Transcript Details
This is a transcript of an educational program. Details about the program and additional media formats for the program are accessible by visiting: https://reachmd.com/programs/kdigo-conversations-nephrology/appropriate-ckd-referral-to-specialists/15873/

ReachMD
www.reachmd.com
info@reachmd.com
(866) 423-7849

Appropriate CKD Referral to Specialists

Announcer:
Welcome to this episode of KDIGO Conversations in Nephrology. This episode titled, Appropriate CKD Referral to Specialists is provided by KDIGO and is supported by an independent educational grant from AstraZeneca.

Here's your host, Dr. Peter Lin.

Dr. Lin:
Hello and welcome to KDIGO Conversations in Nephrology. I'm Dr. Peter Lin, Director of Primary Care Initiatives at the Canadian Heart Research Centre and Family Physician in Toronto, Canada.

And joining me today to discuss the importance of CKD referral is Dr. Ike Okpechi, who is a Researcher at the University of Alberta in Canada, and he's also an Honorary Professor of Nephrology at the University of Cape Town in South Africa. His clinical and research interests include epidemiologies and outcomes of CKD and management of hypertension in low and middle-income countries.

So welcome to the program, Ike.

Dr. Okpechi:
Thank you, Peter. It is an honor to be invited to participate in this round of KDIGO podcast and I'm sure we will have an interesting discussion on this subject that is very relevant to clinical practice.

Dr. Lin:
Yeah, you're right, Ike. I mean, this is an important topic of when to refer because I'm always thinking, if I refer too early, then I waste the time of nephrologists and if I refer to late then the patients will suffer because they didn't get the proper care. So when is the right time to refer patients with CKD to a nephrologist?

Dr. Okpechi:
Well, I think that's a good place to start from, and that's a very good question. So, you know, Peter, there is no single criteria for referring a patient with CKD to nephrology, many factors come in and play a role, especially the presence of risk factors, the presence of comorbidities, and related CKD complications. In 2012, KDIGO have recommended timely referral for people with progressive CKD who have moderately 10% risk of developing kidney failure within the year. That is the timing by validated risk prediction, too. In that recommendation KDIGO had stated that the following categories of patients should be referred, including those with acute kidney injury or abrupt sustained fall in estimated glomerular filtration rate, which I think I will easily call eGFR as we talk along, because it's easier to state that and, also those with eGFR that is less than 30 mL/minute per 01.73 square meters, which I would just use the mils per minute in, you know, discussing forward. But this level of recommendation have been agreed to by earlier guidelines as well, such as KDOQI and European Best Practice Guidelines. And those to be referred also included those with consistent finding of significant albuminuria, which is greater or reported 300mg/g, those with progression of CKD, those with urinary red cell casts - you can have more than 20 red blood cells per high-power field that is sustained but not readily explained. People who have chronic kidney disease and hypertension that is refractory to treatment or with four or more anti-hypertensive agents, those with persistent abnormalities of serum potassium, like persistent hyperkalemia, those with recurrent extensive kidney stones and those known with hereditary kidney disease. As you stated, Peter, KDIGO recommended timely referral, meaning there's an appropriate time to refer a patient with CKD. Guideline-concordant referrals that meet the recommendations by KDIGO while referrals that happen either too early or too late are considered guideline-discordant. One study from Canada recently with up to 70,000 patients CKD were referred to nephrology, only 41%, about 28,000, were referred in a guideline-concordant manner - that is eGFR that is less than 30 mL/minute or with rapidly declining eGFR with or without significant albuminuria. Those with guideline-discordant referrals were more likely to have a higher eGFR that is greater than 60

mL/minute and these were about 50% of those who were referred and fewer of them were patients with albuminuria, that is albuminuria greater than 300 mg/gram.

This suggests that more than half of referrals received to be at very early stages of CKD, not yet needing assessment by nephrology. Timely referral and not so much early referral is the point KDIGO is trying to make, as this sometimes is done in the manner that is not of benefit to patients or caregivers. Of course, late referrals as we know are associated with adverse patients' events that include late-start dialysis, kidney failure complications and even death in some cases. Early and untimely referrals are also injurious as they can overwhelm nephrologists, as you mentioned, given the large volume of patients. Especially parts of the world where there are lower nephrologist density. So, a referral that is too early can be harmful to patients, given the associated cost of unnecessary travel, suffering of anxiety of referral to a specialist, and the risk of initiating therapies that are unsuitable for the state of kidney disease that a patient has.

