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# Where Does This Patient Land? Making Sense of Risk and LDL-C Goals

**Announcer:**
Welcome to CME on ReachMD. This episode is part of our MinuteCE curriculum.

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**Dr. Gluckman:**
Welcome to CME on ReachMD. I'm Dr. Ty Gluckman. I'm the Medical Director at the Center for Cardiovascular Analytics Research and Data Science at the Providence Heart Institute in Portland, Oregon. I'm going to pass then to my colleagues to be able to introduce himself.

**Dr. Wadhera:**
Hi, I'm Rishi Wadhera. I'm an Associate Professor of Medicine at Harvard Medical School and an Associate Professor of Health Policy and Management the Harvard School of Public Health. I'm also a cardiologist at Beth Israel Deaconess Medical Center.

**Dr. Gluckman:**
Rishi, it's a pleasure to have you here today, and it's important to realize that together, we'll be discussing how to identify a patient's risk for atherosclerotic cardiovascular disease and determine LDL cholesterol treatment goals.

I think it's always helpful to illustrate some of the discussion with a patient case. This is a 68-year-old African American man with atherosclerotic cardiovascular disease, in particular, peripheral artery disease. Now, this patient has multiple relevant comorbidities, including obesity, hypertension, hypercholesterolemia, type 2 diabetes mellitus, and of course, the peripheral artery disease. He's taking low-dose aspirin. He's taking antihypertensive medications, metformin for his diabetes, and is on statin therapy with simvastatin at 20 mg each evening. He's historically been sedentary, but has begun a recent exercise program, which will be quite effective and important for his peripheral artery disease. He lives in rural Kentucky, 85 miles from the nearest cardiologist, and he acknowledges he's had limited access to specialty care, both in terms of his day-to-day care, but also in terms of pharmacy care, with limited medication availability at his local pharmacy. He also has inconsistent transportation access for follow-up. And as it relates to lab values, his LDL cholesterol currently on simvastatin 20 mg each evening is 124 mg/dL.

And so when we think about atherosclerotic cardiovascular disease in our patient or in any patients, it's important to realize that this is a continuum. The preponderance of cardiovascular risk factors increases the susceptibility to develop atherosclerosis and also develop consequences of atherosclerosis, namely myocardial infarction, stroke, or critical limb ischemia in the peripheral arteries. And LDL cholesterol elevation has been identified as a key driver of the development of atherosclerosis and susceptibility to risk for cardiovascular events. This is well illustrated in multiple studies, including the INTERHEART study, which predisposed individuals to a first myocardial infarction.

And when we think about cholesterol elevation, similar to tobacco exposure in pack years, we're increasingly thinking about cholesterol years of exposure. So for our patients, it's how long has his LDL cholesterol been elevated, and what is the magnitude of elevation that

engenders an increased susceptibility to not only develop atherosclerosis, but adverse consequences as a result of that?

Now, importantly, in both the 2013 and 2018 blood cholesterol guidelines, they identified four key groups that warrant LDL cholesterol lowering, and these are mutually exclusive groups, including, first, those with clinical atherosclerotic cardiovascular disease, which our patient fits into as a result of their peripheral artery disease. And importantly, in 2018, this group was further divided into those deemed to be very high risk versus not very high risk for subsequent adverse cardiovascular events. Second were people who had severe hypercholesterolemia, LDL cholesterol levels greater than or equal to 190 mg/dL, and this included those with or without familial drivers of that elevated LDL cholesterol. Third were people with diabetes. And fourth were patients who had none of the above, but as a result of a predicted increased cardiovascular risk, warranted LDL cholesterol-lowering therapy.

In the 2018 blood cholesterol guidelines, they further define this very high-risk versus not very high-risk group in those with atherosclerotic cardiovascular disease, and it essentially involved individuals having two or more major ASCVD events or one major ASCVD event, and two or more high-risk conditions. And importantly, our patient has symptomatic peripheral artery disease, but also has multiple high-risk conditions, putting them in a category of being very high risk.

And importantly, we have over time for many years, and it's no different today, attempt to match the intensity of our LDL cholesterol-lowering therapy to the baseline risk of the individual. And with this individual being very high risk, more recent guidance that was issued by the American College of Cardiology in 2022, pushes this patient's LDL cholesterol goal to be less than 55 mg/dL, reinforcing given his baseline elevated LDL cholesterol on background therapy with simvastatin the need to further intensify his LDL cholesterol-lowering regimen to reduce his cardiovascular risk.

Now Rishi, I maybe could ask you to briefly speak about the potential influence of him being in a rural care setting, and what this may mean for accessing care.

**Dr. Wadhera:**
No thanks, Ty. I think you're totally right. It's important to highlight that this individual lives in a rural part of the country and is 85 miles away from the nearest cardiovascular specialist, and this patient faces barriers in accessing care that are emblematic of what millions of rural Americans face across the country. We know that primary care providers supply is lower in rural parts of the country, and rural PCPs are gateways to our healthcare system. Rural Americans face challenges accessing specialty providers, including cardiologists. And rural Americans also are more likely to live in pharmacy deserts, where they're less able to go ahead and access medications that they've been prescribed. And I think all of these factors together create challenges when we think about how to mitigate cardiovascular risk and treat cardiometabolic risk factors as well as cardiovascular disease in these populations and are important social factors that we need to consider as care providers.

**Dr. Gluckman:**
Thank you. I think those are really important insights, and I know that we're going to talk more about this, but it really very much does influence care delivery.

Well, this has been a great discussion. Unfortunately, our time is up. I want to thank you for listening.

**Announcer:**
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