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Advanced Cholesterol Testing

### ADVANCED LIPID TESTING

You're listening to ReachMD, The Channel for Medical Professionals.

Hi, this is Dr. Thomas Bersot, President of the National Lipid Association, and I would like to welcome you to Lipid Luminations, hosted by Dr. Larry Kaskel and presented by the National Lipid Association.

My guest today is Dr. Michael Richman. He is a Board Certified Cardiothoracic Surgeon and Fellow in the American College of Surgeons and in the American College of Chest Physicians. Dr. Richman is also the cholesterol expert on WebMD and on the Editorial Board of the Journal of Lipidology.

**DR. LARRY KASKEL:**

Dr. Richman, welcome to the show.

**DR. MICHAEL RICHMAN:**

Thanks for having me.

**DR. LARRY KASKEL:**

Well, you're the first cardiothoracic surgeon I've ever talked to, who is interested in lipids.

**DR. MICHAEL RICHMAN:**

The truth is while I was, you know, doing hearts and I was chairman of a program, I really didn't even know anything about it. You know, they certainly don't teach you that in cardiothoracic surgery, so obviously you believe that we are doing something of value when we are treating their lipids in addition to bypassing them. My own personal opinion having done, you know, well over 1000 bypasses is that the

key is #1 is prevention, but then it's secondary prevention after you had, you know, an angioplasty or a bypass and I can tell you and this is honest to God in three years of doing advanced testing I have yet to have a patient in the hospital with a heart attack or a stroke. Now I know from other people in the field I am extremely aggressive in treatment, but I believe in it 100% and doing advanced cholesterol testing.

**DR. LARRY KASKEL:**

When you say advanced cholesterol testing, which one specifically do you use? There is NMR, there is Berkeley, there is VAP, and may be others I don't know of.

**DR. MICHAEL RICHMAN:**

Well, I mean, first I want to make you clear that I have no financial relationship with any of the companies whatsoever and I try and guide what I do based on the evidence. I believe in LDL particle testing and you know we can get into why, but the big thing that I think everybody needs to know is why even do advanced cholesterol testing because I know at least in the Los Angeles community, every single day I am bombarded by physicians, who have never even heard of it and then they say, well why even get it because if I don't know about it, then it must not be big.

**DR. LARRY KASKEL:**

So what's your 11-second elevator speech, what do you tell these guys?

**DR. MICHAEL RICHMAN:**

I basically tell people that yes traditionally we all have learned that total cholesterol or LDL cholesterol is the bad actor and there is abundance of evidence that that's what causes atherosclerotic disease, but now it is widely accepted that the interaction of lipoprotein particles with the arterial wall is what causes coronary heart disease, so basically in a nutshell I tell people do you remember passive diffusion from biology and I say, you know, basically things flow from greatest to least and that's just a principle, and if you have the arterial intima has pores and it holds stuff flows from greatest to least. So think of cars on a freeway. I say is it the number of cars that cause a traffic jam or the number of people on cars. Traditional testing measured the number of people in cars, particle testing measures the number of cars, so it's the number of cars that is important not the people in cars and that's as soon as you sit down, you start explaining that they figure it out and then I say let's say your LDL cholesterol is 100, how do I know you don't have two big buses with 50 or 100 cars with one, still a 100 your LDL cholesterol and nobody is going to say that you need treatment there, but one person is going to get atherosclerotic disease and the other person is not.

**DR. LARRY KASKEL:**

So there in lies the rub that a basic lipid panel and an LDL over 100 is not really giving you the full story.

**DR. MICHAEL RICHMAN:**

No the CDC when they say that 50% of people who have heart attacks or die of heart attacks have normal cholesterol, to me that's

telling. You know why is that, why is despite doing it over 125 million conventional lipid panels why is heart disease still #1, well we're missing something and we are missing a lot where you know identifying a group of people, but I tell you that I think we are missing probably 40% of the population, who really do have abnormal lipids, but their traditional profile is giving it as normal.

**DR. LARRY KASKEL:**

I am curious because you are in a unique situation where you actually bypass these people and manage their lipids. Can you think of a case or a few cases where your patient had severe coronary artery disease and they had a normal LDL and perhaps a high HDL.

**DR. MICHAEL RICHMAN:**

I have a huge Asian population, African-American population, Hispanics so essentially the same population that was in the MESA study and I have one patient, who has actually become a friend and everything was entirely normal and about 5 years ago he completely occluded his LAD. Now fortunately he had collaterals and didn't have an MI and didn't even know he did it, but his total cholesterol was 180, his LDL cholesterol was in the 90s. When I did particle testing, yeah, it was extremely high. He was blown away and I would tell you that 9 out of 10 of my patients have normal panels and have normal advanced testing, one out of 10 and it seems to me I've had one male, you know, this is just the feeling that I got is that postmenopausal woman, who comes in and has a horrible traditional lipid panel and has normal particles, just a lot of big particles, and you know that's great, you save that person a lifetime of medicine, but they are not going to get disease any ways. So you know, the most important thing is to identify the people, who are really at risk, but have normal lipid panel.

**DR. LARRY KASKEL:**

If you've just tuned in, you are listening to Lipid Luminations. I am your host, Dr. Larry Kaskel. My guest today is Dr. Michael Richman. Dr. Richman is a Cardiothoracic Surgeon and also the Cholesterol Expert on WebMD and on the Editorial Board of the Journal of Lipidology. We are talking about advanced lipid testing.