I think, another point, to make here regarding when a patient with eGFR of less than 3 should be referred is the need to confirm that a patient actually has CKD by repeating kidney function tests within 30 to 90 days of the first test. So, the right time to refer a patient with CKD is after a second assessment has confirmed that the eGFR is below the threshold for referral or at the threshold of referral if urine tests show persistence of significant albuminuria or hematuria. However, I think, we should also note that patients with severely low eGFR that is less than 15 mL/minute, or those with active urine sediments should be referred to nephrology without waiting to repeat kidney function test.

Dr. Lin:
Yeah, thanks for that. So, you've mentioned many different things and I envision this little checklist, which will be fantastic for me where I check off these things and if it's on this side, it means I need to refer, if it's on the other side I can keep looking after the patient. But the one criteria that you mentioned, you mentioned that KDIGO recommends referral if there is progression of CKD. Now that one I always have difficulty with, what do you mean by progression of CKD?

Dr. Okpechi:
Yea, thanks Peter. Unlike acute kidney injury, which is usually reversible, chronic kidney disease often show gradual decline of kidney function over time. So, CKD progression describes the reduction of kidney function over time, which is usually measured by year. Of all the factors mentioned earlier in KDIGO's guideline recommendations for referral, I think the one that many physicians' trouble with is the concept of progression of kidney disease. Some people take progression of CKD to mean any elevation of serum creatinine. This is technically incorrect given there are several factors that can lead to acute elevation of serum creatinine, including medications that are used for treating patients with kidney diseases; so, that's ACE inhibitors and SGLT-2 inhibitors.

The progression of CKD is measured as a rate of reduction of eGFR over time. Normally, eGFR starts declining in young adults at the rate of about 1 mL/minute a year due to the loss of functioning nephrons. So, it means as we get older, eGFR slowly declines. However, a significant eGFR decline represents more than 5 mL/minute decrease of eGFR within 1 year, or 10 mL/minute decrease within 5 years. Hence, it will be timely to refer a patient for evaluation who has lost more than 5 mL/minute of eGFR in 1 year if eGFR is still higher than the threshold. So, a patient with eGFR of 45, and within 1 year it falls to 40, that is significant decline in eGFR and that patient needs to be referred to nephrology.

Rapid progression of CKD is associated in decrease in eGFR that is more than 25%, or a change of eGFR category within 12 months, or a sustained decrease in eGFR of more than 15 mL/minute per year. There are many factors that are associated with rapid decline of kidney functions, which may include things like the presence of cardiovascular disease and CKD risk factors such as uncontrolled hypertension and diabetes, heavy proteinuria, excessive smoking, chronic use of nonsteroidal anti-inflammatory drugs and certain people from certain ethnic groups like African, Afro-Caribbean and people who have Asian origins.

Dr. Lin:
That's interesting, and I like the way you put it where we're talking about serial measurements of these things and we're looking at the rate of change as being an important way to predict the progression and look at progression. So, I think that's really important for us to keep in mind because a lot of times we just look at the test right in front of us and we forgot about the test that was done a couple

months ago and, as you said, a 5-mil drop would mean rapid progression and so, therefore, those people would need to be checked.

For those just tuning in, you're listening to KDIGO Podcast on appropriate CKD referrals to specialists. I am Dr. Peter Lin and I'm speaking to Dr. Ike Okpechi. OK, Ike, so you've given us a lot to think about and a lot of different parameters that we should be considering. Are there any tools that can help us, you know, make these decisions a little bit easier, because it's sometimes overwhelming when we have all these different things that we should be thinking about.

Dr. Okpechi:
Yeah. Thanks Peter. There are so many tools out there. Several of them are quite simplified that can be used for referral to nephrology. The commonest and simplest, actually, that is used is serum creatinine with eGFR measurement. However, the value of eGFR is greatly improved if used concordantly with urine ACR. So, for example, according to KDIGO, patients who have stage 3a CKD; that is people with eGFR between 45 and 59 mL/minute and an albumin creatinine ratio that's greater than 300mg/g should be referred. Those with stage 3b CKD however, who have an even lower eGFR, you would think that, you know, some people need to be referred, but their risk is actually lower, especially if they have no albuminuria or mildly increased albuminuria. So, it's important for physicians to consult the KDIGO heat map. It's better to use that for guidance for referral.

