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Nonfasting Lipid Profiles: The Way of the Future

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Guest:
Dr. Borge Nordestgaard is Chief Physician in Clinical Biochemistry at Copenhagen University. He is also a clinical professor at the University of Copenhagen in Denmark.

Bob Barrett: This is a podcast from *Clinical Chemistry*, sponsored by the Department of Laboratory Medicine at Boston Children's Hospital. I am Bob Barrett.

Most of us are familiar with the link between elevated concentrations of lipids in our blood and an increased risk for cardiovascular disease which is responsible for about 500,000 deaths each year in the United States. It has been common practice to measure those lipids only after a period of fasting. This practice was put in place because of the known increases in triglycerides that can occur after eating; however, fasting lipid profiles have not actually been shown to be superior to nonfasting lipid profiles in assessing the risk for cardiovascular disease.

Several studies have established that lipids exhibit only minimal clinically insignificant changes in response to food intake. Recently, several studies have suggested that nonfasting lipid profiles are excellent at predicting cardiovascular risk. The September issue of *Clinical Chemistry* published an article by Dr. Anne Langsted and Dr. Borge Nordestgaard at the Department of Clinical Biochemistry, Copenhagen University Hospital, Denmark that discussed the future of nonfasting lipid profiles.

Today, we have one of the authors, Dr. Borge Nordestgaard, Chief Physician in Clinical Biochemistry at Copenhagen University and is also a clinical professor at the University of Copenhagen in Denmark. Dr. Nordestgaard, welcome back. Millions of patients worldwide have had their lipid profiles tested after a fast of at least eight hours. I know, I have done it, but now you say this might change in the near future. Did you suggest that random nonfasting lipid profiles are the way of the future? Explain why you feel this why.

Dr. Borge Nordestgaard: I think the very simplest reason for this is that nonfasting or random blood sample is much, much simpler for patients, for laboratories, and for clinicians. It is simply simple for everybody.

Bob Barrett: Is there scientific evidence documenting the value of fasting before lipid profile testing?

Dr. Borge Nordestgaard: Well, I am not aware of it, so if you and anybody else would know some that shows that fasting is superior to nonfasting, then please tell me about it or send it to me because I am not aware of it. It's simply because that is what we used to do and so we keep on doing it I think.

Bob Barrett: So, if there's no hard evidence to prove that fasting is superior to nonfasting lipid profiles, why has this practice continued? Is it what you said, you know, it's what we've always done?

Dr. Borge Nordestgaard: Yeah. It's the best thing I can come up with. It's like things happened and get into a tradition and then we just keep doing it. Like I said, no one said that you should fast before a lipid test but I don't see the evidence and I said before, it's much more inconvenient for patients, for laboratories, and for clinicians.

Bob Barrett: Your editorial in *Clinical Chemistry* comments on a paper by White, et al in the same issue. Their paper provides an important piece of evidence that facilitates the use of nonfasting lipid profiles. Now, can you summarize this for us?

Dr. Borge Nordestgaard: Yeah. I think this is a very important and timely paper because not only in my country, Denmark, but other places, people are thinking about using nonfasting. And then one question that comes up is, "Well, should we then have the same cut points for telling when is it abnormal and when is it normal when you use nonfasting versus a fasting lipid profile?" This is most relevant for triglycerides, which is what usually increases the most when you are nonfasting, not very much, though, but very little. Therefore, they now provide very nice evidence to suggest that if you use nonfasting lipid profiles, you use the cut point of 175 milligrams per deciliter or 2 millimoles per liter as telling clinicians when triglycerides are elevated because above that level, that's where they get the best prediction of cardiovascular disease risk.

Bob Barrett: Dr. Nordestgaard, in your opinion, which groups of patients will benefit the most from using nonfasting

lipid profiles and what are the best arguments for switching to this method?

Dr. Borge Nordestgaard: I think the patients that will benefit the most will certainly be children because it's a big problem having children fasting and then also people with diabetes because they don't have the risk of hypoglycemia, and then I would also think it would be very important for elderly people where it can be very inconvenient to fast and get into the lab somewhat after they get up. So I think these patients will benefit by far the most. Yeah, I think so, yeah.

Bob Barrett: Well, you mentioned Denmark as your home country and it was the first country that changed completely to nonfasting lipid profiles back in 2009. Tell us how easy or not so easy that was to implement.

Dr. Borge Nordestgaard: I think this is the easiest thing I've ever been part of in my entire career because all that happened was that we would see major university hospitals in Copenhagen that introduced this strategy, nonfasting lipid profiles and then at some stage, I talked with a journalist in one of the nationwide newspapers and he wrote about it. And then immediately, everybody wanted to hear about it also so if they didn't need to fast for lipid profiles in Copenhagen, why should we do that in the entire country or in the rest of the country?

So there was a lot of push from patients and clinicians to simply switch to that so then it switched very fast.

I should say that also at the same time, the dangers that for *Clinical Chemistry*, we put out a paper advising that we should do that for a lot of choices in the future so it came together with that thing and then the three hospitals switching and then that journalist helped a lot.

Bob Barrett: Finally, doctor, in Denmark, do you ever perform fasting lipid profiles and if so, under what circumstances?

Dr. Borge Nordestgaard: Certainly, there are still people that like the fasting thing so we kept the option of if you have triglycerides above 4 millimoles per liter, which is approximately 400 milligrams per deciliter, then we offer the option that clinicians can order a fasting triglycerides to test it should it be that the patient has just taken a big fat load maybe a huge ice cream before he had the lipid profile as a testing and then you can rule that thing out really. It's not used so much though. I can see in my hospital where we have had this procedure running

since 2009, approximately 10% of all triglycerides have been fasting; the rest are nonfasting.

Bob Barrett: Dr. Borge Nordestgaard is Chief Physician in Clinical Biochemistry at Copenhagen University Hospital, also clinical professor at the University of Copenhagen in Denmark. He has been our guest in this podcast on the future of nonfasting lipid profiles from *Clinical Chemistry*. I'm Bob Barrett. Thanks for listening.