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uACR and eGFR: A Dual-Marker Approach to Cardiovascular Risk Assessment

Announcer:
You're listening to *Conversations in CV Risk Assessment* on ReachMD. Here's your host, Dr. Matthew Sorrentino.

Dr. Sorrentino:
This is ReachMD, and I'm Dr. Matthew Sorrentino. Joining me to discuss the combination of urine albumin-to-creatinine ratio, or uACR for short, and estimated glomerular filtration rate, known as eGFR, for full cardiovascular risk stratification is Dr. Ashish Verma. Dr. Verma is an Assistant Professor of Medicine in the Section of Nephrology at Boston University, Chobanian and Avedisian School of Medicine. He's also a physician at Boston Medical Center and the lead nephrologist for the Boston University Amyloidosis Center. Dr. Verma, welcome to the program.

Dr. Verma:
Thank you for having me.

Dr. Sorrentino:
Well, let's dive right into our topic today, Dr. Verma. I took a look at the Kidney Disease: Improving Global Outcomes, or KDIGO, 2024 Clinical Practice Guidelines for the evaluation and the management of chronic kidney disease. The guidelines recommended testing people at risk for or with chronic kidney disease using both the urine albumin-to-creatinine ratio, uACR, and the eGFR. From your perspective, how does using both of these markers—this dual-marker approach—help you to redefine risk assessment? And why is it so critical to think about this as a cardiovascular risk factor?

Dr. Verma:
Yeah, so this is very important, and I think KDIGO did a very good job telling physicians to test for both eGFR and uACR for people at risk or with chronic kidney disease. So just to set the stage, I want to say that eGFR implies kidney function and can be normal despite having systemic vascular injury. However, uACR means you have kidney injury and systemic vascular damage.

So KDIGO here is saying to test both biomarkers to have a full picture of risk. So there is a dual-marker approach for earlier identification, pattern prevention, and risk assessment. You can catch patients who have normal eGFR with high albuminuria using this approach.

Dr. Sorrentino:
Another important part of the KDIGO clinical practice guidelines—what they showed in that paper—were these heat maps. These were kind of a visual tool. It looked at eGFR and uACR values and put them into these color-coded matrices that really can help, I think, the clinician assess a patient's risk for progression to kidney failure, but also cardiovascular events and even death.

The colors range from green, which is low risk, to red, very high risk. One compelling finding, I thought, was that patients can land in kind of these orange zones or red zones just based on their albuminuria. Their eGFR is normal: patients that in the past we would have thought were doing okay and didn't have increased cardiovascular risk. But it looks like even if the eGFR is very, very normal, even a small amount of albuminuria can increase risk.

With all of this being said, can you discuss the significance of this kind of graded risk in our clinical practice, especially in patients who have what appears to be normal eGFR and normal kidney function?

Dr. Verma:
Yeah. So this is, I think, the strength of the dual-marker approach. So in the KDIGO heatmap, there is a stepwise risk increase when you

go from green to red, and patients can be orange or red even with normal eGFR and very high albuminuria. So this shows you that albuminuria is actually a systemic vascular injury marker. Normal eGFR does not mean it's a low risk when you have very high albuminuria.

And I think the clinical impact is not to be reassured by preserved kidney function with elevated uACR. Elevated uACR in the setting of preserved eGFR means high CV risk, so you have to be careful in those patients and treat them accordingly.

Dr. Sorrentino:
I've been very struck, as a preventive cardiologist, how albuminuria can predict the risk for such a range of events, not just for kidney failure, but also myocardial infarction and cardiovascular mortality, determined by this interplay between eGFR and uACR.

As you know, there's a new risk equation that has been recommended, the PREVENT equation. I've been using that more recently in my patients, and I'm really struck by how uACR especially can increase somebody's cardiovascular risk even above and beyond, many times, some of the traditional risk factors we use.

How do you believe this increased level of specificity should help guide us to monitor our patients and predict risk in our patients?

Dr. Verma:
Yeah. So this KDIGO heatmap is not just labeling patients by their risk. It's showing prediction for kidney failure, myocardial infarction, heart failure, and cardiovascular mortality. So, in a way, this heatmap is enabling disease-specific and personalized monitoring for patients.

I'll give you an example—if there is a patient with modest eGFR decline and significant albuminuria, that patient needs closer cardiovascular monitoring, should be put on SGLT2 inhibitor, and needs a tighter blood pressure control and lipid control.

