Hi. This is Laxmi Mehta from the Ohio State University. I’m here with Doctor Lynne Braun and Doctor Gina Lundberg to discuss the 2018 cholesterol guidelines. In specific with women-specific factors. Doctor Lynne Braun is professor of nursing and a nurse practitioner at the Heart Center for Women at the Rush University Medical Center. And Doctor Gina Lundberg is an associate professor of medicine at Emory University and director of Emory Women's Heart Center. Welcome ladies.

Lynne Braun: Thank you.

Gina Lundberg: Thank you.

Laxmi Mehta: Let's get started, cardiovascular disease is the leading cause of death for women in the US and worldwide. We know that atherosclerosis typically occurs later in life for women than in men. But it's interesting that in the new cholesterol guidelines, for primary prevention, women suddenly became a factor. Why now, and Dr. Braun you were part of the cholesterol guidelines so can you explain that to us?

Lynne Braun: Sure. Truthfully I think it's long overdue that they're incorporated in the cholesterol or any prevention guideline. I think we need to be more cognizant of this. But it was really the brilliance of the chairs, I have to admit that this aspect, the women-specific factors, were included in the guideline. And in fact, I walked into my first face to face meeting for the cholesterol guideline and I was handed my assignment and it was women-specific issues. So that's how it happened.

Laxmi Mehta: That's great. And you know many in the crowd that heard the guidelines being announced at that time, were just cheering to see female-specific factors that were included. So, Dr. Lundberg could you explain, what are the women-specific factors that were included in the cholesterol guidelines?
Gina Lundberg: 01:55 I think two important areas are including things that are more common in women such as rheumatologic disorders, rheumatoid arthritis, systemic lupus, erythematos; but also things that are unique to women such as pregnancy complications. They specifically included hypertension disorders during pregnancy, preeclampsia, early gestational delivery, also early menarche is important in that, gestational diabetes. So all of these things, clearly unique to a woman because we're still the ones having babies, were included for the first time.

Gina Lundberg: 02:28 I think it's very important 'cause this is also what we've been saying with the preventative women's guidelines 2004, 2007, 2011 update. So they really finally collided in data on what's important in women.

Laxmi Mehta: 02:40 So Dr. Braun, you included these woman-specific factors. What do they do long-term? Do they increase arthrosclerotic disease or are they leading to just hypertension? Do we know?

Lynne Braun: 02:52 There is data to show that women-specific factors, especially early menopause, and we define that as menopause before age 40, as well as a history of preeclampsia increase a woman's cardiovascular risk. You know, there's very solid data to show for example that preeclampsia increases a woman's cardiovascular risk up to two-fold. So that's very important and it is a clue for women and their healthcare providers to monitor them throughout the life course, in particular, the years after pregnancy. In order to identify areas of intervention earlier rather than later.

Laxmi Mehta: 03:34 So Dr. Lundberg, she mentioned monitoring these factors throughout the lifespan. Who should be monitoring it? Is it just you as the cardiologist?

Gina Lundberg: 03:42 The cardiologist can never take care of that many women, so we must recruit the OB-GYNs who are obviously directly involved in the pregnancy and delivery. But family practice and internal medicine, we should be open to consultation when they need help with a particularly difficult female; but I think this information has got to filter through all of the primary care fields. And definitely when a woman has
had a very complicated pregnancy, say preeclampsia, she needs counseling on future pregnancies as well as her long-term risk. The most important thing, I think these women can do is get the baby weight off, get back to an active lifestyle, control their weight, and then within six months they need follow-up with primary care to address their cardiovascular risk factors.

Laxmi Mehta: 04:25 Do you think that's happening these days?

Gina Lundberg: 04:27 I don't think it's happening enough. I think it is starting to happen. At Emory, we work very closely with the OB-GYN department. In fact, we literally have an office in their space so we can collaborate on these women. I think the information is getting out there but we're not where we need to be. We have a long way to go.

Lynne Braun: 04:45 I concur with that, and I think that a lot of women until they're done having babies, and maybe even beyond, they obtain their primary care by their OB-GYN physician or by a woman's health nurse practitioner. So it's these groups that we need to educate about the cholesterol guidelines in particular or any prevention guidelines. We have to go to their meetings and talk to them about this and use informal communication channels within our own organization.