Also, several organizations have developed underlying clinical pathways like here in Canada in Alberta we have the Alberta Chronic Kidney Disease Pathway in the US they have the National Kidney Foundation Kidney pathways, in the east coast of Canada they have the Ontario KidneyWise Clinical Toolkits and these toolkits rely on different combinations of estimated glomerular filtration rate, albuminuria, sex, age, ethnicity to guide physicians regarding timely timing of referral. Use of validated kidney risk function evaluations, which is commonly known as KFREs, help to determine the probability of kidney failure within 2 years and 5 years. The most accurate KFRE model uses 8 variables like, age, sex, estimated GFR, albuminuria, serum calcium, serum phosphate, serum bicarbonate, and serum albumin. However, a shorter model – a 4-variable model – that uses just age, sex, eGFR and albuminuria is commonly used and has been shown to be very reliable.

KFRE can be used for prognostication, communication between patient and provider, timing of nephrology referrals, and timing of dialysis access placement and even related kidney transplant as it is able to accurately predict CKD progression. The entire renal network has suggested that people with a 5-day KFRE that's greater than 3 to 5% may benefit from a nephrology referral. Some researchers have also suggested that inclusion of the KFRE into electronic medical records could incentivize more ACR testing. The use of KFRE in many low-resource settings may pose a challenge given the unavailability of albuminuria measurements in many parts. Some places can still rely on serum creatinine measurement if this is accompanied with eGFR reporting, which is our only trigger for patient referral. So, what I've just done is to give us different options that are available; serum creatinine, eGFR, KFRE measurements and use of clinical pathways that have been developed.

Dr. Lin:
That's great. And you went from the simplest, which is just looking at the creatinine for example, and then we could add in albumin creatinine, we could do calculations with that, we can use the heat map from KDIGO, where it looks at eGFR and the albumin creatinine ratio. So, the one side looks at speed of the kidney, which is eGFR, and then the other side looks at the quality of the filter, this albumin creatinine ratio. So, we could use those heat maps and then we can get into the complicated equations which put in more parameters, so therefore, your prediction is more accurate. So, it's nice that you went from the most simple all the way to the fairly complex and integrated into EMR as well.

Now, these are great, and I think we can use some of these things to identify these people, what do you think is the future in terms of, you know, identifying patients for need for referral? Where do you think that things are going to be heading?

Dr. Okpechi:
Yeah, in future I think all health systems, especially in low-resource settings, should include automatic eGFR reporting with serum

creatinine measurement, which can be red flagged if the eGFR is less than 30 mL/minute as this is usually the trigger for referral to nephrology. Also, testing of albuminuria should be encouraged, as this will assist early identification of kidney disease. However, in better-resourced settings, the KFRE should be included in electronic medical records and those with high risk of progression should be flagged for referral to nephrology. This will improve primary care physician awareness of the timing of referral. And, finally, patients can be empowered by their caregivers through educational programs that increase their awareness of kidney disease, improve their understanding for the need for regular monitoring, and be better positioned to engage in self-care through various CKD education programs.

Dr. Lin:
That's great, Ike. You just put it into such simple terms. In other words, we need to make sure we get the eGFR and albumin creatinine ratio numbers and then from there we can either use heat maps or these equations to identify these patients for appropriate referral. This is very much different from my old professor when he used to tell us, you refer patients when you've run out of your bags of tricks that you've got available. This is a much more logical way of doing it and making sure the right patients are getting to our nephrology colleagues and this way we'll have the best care for our patients, while at the same time, not overloading the nephrologists because in some areas, there's not enough nephrologists, in other areas there are no nephrologists, so we all want to pitch in to make sure that the patients get the appropriate care. So, I want to thank you, Ike, for sharing all your insights with us today. It's been very, very helpful.

Dr. Okpechi:
Absolutely. Well, thank you Peter, it's been a great honor to participate in this podcast and I hope that today's discussions will improve awareness that CKD is ultimately a progressive disease and that there are recommendations out there and tools to guide primary care physicians and other caregivers when considering timely referral for CKD patients to nephrology. So, thank you, Peter, and thank you KDIGO for organizing this.

Dr. Lin:
I'm Dr. Peter Lin signing off. If you'd like to listen to this episode or other episodes in our series, please visit KDIGO.org/podcasts. Thanks for listening.