So in a way, this heatmap is actually turning labs into actionable and disease-specific guidance. So I think this is the importance of this KDIGO heatmap—that it can help both cardiologists, primary care doctors, and nephrologists to enable some disease-specific and personalized monitoring for patients.

Dr. Sorrentino:
For those who are just joining us, this is ReachMD. I'm Dr. Matthew Sorrentino, and I'm speaking with Dr. Ashish Verma about using both the urine albumin-to-creatinine ratio and the estimated glomerular filtration rate, or eGFR, to identify cardiovascular risk.

So Dr. Verma, it's clear, I think, from our discussion, that this dual-marker approach to risk screening is a key—probably not that new—but key marker that we should be thinking about in managing our patients. How does taking both the eGFR and albuminuria together change the way we should start thinking about treatment? And how aggressive should we be? Should we be starting our treatment at much earlier levels if we have even just a small amount of albumin in the urine?

Dr. Verma:
If we, as physicians, only check eGFR alone, we are just following a reactive model. Traditionally, physicians waited until eGFR is less than 60 and then tried to institute therapies. Now we have a dual-marker approach, which is more proactive. We have patients with elevated albuminuria plus preserved eGFR that is high risk already. We should treat those patients.

To answer in terms of how aggressive we should be towards treating these patients, I would say patients who have moderately increased albuminuria with preserved eGFR will get more benefit with antiproteinuric therapy. Now, we don't have evidence just to treat patients with very low levels of albuminuria.

But I think in checking albuminuria there is an opportunity for prevention. You can follow those patients, check albuminuria again, and make sure there is no progression. And to check albuminuria in high-risk patients, I think there is opportunity for implementation of antiproteinuric therapy. You can intensify treatment. You can put them on combination therapy.

So there's a huge opportunity using both eGFR and uACR for treating patients with cardiovascular disease or kidney disease.

Dr. Sorrentino:
I think that many of our primary care colleagues will be starting to measure not just eGFR, but albumin in the urine. At what point does the cardiovascular risk become high enough that we should be thinking about referrals to cardiovascular specialists, or, for that matter, to nephrologists like yourself?

Dr. Verma:
Yeah, so I think orange and red zones in the KDIGO heatmap, those are the patients at very high risk. So I would say those patients should be referred to cardiologists for sure. You can use PREVENT score now, incorporating uACR and eGFR, to also decide when to

refer patients to a cardiologist.

In terms of nephrology referral, I think you should be using the Kidney Failure Risk Equation, which actually tells you which are the patients at higher risk. But I would say any patient having moderately increased albuminuria, which is consistent and not going down, should be referred to nephrologist. And of course, anybody with eGFR less than 60 and moderately increased albuminuria should be referred also.

And I would also emphasize that for cardiology referral, there are patients who have resistant hypertension and albuminuria. There are patients who have left ventricular hypertrophy and albuminuria. And now, with the new heart failure classification, you should also be thinking about cardiac biomarkers. People who have troponin and NT-proBNP increased with albuminuria, I think those patients going to be very high risk for future heart failure events.

So I think don't wait for low eGFR—act when albuminuria signals vascular injury and are high enough for you to warrant cardiology referral and nephrology referral.

Dr. Sorrentino:
That sounds great. Well, as we wrap up our program, Dr. Verma, some final thoughts on how we should be talking to our primary care physicians and to our cardiologists about how we really should be using these dual markers?

Dr. Verma:
Yeah, so I would say kidney and cardiovascular health is inseparable. They are on a continuum. So I think it is very important for cardiologists, nephrologists, and primary care doctors to work together.

We should be checking these markers. They are powerful, inexpensive, and actionable windows into both vascular risk and also kidney function decline. So I think dual-marker use is for earlier detection, personalized treatment, and better prevention. And I would say that these two inexpensive markers are vital signs for your vascular health. So I think it's a huge opportunity for all the physicians to identify patients at high risk for future cardiovascular and kidney events.

Dr. Sorrentino:
Well, I think with these important insights, that brings us to the end of our program. And I want to thank our guest, Dr. Ashish Verma, for joining me to discuss albuminuria and eGFR, and how they can be combined to better evaluate cardiovascular risk stratification in our patients. Dr. Verma, it was great having you on our program today.

Dr. Verma:
Thank you so much for having me.

Announcer:
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