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### A Discussion on the Updated Recommendations for Managing Dyslipidemia in Adults

#### Dr. Cheeley:

The National Lipid Association, otherwise known as the NLA, has recently published an updated recommendation for the management of dyslipidemia in adults. Welcome to *Heart Matters* on ReachMD. I'm Dr. Mary Katherine Cheeley. And joining me today to discuss these guidelines for adults with dyslipidemia is Dr. Carol Kirkpatrick. She's a clinical lipid specialist and a clinical scientist at Midwest Biomedical Research.

Dr. Kirkpatrick, thanks for joining me today.

#### Dr. Kirkpatrick:

Thank you for having me.

#### Dr. Cheeley:

So let's start us off with a little bit of background. What dietary or lifestyle patterns are associated with atherosclerotic cardiovascular disease risk?

#### Dr. Kirkpatrick:

Well, what we see is unhealthy dietary patterns that have a high amount of foods that have cholesterol-raising properties. So we know that some of the saturated fatty acids can increase atherogenic lipoprotein particles, specifically in non-HDL -LDL cholesterol, and then also dietary cholesterol, although, we do know that saturated fat increases both atherogenic particles more than dietary cholesterol. So if a person is consuming a high amount of saturated fat, that can contribute to an increased risk of cardiovascular disease, but then conversely, dietary patterns that do not have enough of the foods we know have nutrients and components that can be beneficial, so plant-based foods that have a high amount of fiber, bioactive compounds, we want people to consume more of those types of foods in their dietary pattern. So the most recent dietary guidelines and nutrition recommendations are emphasizing the totality of a dietary pattern, so not specifically one nutrient or one food or one macronutrient but really focusing on increasing an intake of foods that we know are associated with health benefits, so those plant-based foods—fruits, vegetables, whole grains, legumes, nuts, seeds—and then trying to eat healthy proteins, whether those are animal-based proteins or plant-based proteins, and then liquid oils, plant-based oils in place of solid fats.

So we know that what people choose to eat can have a significant impact on their health, whether that's cardiovascular disease or other chronic illnesses and diseases like diabetes or cancer. So it really is that broad umbrella of trying to eat more foods that contribute to their health and eat fewer foods that contribute to negative health outcomes.

#### Dr. Cheeley:

So let's focus on the updated guidelines. You really made this massive topic very digestible. What nutritional interventions are recommended for adults with dyslipidemia?

**Dr. Kirkpatrick:**

So we focused on adults, and we chose to focus on three specific dyslipidemias that are seen more often by healthcare professionals, so isolated elevated LDL cholesterol, isolated elevated triglyceride levels, and that includes chylomicronemia syndrome, and then combined dyslipidemia, which is an elevation of both LDL-C and triglycerides.

**Dr. Cheeley:**

Let's take them one at a time. So if we're talking about isolated elevated LDL-C, what are the main take-home points that if I can only get my patient to understand two things, that I should really focus on and try to educate them on?

**Dr. Kirkpatrick:**

I think the first really important point you made is having the conversation. I believe in shared decision-making with your patients. We do that with medications and medical procedures. And then I think it's important to identify—is this a genetic elevation in LDL cholesterol or is it polygenic or more environmental? Clearly, familial hypercholesterolemia, a lifestyle is for sure still important, but those patients with FH are most likely going to require both lifestyle intervention and pharmacotherapy so really teasing that out and identifying their risk. So if we have lower-risk patient with elevated LDL cholesterol, then tailoring our message for maybe they need lifestyle first. They can have a few months to see if we can bring down that LDL-C to where it needs to be for optimal decrease of risk for ASCVD.

And then once you have identified what's going on with their current lifestyle, then teasing out are they consuming foods that are high in saturated fat because, again, those are going to be the foods that if they consume too much of and not enough unsaturated fat in place of it, then that's something they can tackle. And then just as important, identifying foods that they may not be eating that we know can help reduce LDL cholesterol, so foods rich in fiber. Total fiber is important, but viscous fiber specifically is going to help reduce their LDL cholesterol. So luckily, some plant-based proteins are rich in viscous fiber, and if you swap out some animal-based proteins that are higher in saturated fat with plant-based proteins, then that's like a double whammy with bringing down LDL cholesterol, so legumes, beans, lentils, those types of foods are rich in plant-based protein, as well as many of them are also rich in viscous fiber. Plant stanols and sterols we know can help reduce LDL cholesterol, but most people cannot consume enough. People need two grams per day of plant stanol sterol to reduce their LDL cholesterol, so most patients are going to require a dietary supplement, which then of course, they have to be educated and find a reputable dietary supplement, preferably, one that's USP verified so that the US Pharmacopeia has given its stamp of approval for good manufacturing practices, so that could be an option.

**Dr. Cheeley:**

For those just joining us, you're listening to *Heart Matters* on ReachMD. I'm Dr. Mary Katherine Cheeley, and I'm speaking with Dr. Carol Kirkpatrick about nutritional interventions for adults with dyslipidemia.

