroid down, if you do not adjust that Lantus when you go from BID to once daily, by the next morning, you will be sorry. It's a big problem. Because the effective steroid is immediate on and off.

AUDIENCE: So we just guess how much more [INAUDIBLE]?

PRESENTER 2: Yes. So the slide I have-- so anywhere, like, Prednisone 20 to 30, I think, is about 20%. When you get up to Prednisone 60, you're going 50%.

PRESENTER 1: You also-- you have-- if they're just hyperglycemic and you're not necessarily planning a change to those steroids for that day, the sliding scale or correctional coverage that you've required can be--

AUDIENCE: [INAUDIBLE].

PRESENTER 2: I always bump that up at least one when we're talking steroid, because even our adjustments are usually pretty conservative. So like all my transplant patients come out, they go on high dose or a drip.

AUDIENCE: [INAUDIBLE] the content you have on your slide, is it available on the Society of Hospital Medicine, or?

PRESENTER 1: My particular--

PRESENTER 2: Reference?

PRESENTER 1: Yeah.

PRESENTER 2: I know there is a reference out there. I can absolutely find out and provide it to you.

PRESENTER 1: I think I'll [INAUDIBLE] you and see if when we--

PRESENTER 2: And I can give you the slide.

PRESENTER 1: --materials, of we'll just use her slide.

PRESENTER 2: I can send you the meta-analysis, too.

PRESENTER 1: Yeah. That's a good patient population.

PRESENTER 2: They are a tricky population. And you add carb plus steroid.

PRESENTER 1: Carb control is super important.

PRESENTER 2: Yes.

AUDIENCE: How about the opposite, the bariatric surgery patient, post-op? What do you do with them?

PRESENTER 2: Very little. A lot of them will come off insulin almost immediately post-operatively. So if anything, we'll put them on correction scale and then add back a little basal or bolus insulin as needed per blood sugar trend.

PRESENTER 1: Do you guys want the answers to the case? If you're going to dig into these at home, I don't want you to die of suspense.

PRESENTER 2: Yeah. That's a good idea. Let's go back and do that, and then I'll wrap this up.

PRESENTER 1: So I actually have to read it to give you the answer. So 45 new diagnosed, A1C 8.3%, not symptomatic. He doesn't have a home regimen because this is new. He's 8.3. Normal creatinine. High BMI. What is the most appropriate initial treatment?

So first line, type two, lifestyle and metformin would probably get this patients to goal. I think that that would be adequate and weight neutral.

Case two. 45, uncontrolled type two. A1C is 10. Heartburn.

PRESENTER 2: Somewhere between 10 and 12.

PRESENTER 1: Call it 11. Call it 11. OK. And she's on metformin BID, normal creatinine, high BMI. Which of the following medications should be-- she will not take any medication that will cause weight gain. So insulin causes weight gain. Sulfonylureas cause weight gain. So that pretty much leaves us with B. The deal breaker in A would be the Sulfonylurea. And insulin is the other one. So B is the best choice there.

Number three here, 65, longstanding type two with retinopathy, neuropathy, nephropathy, high creatinine, CAD, CHF, AKI, acute kidney injury. Noted to have hypoglycemia at home three times per week. She's on glipizide 5 milligrams BID. Her A1C is 7.2. Creatinine GFR is 24.

Which of the following medication adjustments is most appropriate? No change necessary. A1C is at goal. She's told you she's had hypoglycemic episodes. Stop glipizide. Obviously, you need to stop it. Start a TZD, that's contraindicated in heart failure. Start a DPP-IV, SGLT-2, or metformin. Metformin is contraindicated with the heart failure and the creatinine or that low GFR.

PRESENTER 2: And the SGLT-2 will not be effective with this GFR. So that really leaves you with just plain stopping glipizide or replacing your glipizide with the DPP-IV.

So this is something that I have to teach our residents frequently is that A1C is an average. You can get the same average with blood sugars between 100 and 200, which is what we want. But you can get the same average with blood sugars between 30 and 300. So do not be too reassured by an A1C.