Lynne Braun: 05:17 I think that Dr. Lundberg and her practice is ahead of the game, seeing patients in the same area that the OB-GYN physicians are seeing patients I think is fabulous. I have a relationship with a organization of women's health nurse practitioners. They invite me about every other national meeting to give a talk on prevention guidelines. So that's helpful. And they also have an app on a healthy woman assessment and they asked me up front to write the cardiovascular assessment for that app. So I think that that's useful as well.

Laxmi Mehta: 05:55 You two bring up a good point. Cholesterol is not just the cardiology world's role, it's everybody's. I mean everybody should be owning it from the pediatrician, to the primary care physician, to the OB-GYN, to the cardiologist, nephrologist, endocrinologist. Everyone needs to be in this space and not keep pointing fingers to each other. And
also you both brought up a good point, it's beyond just the physician.


Laxmi Mehta: 06:18 It's like the whole care team, so nurse practitioners, nurses, the pharmacists, and beyond that need to take ... And apps in the digital world, really extends that access to all patients and reminders to them.

Laxmi Mehta: 06:30 And don't forget social media. The three of us are very active on social media and I think it's important to put these things on social media where people can read them. But the interchange between, as we said, the CV team, between the nurse practitioners and the OB-GYNs. On social media is where we can all meet and collaborate and share ideas. I think that has a role to play as well.

Lynne Braun: 06:52 Good point, good point.

Laxmi Mehta: 06:53 So let's say a female has hypercholesteremia and needs a statin. Are statins beneficial in women?

Lynne Braun: 07:00 Actually, a little inside information from the guideline group: when our guidelines went to reviewers they were twice as long and the first thing the reviewers said was, "Cut them in half." And an area that I wrote was eliminated because I did evidence tables on statins in women on all of the clinical trials that included women. And so, those evidence tables are still there but we reduced the redundancy and took out anything that was redundant of the primary prevention portion of the guideline.

Lynne Braun: 07:33 So, yes statins are beneficial in women. We have solid evidence that in secondary prevention, statins are just as beneficial in reducing events as in men. In terms of primary prevention, there is a little bit less evidence in women compared to men but in general women do derive a significant benefit. The studies were not powered to look at mortality, particularly total mortality, but in terms of reducing cardiovascular events in primary prevention in women who need them, statins are beneficial.
Laxmi Mehta: 08:11 Terrific. Terrific. Dr. Braun, what about the child-bearing age female who needs a statin? What do you tell them?

Lynne Braun: 08:18 That's such an important question. Women of childbearing age who need a statin typically have severely elevated cholesterol levels. Oftentimes we can give them a diagnosis of familial hypercholesterolemia, not just based on their very high cholesterol level, but also a family history or personal history of premature disease. And they need to be treated. You know, they absolutely need to be treated until the point at which they choose to become pregnant if that's in their life's trajectory. So it's important to counsel women. They need to know that statins are contraindicated, that they need to stop the statin a month or two or three before trying to attempt pregnancy. And then to be off that statin until after they are finished breastfeeding if that's what they choose to do.

Laxmi Mehta: 09:12 And so, you recommend some sort of birth control in the childbearing age?

Lynne Braun: 09:17 Absolutely. They need to use effective contraception in order to prevent pregnancy. Thank you.

Laxmi Mehta: 09:23 Dr. Lundberg, pregnancy. When a patient comes in pregnant, do you expect to see changes in their lipid profile?

Gina Lundberg: 09:30 Oh, absolutely. You're building a baby, and it takes a lot of cholesterol to build all those cell walls. So an elevation in total cholesterol and LDL is to be expected and part of the process. Triglycerides can also get quite high as well. If I have a patient who's had high cholesterol, I always take them off statin if they become pregnant on it. And I do like to have pre-planning where we set a time when she's going to go off birth control, when she wants to conceive, and when we're going to stop statin therapy.

Gina Lundberg: 09:58 As a general, I do not check the cholesterol while they're pregnant. It's going to be very high. It's generally alarming to that woman. It just adds stress. And we're not going to treatment. Right now we do not have an FDA approved effective treatment during pregnancy. So I just don't look. But as soon as she's either going to feed her child...
externally, or then we go back on it if she's going to breast feed, we go on it when she's done. I like to get them on a good intensity therapy prior to pregnancy for whatever years those are going to be, knowing we're going to come off three, five, eight years during her childbearing years and then right back on it. I do that with my FH patients and just my very high lipidemia patients.

