Individualizing Nutrition for Type 2 Diabetes: Out with the Old, In with the New

Webinar Questions Answered by Angela Manderfeld, MS, RD, CDCES, BC-ADM

- I educate ALL my cirrhosis patients that have diabetes to have a 1-2 CHO snack w/protein right before they go to sleep to prevent muscle mass catabolism during the night. Thoughts on that approach?

  I think that cirrhosis is a different situation. An overnight fast is just a tool, but in this case the snack to help support this patients' nutritional needs, may outweigh the benefits of fasting.

- While I like the thought of eating protein first, the cost of protein foods is going up. Did the study you mention where participants ate protein first, was it a certain number of grams of protein?

  No, I don't give patients a set amount of protein. I encourage them to take a mindfulness approach regarding the amount. Telling people what order to eat their food is not necessarily following "mindfulness" guidelines, but when patients have the desire for less of a spike post meal, they may choose to use this as a tool. You can find the details of the study in the June 23, 2015, issue of Diabetes Care.

- What about decaf coffee? Does it have the same effects on blood sugar and / or insulin resistance?

  It's the caffeine in the coffee, so decaf would likely not have the same impact.

- Does black coffee outside eating window interfere with benefits of TRE?

  No, it doesn't have any calories, so black coffee is fine.

- Do you recommend intermittent fasting regimens - what about meal timing for shift workers?

  I typically only use Time Restricted Feeding (TRF) as opposed to Intermittent Fasting (IF), I find it easier for my clients to do, although I am not against IF. Shift workers have a challenge because they are fighting against their natural circadian rhythm, and we know that this presents a whole set of health concerns on its own. I would encourage workers to choose healthy food to support them during their waking/working hours and utilize the same tools mentioned in the presentation.

- For timing, what about those individuals who have Dawn Phenomenon and benefit from an evening snack?

  The key word you mention is "benefit". If they do benefit and their fasting blood sugar is lower, great! Otherwise, they could try a different approach, being consistent with a 12-13

hr. overnight fast, adding exercise into the mix and see if they can get the same results. There are many ways to get to the common goal! It's best to use what works for that individual.

- Regarding the migrating motor complex, would it be best to only try to build out three meals that meet adequate intake needs (kcals, protein, etc.) without snacks and only include if that hunger cue comes up between meals?

  Absolutely! But let the patient choose what and how much, helping them with diversity at the meal, making sure there is adequate fat and fiber (particularly from non-starchy veg) is the key.

- What is the impact of a very long fast on the hepatic blood sugar production through the night, especially in terms of intermittent fasting?

  Think of it this way, insulin controls hepatic glucose production. Less insulin, less sugar output. So, if a person consistently fasts for long periods overnight, they can improve insulin resistance and decrease hepatic output. Add a little exercise into the mix and people will wake up with much lower blood sugar.

- Can you provide some resources regarding the diets based on genotypes?

  Yes, look at the resources slide at the end of the presentation.

- I noticed in the genotype testing, there was a note that vitamin E can raise risk for heart attacks and early death from CV disease in others. Can you explain why supplementation raises the risk? I thought vitamin E was one of the least toxic vitamins.

  The only people who benefit from Vit E are people who have diabetes with the Hg 2-2 genotype. Otherwise, Vit E has been shown to raise risk for heart attacks and early death from CV.

- How does the Apo E and the Hp get checked? Through blood check and can they be done just with routine blood work if requested?

  They are both done via blood draw. Cleveland Heart Lab is one good resource to learn more about the tests.

- What does it mean for diabetes to go in remission?

  The actual definition for DM remission is an A1c <6.5% or FBG <126 for 3 months, in the absence of medications.

- Was it the nuts or the protein from the nuts in his oatmeal?

  The fat can slow the absorption of carbohydrates.

- Would having the oats cold or warm help the blood sugar spike in case #1 because of resistant starch?

  Yes, often cooler oats, potatoes, etc. have higher levels of resistant starch, so trying overnight oats would be a possibility!

- How valid/reliable are nutrition recommendations in r/t genetic testing? Is this used widely?

  They are reliable, I think the current problem is they are not as accessible and not performed in standard treatment. It depends on the provider, and if they are specializing/utilizing precision medicine.