Dr. Richman, you said that a lot of your patients or many of them had normal lipid panels, yet had severe atherosclerotic disease, so I beg to ask the question again, how could it just be LDL as causing the atherosclerosis. Is there not an initiating inflammatory event or insult, which then allows the LDL to get in more easily?

**DR. MICHAEL RICHMAN:**

I mean probably there is except, all particles except a largest chylomicrons that are less than 70 nanometers can get in through the wall and like I said it's just a diffusion gradient, so if you have you know particles of the right size, then a lot of them they are going to get through the wall and if diffusion gradient, you know, yes, but the concept of chronic inflammation comes up and you know people who have high triglycerides that's a recognized risk factor and now and certainly if you have a lot of the LDL, it probably damages the intima, but you know I mean I don't think we know exactly all these emerging risk factors. I mean we know they exist, but I don't really know how important they are.

**DR. LARRY KASKEL:**

There are some tribes in Africa, who live on milk and blood and have super high cholesterol and so they got to have <\_\_\_\_> particles,

but yet they don't develop atherosclerosis, so it cannot just be this diffusion. There is something maladaptive occurring once those LDL particles are getting across and then for some reason cannot be taken care of appropriately.

**DR. MICHAEL RICHMAN:**

I would agree with you, but you know right now there is no good evidence just like there is no good evidence, I don't personally believe that raising HDL is an important thing as does NCEP, you know that's a tertiary optional goal. You know, there is no test now to measure the functionality of HDL you know when I point <\_\_\_\_>, you know Italy, that whole group, who have HDL of 5 and 10 who have no coronary artery disease.

**DR. LARRY KASKEL :**

Are you seeing or have you seen in your patients that you've bypassed evidence for lipoprotein A that was really the problem.

**DR. MICHAEL RICHMAN:**

I don't do it that often because despite, yes we know that niacin lowers it, there is no good evidence that lowering it does anything because I kind of view it as it goes hand in hand with LDL particles, so once again it's an emerging risk factor. I don't know how important it is because just like an elevated homocysteine yes it's a risk factor, but I think it's clear now that using folate to lower it does nothing to change the risk, so you know I am not sure about it. The biggest thing that was up to convey to people is that you know it's the soft plaques you have to worry about and those aren't appreciated on angiogram. When you are going to do heart surgery, you know a lot of people, yeah, they may have calcified plaques and that's what shows up, but a lot of people have diffuse butterfly disease and you know that's what causes the heart attacks. Those are the plaques that fracture and you know I don't know if it's an inflammation, it probably is a component of it, but I still personally believe that, you know, LDL particles are the culprit and I think that with the American Diabetic Association and ACC's consensus paper a few weeks ago coming out and supporting that, you know I think that's long overdue.

**DR. LARRY KASKEL :**

When you're following your patients, will you ever get a regular lipid panel once they are stable and you've assessed that their particle numbers are down to where you want them to be or are you continually monitoring them with an NMR?

**DR. MICHAEL RICHMAN:**

I use an NMR always to monitor, to me it's been a great tool, but when you do the NMR, you know, which is covered by medicare and most insurances, you get regular traditional lipid testing at the same time, it's just it comes with the test, so I look back and forth. I have a very close friend who is an ER doc and he is 45 and he has insulin dependent diabetes and hypertension and high cholesterol and in order to get his particle number acceptable, his corresponding LDL cholesterol is 31 and he has just denied life insurance because they said it was too low, but that's if I hadn't used particle testing and I just said that LDL was my goal and LDL cholesterol if I would have shot and said he was high risk and followed and set guidelines for being very high risk and try to get an LDL cholesterol of 70, my particles still would have been high, so I think it's a phenomenal tool #1 to find them, but then use it as a guide of treatment.

**DR. LARRY KASKEL :**

When you get your patients maximized out on a statin and they still have excess particle numbers, what is your second line of treatment?

**DR. MICHAEL RICHMAN:**

Usually I start them on a starting dose of statin and I do have a favorite statin that I use.

**DR. LARRY KASKEL :**

And that be rosuvastatin?

**DR. MICHAEL RICHMAN:**

Crestor, yes, and I hear that I am the largest user in the Southern California area, but once again I have absolutely no relationship with AstraZeneca, it's just to me it's the strongest statin and there is obviously great data it's the strongest statin at the lowest dose. Before doubling the dose, I add Zetia. If that doesn't work, and I just had a lady, who came in to me right now for followup, her brother died at 45, her father just passed away, she has horrible familial hypercholesterolemia with an LDL cholesterol of 414 and her particle number was up in the high 3000 range, and I almost have her close to where I want to be on 40 of Crestor and 10 of Zetia so I just added Welchol and you know that's the rare patient that needs three drugs.

**DR. LARRY KASKEL :**

Do you ever use fibrates?

**DR. MICHAEL RICHMAN:**

I do, a ton. I use a ton of TriCor and I use that on patients, who have hypertriglyceridemia, which I define as greater than or equal to 150. Now, that doesn't mean at 150 I am going to definitely use a fibrate, I usually put them on high dose omega-3.

**DR. LARRY KASKEL :**

Well, Dr. Michael Richman, thank you very much for talking with us today.

**DR. MICHAEL RICHMAN:**

I appreciate it very much.

Thank you for listening to Lipid Luminations, presented by the National Lipid Association. For more information, visit [www.lipid.org](http://www.lipid.org).