Laxmi Mehta: 10:38 What about your FH patients, Dr. Braun?

Lynne Braun: 10:41 I was going to just add to what Dr. Lundberg said that there probably are two treatments, non-statin related treatments for FH patients that are safe treatments during pregnancy. One would be a bile acid sequestrant, if they can tolerate that bile acid sequestrant. But it's safe, it's not absorbed systemically so they can take that and it will modestly reduce their cholesterol level. And then the other if they really, really need it is LDL apheresis, a mechanical means to remove LDL.

Gina Lundberg: 11:14 Yes. It's not often you use the LDL apheresis. We use it at our center if necessary as well. It has its own cumbersome issues with it of coming in every two weeks, but if the LDL is too high, we've got to reduce that LDL. It does have fetal effects as well.

Lynne Braun: 11:30 And I think especially, if this is a woman who despite how she may have been counseled by her physician, still chooses to become pregnant. Someone who is very high risk, or you know ... And especially someone who's had a prior event or several.

Laxmi Mehta: 11:48 Dr. Lundberg, what is the role of LP(a) testing in women and what does it mean when it's elevated?

Gina Lundberg: 11:55 Well probably in the sense of disclosure, I should say that I am a fan of LP(a) testing. So I do have a bias there. I think it's very important when people tell you they have a strong family history of heart disease that's premature, mom having a heart attack in her 40s or dad having one in his 40s or 50s. I think it's an important risk factor, not because we can treat it but because once you've identified it, that patient needs closer surveillance than your other patients. Sometimes their LDL doesn't look that bad. Sometimes
they're young and fit and healthy appearing, but LP(a) is still a significant risk factor. The other thing I like about it is once you've checked it, if it's high you know that's a marker you don't have to recheck it ever again. So it's a nice one time test. There is data that it may be even more important in women than it is in men. That was actually some work that we done between Rush and Emory in the past, that we've collaborated on. So I do think it's important.

Gina Lundberg: 12:49 I know a lot of people say, "Well we don't have a drug treatment for that." Well there is one in the pipeline, and so if you've already identified your high risk patients with LP(a), you know who you can also put on therapy. The other thing is I've had patients who've had just traditional HDL LDL triglyceride and then this guy's fit and healthy and he's having a heart attack at 45 and everybody's wondering why. And I frequently say, "I bet there's going to be an elevated LP(a)," and there is. One it gives that patient reassurance that we've identified this risk factor, these people can be really panicked and freaked out of what's going on. "I'm doing everything right. I eat right, I exercise, I shouldn't have had a heart attack." I hear that all the time. "I am not the person who should have a heart attack." At least it gives us answers and then it also gives us information for their children and their siblings and their parents the same way we would treat the family with, so I think it is an important marker for identifying risk.

Laxmi Mehta: 13:37 So in a female, once it's negative it's negative for life?

Gina Lundberg: 13:40 It does go up after menopause. If you're using milligrams per deciliter, we know that risk goes up at 30. Now the guidelines mark 50 as the time to be watchful. So if you have a patient who's around that 30 to 50 zone prior to menopause, then after menopause they may go up another 20 or 30 points. So that person might warrant rechecking. But if it was less than 10 or 15 the first time around, you would never need to check that again.

Lynne Braun: 14:05 And an elevated LP(a) was put in the guideline as a risk enhancing factor. So if someone has their risk estimated and the risk is in the borderline range or maybe the low-
intermediate risk range, if they have an elevated LP(a), that may cause you to recommend statin therapy sooner rather than later for that woman.

Laxmi Mehta: 14:28 Sure. Dr. Braun, in your experience with treating women on statins, what's the rate of myalgias and how do you treat their myalgias on statins and how do you convince them to stay on a statin, especially when they're at high risk?

Lynne Braun: 14:42 Okay, that's really a loaded question. I actually get a lot of referrals from my physician partners for women and men who have statin-associated adverse effects, and myalgias the most common. The clinical trials show that the rate is very low, in fact it's less than 1%. However, these are clinical trials and it's a self-selected group. In real life clinical practice, it's probably greater than 10%, maybe even close to 20%. There are some large registry studies that show that. And certainly all of us hear about it from our patients in clinical practice. Our patients, unfortunately, talk to their neighbors and they read the internet and there's a lot of bad information out there, misinformation about statins. And some of it is really sitting down and trying to convince the patient that anything that hurts is not necessarily statin-related.