It has to be an A1C in the absence of hypoglycemia, and your patient might not always be like, I am having hypoglycemia, because a lot of them just mask it. They're like, no, I don't have any hypoglycemia. I do have a 3 scoop Sunday every single night. And I'm, like, do you have that because you're hungry and want that, or because you die without it?

Or I had a patient that came in with an MBA because she was hypoglycemic all the time, and she would just eat cuties, those little oranges, all day long or sip on juice. So if you have patients that have these habits, they don't even necessarily recognize that they're having hypoglycemia.

So some of the other questions I teach the residents to ask are what happens if you skip a meal? And do you have to snack all day or at night? And there's a big difference between wanting to snack and having to snack.

So they'll usually describe to you, oh, I feel terrible if I don't eat, you know, 40 snacks a day. So those are indications that they're experiencing hypoglycemia, even though they might not even know it.

All right. Those are all the cases. Any other questions? Concerns? Issues? Do you guys have any particular barriers at your institutions that you want to ask or discuss? Yes.

AUDIENCE: [INAUDIBLE] like, I saw a patient yesterday with A1C 10.1 [INAUDIBLE]-- 10.1, and she is Hispanic, so she eats-- she's like, I've been trying to change all of my habits. I stopped eating fats. I stopped eating tortillas. I stopped eating all this stuff. But realistically, she stopped eating protein, too, so a lot of carbs. But she has no insurance. A basal insulin would probably be the best for her. What do you guys recommend for people that don't have insurance?

PRESENTER 2: So lifestyle's the cheapest. So I try to teach patients a lot of lifestyle and where they can get the biggest bang for their buck. And they don't have to be eating diet food, which costs a lot more. But we teach them all about what a carbohydrate is so that they can be more wise consumers. And if they're going back for seconds, to go back for the chicken and not the rice.

We kind of teach them kind of vague carb equivalents. So we'll give them four carb dollars per meal and basically teach them they can spend it any way they want. If they-- we do the rice, bean, tortilla talk all day every day in many different cultures.

So it's like you can't have the rice, the beans, and the tortillas. We've got to swap out some of them and make choices. Really focus on the beverages, too, because that's going to have a big impact. So that's our cheapest way.

Above and beyond that, as far as medications go, there's nothing wrong with NPH or the 70/30s. They're \$24 a vial at Wal-Mart, and they work really, really well. But we've got to have a consistent diet, especially for the mixed insulins, so we want to make sure they're having three meals a day. Or a lot of my patients who tell me, swear up and down, they only eat one meal, but they have two very large snacks. That is a meal to a lot of people. It counts.

Am I getting carb into my body three times a day? So we just try to make them do it in a consistent way and try to understand the rationale behind it. And we teach them how to read a label and so they don't get duped by a lot of these marketing strategies that's, like, sugar free, no sugar added, and they think it's healthy for them and totally safe when it's jacked full of carbohydrates. And they're spending twice as much, it tastes half as good, and it still has the same impact on their blood sugars.

AUDIENCE: [INAUDIBLE] I've been noticing. A lot of people do not know what a carbohydrate is [INAUDIBLE]--

PRESENTER 2: Right.

AUDIENCE: --protein and it's surprising how many people. I talked to three people yesterday and only one of them could tell me what a carbohydrate was.

PRESENTER 2: Right. So that's what we do with a lot of our survival skills. We're not necessarily teaching them how to carb count. It's really how to carb identify. I want you-- if you leave this hospital knowing that the rice is going to raise your sugar and the chicken is not, I feel like we've won, because they at least get that. And they know which food they're eating is the biggest culprit.

AUDIENCE: Whether they want to admit it to you or not.

PRESENTER 2: Right. Plant seeds. Any other questions?

PRESENTER 1: Well, before I do a few slides, promise, let's give a big round of applause to our speakers.