- Can you explain the gluten free connection again? Also, what is zonulin?

  People with the Hp1-2 or 2-2 genotypes do better on a GF diet, because excess zonulin is produced in response to gluten and it increases inflammation, which increases risk of heart attack in people with diabetes. Zonulin is a protein the body makes in response to gluten and can loosen tight junctions of the intestinal wall, making it more permeable. Alessio Fasano, MD is a great resource he has written many journal articles.

- Can you share how and why you recommend genetic testing?

  I send my patients, such as the wildlife biologist, to the Bale Doneen/Heart Attack and Stroke Prevention Center for testing as they do this regularly, then I help clients make the lifestyle adjustments.

- At what point, if ever, would you recommend start reducing medications for blood sugar control?

  As quickly as possible. I work closely with the patient's providers, and they allow me to help the patients adjust medications. The worst thing that can happen is a patient starts making all these changes and starts getting a lot of low BG reactions. I always start with insulin reduction first.

- Do you ever recommend NAC instead of Metformin?

  Yes! If a patient isn't tolerating metformin, NAC is another great option. Many people get metformin for free and must pay for NAC, so that is sometimes a consideration.

- How do you get people to stop eating after dinner if they stay hungry at night and can't sleep?

  Raising awareness as to why they are eating. Do they associate eating with TV or are they doing it out of habit? I tell them to try and avoid eating after dinner, if they absolutely must have something, try some nuts or protein, and see if that helps. Usually it's behavior, like having something planned for them to do differently in the evening, staying out of the

kitchen and avoid activities that trigger them to eat. Once they do it for a week and see their numbers start to drop, then the desire for eating drops too!

- Can you share your salad dressing recipe?

  Tessemae's Dressing is available for purchase at the grocery store.

- Can berberine can be used for Type I DM too?

  You can use berberine in Type 1 if there is an insulin resistance component, dyslipidemia and/or hypertension.

- I work in a low-income clinic where the patients do not have the ability to get CGC's. If you do not have the information, you would get if a patient had a CGC, how do you best tailor a DM diet to him/her?

  If a patient does not have coverage or access to a continuous glucose monitor, there are 2 options, the office/clinic where you work can purchase a professional CGM and place it on patients for a 1-2 week time period (this is a billable service) or they can do paired testing with their blood glucose meter (check before and 2 hr after the start of a meal to evaluate how the food affected BG).

- Are there any contraindications for using berberine?

  I know that Viagra (commonly used for ED, particularly in people with diabetes) can have an interaction but I don't know to what extreme and usually men don't use it every day. I like to use berberine 3 months on and 1 month off (on the one month off I may use glycemic manager only, which does not have berberine in it)

- I encourage my diabetic clients to have more frequent, small meals so that they don't have too many carbs in one sitting and helps to reduce the spike in blood sugars. So, is your point about watching the snacking, more to ensure that the client isn't just mindlessly eating?

  Partially, but I bet that patient can alter their meal intake with higher fiber and higher fat to not only meter their carbs, but also keep them satisfied between meals.

- Doesn't protein also promote fullness?

  Yes, protein can help with satiety, but fat slows carb absorption.

- What do you do for patients with very high blood glucose level and losing weight consistently?

  If BG is high AND they are losing weight I would recommend insulin for a few weeks to get sugars down and stop weight loss r/t high BG, then transition to orals or GLP1, and then eventually reduce that if needed.

- If a patient did not want to use CGM, would you recommend SMBG before, 1 hour and 2 hours after a meal to see effect?

  Yes- great idea!

- What do you tell a patient whose A1c is <7% but unable to lose weight to manage his fatty liver problem?

  Work on diet, eliminate high fructose corn syrup and processed sugar, increase cruciferous veggies that support liver. Metformin is great for fatty liver.

- What are your recommendations for people working in an inpatient setting where you are not able to follow-up long term?

  Refer them to a diabetes educator who can continue care/support.

- Please share the specific berberine supplement you've recommended?

  There are many brands of berberine, Integrative Therapeutics, Orthomolecular, Thorne, Jarrow, NOW, Klaire are just a few popular ones.