Lynne Braun: 15:37 So there's a lot of time involved and I'm a big proponent of that clinician-patient discussion and developing a relationship, a trustful relationship with the patient to be open and honest. You know, from my perspective as well as encouraging the patient to be with me. I tell them that we have seven statins available to us. They're all categorized as statins but they're very different drugs from one another. Some are water-soluble. Some are fat-soluble. Some have long half-lives. Some have short half-lives. And you the patient are an individual, and what you're able to take is different than what somebody else may be able to take. And I tell them that probably at least 95% of the time I'm able to identify a statin ... If they actually need it ... I'm able to identify a statin at a particular dose that they're able to tolerate that. But they've gotta work with me.
Lynne Braun: 16:34 I tell them what statin-related side effects feel like, the muscle aches feel like. I tell them that if they experience it, it affects both sides of their body and it effects the muscles closest to their trunk, so that they might have a hard time getting up out of a chair. That might be painful for them. That if it's something like, I don't know, an elbow pain, just in one elbow, that's probably not going to be related to their statin.

Lynne Braun: 17:00 It's important for us as clinicians to take a careful history of everything else that's going on with that patient even beforehand. And to learn how they feel even from a musculoskeletal standpoint, so that you have a point of comparison. And if they do call me and they're experiencing something, I have them stop it for a period of time, several days usually and then we talk again so I know how they feel. And if they trust me, they will allow me to re-challenge them with the same medication to see if their symptoms return. And then we take it from there. They might then believe that this was not their statin. They might request a change in statin. We might discuss a lower dose of that statin. So it kind of depends on the particular scenario.

Laxmi Mehta: 17:52 Those are terrific points. You know, women unfortunately suffer from more of the rheumatologic diseases, like Dr. Lundberg was saying. And those come with arthralgias as well. And sometimes it's hard for women to differentiate the two. Women also have a lot of social networks, and they hear about the side effects often before they come to your office. So they already have a perception of it. So having that shared decision making is so key, because I agree, if you have that discussion you can probably convince them to take some dose of statin. Sometimes in my practice, I start them really low. What I call baby doses and get them to believe in it and then get them to the high dose. 'Cause you're right, Dr. Lundberg and Dr. Braun, there are just some people that really, really need statins and it's tried and true to prevent cardiovascular disease.

Laxmi Mehta: 18:38 Well this has been great. But now I want you two to tell me in final statements about a key point you feel that the clinicians need to know out there about the guidelines in terms of women.
Gina Lundberg: 18:50 Well I was just thrilled when the guidelines paralleled what we've been saying about preventing heart disease in women. So I think it's a nice collaboration. I think one echoes the other and they're terrific together. So looking at pregnancy complications, looking at things that are more common in women like rheumatologic disorders, and looking at other biomarkers that I think are important: LP(a) and CRP in women is what we've known in women all along. So I think that's the take home is the two worlds of women and cholesterol have collided and it's a wonderful star that has been born from this collision.

Laxmi Mehta: 19:25 That's a great point, Dr. Lundberg and it's one of the few times we enjoy collisions. Dr. Braun, what would you say?

Lynne Braun: 19:32 I think that for every woman we see, we need to perform a thorough menopause and pregnancy history to learn whether or not our female patients have had any pregnancy related complication or at what age they went through menopause. In order to document that so that we can use that and apply that as a risk enhancing factor, if it exists, if necessary. I also would like to say that I think we have to communicate our assessment of our women patients, assessing their risk in particular and managing their risk with all providers who take care of women, all clinicians who take care of women. Whether they're cardiologists or internal medicine physicians, or family physicians. Our nurse practitioners in those fields as well or physician assistants in those fields as well ... Even dieticians ... You know we are a team and we're all there for the patient. But we have to get the word out on the cholesterol guideline to groups that don't typically read our literature.

Laxmi Mehta: 20:38 Well thank you Dr. Braun. I mean we've been fortunate to have your experience as being part of the guidelines committee and really proposing and moving forward the needle on women and cholesterol. And Dr. Lundberg, your experience in women's heart health has been phenomenal. We enjoy the collision of cholesterol and women and being able to advance that field. And in the future, we're gonna learn more and there's gonna be more female-specific factors to look for too so that we take the
best care of our women. So thank you two for taking your time today.

Lynne Braun: 21:04 Thanks.
Gina Lundberg: 21:05 Thank you Dr. Mehta.