**Dr. Cheeley:**

Let's take a slight left turn towards triglycerides because you gave a great presentation on familial chylomicronemia syndrome, as well as multifactorial chylomicronemia syndrome, and you were talking specifically about carbohydrates, and it was a great discussion because I think so many providers think through triglycerides and immediately jump to carbohydrates, but that wasn't the end all be all of your presentation. Can you go into that a little bit for us for those patients with isolated elevated triglycerides?

**Dr. Kirkpatrick:**

Yes. And it's a great segue. The one thing I did want to mention in terms of LDL cholesterol as we go into triglycerides is activity, physical activity. A lot of people think you need to exercise more, that will help with lowering your LDL cholesterol, and it might, but actually, LDL cholesterol is not as sensitive to increased physical activity. It will clearly help in other aspects, but triglycerides for sure. So with our patients with elevated triglycerides, and that's regardless if they're familial, chylomicronemia syndrome, or multifactorial, we want people to be active daily because that will help with triglyceride-lowering in addition to nutrition intervention.

So with familial chylomicronemia syndrome and multifactorial chylomicronemia syndrome—FCS MCS way easier to say—FCS we know

is a genetic rare disorder. One in about a million people will have FCS. So patients with FCS basically have either a severe deficiency in lipoprotein lipase or it's just nonexistent at all, so they cannot do what they need to do in terms of breaking down triglycerides once they consume them. So when they consume triglycerides, they end up with chylomicron that eventually ends up in our liver to drop off and dropping off triglycerides along the way and a person with FCS just can't do what is normal to clear those triglycerides in the chylomicronemia. So we know patients with FCS or other disorders that result in severe LPL deficiency really do require a very low fat diet because their bodies just can't metabolize it like it should, and so those are the patients that we know for sure very low fat diet.

It's a very challenging dietary pattern anyway because they can't go crazy on the carbohydrate either because that can cause its own issues. So that also needs to be something that a patient would work with, again, an RDN to make sure they're following that very low fat diet. And these are patients that can't drink any alcohol either.

Now conversely, MCS, multifactorial chylomicronemia syndrome, these are patients that could have a triglyceride level of 400, and then they go out. Maybe they have a party, so they drink a little too much, and they consume some high-fat high-carb foods, and then they end up with triglycerides of 1,200, so something is going on. It's polygenic and these are the patients where we have to figure out what is contributing to the elevation in triglycerides and/or chylomicronemia. If you get above 750 milligrams of triglyceride, then typically, you're going to have some chylomicronemia as well.

So some patients are going to still do best on a lower fat dietary pattern, so any patient that has a high triglyceride level and chylomicronemia is probably present, should go on a very low fat, preferably, hypocaloric dietary pattern for like one to four weeks depending on what's going on with the patient; clear the triglyceride levels, and from there the multifactorial chylomicronemia syndrome patients, you need to start tailoring what's going to work best for them. Some patients are going to need a lower fat intake, so not as severe as the FCS patients where they are literally consuming five to 15 percent of their total daily calories coming from fat. That's like 10 to 20 grams of fat a day, total fat, very restrictive.

**Dr. Cheeley:**

So let's talk a little bit more about triglyceride elevations. Can you give us a background on the pathophysiology of hypertriglyceridemia and how that can contribute to higher triglyceride levels in some of these adults?

**Dr. Kirkpatrick:**

Concerning lifestyle factors, it could be a person who has excess adiposity. We know that can contribute to elevation in triglycerides, and a lot of that could be because it also contributes to insulin resistance or difficulty in managing if a person already has diabetes, so hyperglycemia. So medical conditions, medication, and then nutrition and lifestyle factors can play a role as well. And that's for sure the lifestyle part of it we delve into in our nutrition interventions paper. Part of that then is identifying if there are some medical conditions contributing to that elevation in triglyceride, and that speaks to the whole, some patients have hyperglycemia or hyperinsulinemia. Those are most likely the multifactorial chylomicronemia syndrome patients that would do better with moderate carbohydrate and moderate fat adequate protein. And it doesn't have to be very low carbohydrate. I think a lot of people think people who have elevated triglycerides, especially, if they do have prediabetes or diabetes, need a very low carbohydrate or severe carbohydrate restriction, and that is not the case.

**Dr. Cheeley:**

Well, these are definitely amazing nutritional guidelines and interventions for patients with dyslipidemia who are adults. Thank you so much to my guest, Dr. Carol Kirkpatrick, for sharing your insights with me today. It has been wonderful.

**Dr. Kirkpatrick:**

Thank you again for the invite, and it has been wonderful. Always wonderful to speak with you.

**Dr. Cheeley:**

Agreed. For ReachMD, I'm Dr. Mary Katherine Cheeley. To access this and other episodes in our series, visit [ReachMD.com/HeartMatters](https://ReachMD.com/HeartMatters) where you can Be Part of the Knowledge. Thanks for listening.