- With time restricted eating and less snacking throughout the day, how do you recommend they stay at a calorie amount that's enough for them? Larger meals that are lower carb?

  Good question - don't count calories as it can feel too restrictive. Focus on helping the patients add food, help them get up to 1-2 cup of non-starchy veg per meal. Keep focus on what to add in and why it helps them. Help them identify what true hunger feels like and when they start to feel satisfied. I use a hunger scale.

- What are your recommendations for patients that come to you that want to follow a ketogenic diet?

  I dig deeper to learn a little more about why they want to do it. I ask them about their current eating behaviors, favorite foods, social interactions, family. Keto is a way of life and I just help them evaluate for themselves if it will work. Usually their "why" must be really strong, such as, having a debilitating autoimmune disease like MS, etc. If their why is just to "lose weight" it probably won't stick. I also ask them what they think keto is exactly. Most people think they are just buying packages at the store that say keto on them- which is far from the reality of the diet.

- Did you say "professional CGM"? how can I get one?

  Freestyle Libre Pro, Dexcom and Medtronic also have professional versions, Freestyle is easiest, in my opinion.

- Do you recommend the overnight fast for GDM?

Depends on the situation, if they are not having a lot of morning sickness and they feel comfortable doing so, we also aren't trying to put them in ketosis which can happen fairly easily. More so, I focus on quality of food and movement.

- Curious if this in an expensive lab to request - Haptoglobin Genotype and Haptoglobin Genotype?

  I don't know the exact cost, I know quest labs does it, could check with them. Price may also vary based on where you live. Not sure?

- I'd like to learn more about the genotype and diet. Where can we find more information on this?

  See the resource slide, article by Bale and Doneen.

- Why does eating gluten increase glucose in some people? (More explanation please). Could we all benefit from lower gluten?

  Eating gluten in some people increases <u>inflammation</u>, not necessarily glucose, BUT eating something that causes inflammation in the body could indirectly increase overall blood sugar levels. No, not everyone needs to avoid gluten. If you are wondering if you are glucose intolerant there are tests that can be done. Review work by Dr. Alessio Fasano.

- What is your recommendation for what a hospital diet to replace the traditional ADA diet plans?

  I think people should eat in the hospital how we would want them to eat at home. It could be as simple as the plate method serving more non-starchy vegetables. Serving meals with more fiber/healthy fats to people with diabetes.

- If too much fat can increase insulin resistance when you recommend fat and fiber do you mention to limit the fat?

  The type of fat makes a difference. High levels of saturated fats can increase insulin resistance, focus on healthy fats.

- Any suggestions for someone who needs to gain weight, but with prediabetes. I'm wondering if he should cut out snacks, but worried about his weight.

  I would wonder why he needs to gain weight. Is he malabsorbing, does he have cancer/post cancer? Focus on high quality meals and increasing nutrient density. If he is hungry and needs to snack, add 1-2 snacks, and just focus on the overnight fast.

- How much magnesium do you suggest daily?

At least 400 mg (Mg glycerinate, not oxide as it's not absorbed as well, only citrate if they are constipated)

- Could you restate the doses/frequency of berberine used and review the Amp-k pathway mentioned?

  500mg 2-3 times a day

- A client says their Libre continuous monitoring is not matching the conventional way of pricking themselves. So, they decided to forego the CGM. Is it prudent to suggest them to try it again to observe the overall pattern, despite the precision?

  Exactly, have them look at big picture, trends and patterns, not individual readings. They should expect it to be a little different than their meter. High levels of Vit C and taking Tylenol regularly can false elevate the readings.

- What genetic test do you recommend?

  I personally do not recommend any; I send them to a knowledgeable provider when I know they have serious CV risks AND I have evaluated that they are willing/able to make dietary changes.

- Love the idea of the CGM but most insurance does not generally cover it or may not be able to afford. And if not on insulin most folks only get 30 strips so may not be able to test pre/post prandial. How else would you recommend working with those folks?

  If a patient does not have coverage or access to a continuous glucose monitor, there are 2 options, the office/clinic where you work can purchase a professional CGM and place it on patients for a 1-2 week time period (this is a billable service) or they can do paired testing with their blood glucose meter (check before and 2 hr. after the start of a meal to evaluate how the food affected BG).