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## Prevalence and Burden of Anemia of CKD

### Announcer:

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Here's Dr. Girish Nadkarni.

### Dr. Nadkarni:

Good day, everyone, my name is Girish Nadkarni. I'm Professor of Medicine in the Department of Medicine at the Icahn School of Medicine at Mount Sinai, and today I'd like to talk to you about the prevalence and burden of anemia in chronic kidney disease.

These are my disclosures.

Anemia is a common complication in patients with chronic kidney disease. [Stauffer] Anemia is defined as hemoglobin level less than 12 grams per deciliter in females and less than 13 grams per deciliter in males who are more than 15 years of age. [KDIGO]

Treatment of anemia with ESAs, or erythropoiesis-stimulating agents, is recommended when hemoglobin is less than 10 grams per deciliter. [KDIGO] There are 39 million Americans with chronic kidney disease, or approximately 15 to 20% of the population. [GBD Chronic Disease Collaboration] Of these, around 560,000 are patients with end-stage kidney disease requiring dialysis, either hemodialysis or peritoneal dialysis. [CDC] And 87% of hemodialysis patients and 80% of peritoneal dialysis patients have anemia. [USRDS]

Most patients with chronic kidney disease receiving hemodialysis have anemia. [USRDS] This is a study from the United States Renal Data System Annual Report, which shows the hemoglobin level in patients on hemodialysis. The y-axis shows the percentage of patients with each hemoglobin level. As you can see, around 25% of patients on hemodialysis have hemoglobin less than 10 grams per deciliters, and 87% of patients on hemodialysis have a hemoglobin less than 12 grams per deciliter. [USRDS]

Anemia of chronic kidney disease is important for a number of reasons that we'll go through over in detail in the next few slides. The first reason is patient centered, because it can have a significant impact on patient quality of life and symptoms. Anemia can obviously develop with or without symptoms, but commonly reported symptoms of anemia can be overlooked because there are other comorbidities associated with CKD, including heart failure, cardiovascular disease, and vascular disease. [American Kidney Fund; NIDDK; Eriksson]

Some of the common symptoms of anemia are fatigue, shortness of breath, reduced exercise capacity, trouble concentrating, chest pain, changes in your heartbeat, including fast or irregular heartbeat, and difficulty sleeping. All of these can lead to a reduced quality of life in patients. [American Kidney Fund; NIDDK] The most commonly reported symptom by patients with CKD is fatigue or tiredness. Around 80% of patients say that fatigue impacts their day-to-day lives, [Mathias] and 91% of patients say that physical functioning is affected by fatigue. [Mathias] Anemia does not just impact patient's quality of life and symptoms, it also has an association with outcomes like mortality, cardiovascular mortality, hospitalization, and major adverse cardiovascular events. [Eriksson]

This is a slide from the Palaka study from the International Journal of Nephrology, which shows that there is a gradation of risk of mortality by lower hemoglobin levels, where the reference is more than 12 grams per deciliter of hemoglobin, and every decrease in 1 gram per deciliter of hemoglobin led to an increase in mortality. And less than 10 grams per deciliter of hemoglobin was associated with a 56% increase in all-cause mortality. Similar trends were observed in cardiovascular mortality. An impact on hospitalization also exists. [Palaka]

So, if your hemoglobin is 10 to 12 compared to a hemoglobin of more than 12, you have a 9% increased risk of hospitalization. The impact on MACE or major adverse cardiovascular event, is most profound if you have a hemoglobin less than 10 compared to a hemoglobin more than 12, where your MACE increase is two-fold. And there's an association between hemoglobin levels and mortality risk in the early dialysis period. [Palaka]

This is a study which measured hemoglobin levels and risk of all-cause mortality during months 4 to 12 after initiating dialysis. This shows that there was a two-fold greater mortality risk for hemoglobin less than 8 versus greater than 11. [Karaboyas] And every one gram per decrease in hemoglobin at month 1 was associated with 11% decrease in mortality in the early post-dialysis period during months 4 and 12. [Karaboyas]

Anemia of CKD impacts the patient and the caregiver.

There's a burden on patient's daily life, including a substantial impact on many domains of health-related quality of life. Around 80% of patients with anemia of chronic kidney disease report that fatigue and tiredness impact their quality of life. [Mathias]

There is a burden on patient's care management. Comorbid conditions can complicate clinical management of anemia of CKD and can lead to under-recognition of symptoms. Mortality likelihood increases sixfold if the patient has anemia, CKD, and heart failure combined, compared to having none of these conditions. [Pramod, 2021; Sandhu, 2010]

There is also a burden on caregivers because care partners of patients with chronic kidney disease experience a greater work impairment, especially when anemia is present. 69% of care partners for patients with anemia of CKD reported having a very severe burden due to caregiving. [Michalopoulos]

So, in summary, 90% of dialysis patients eventually develop anemia. [Shaikh] Lower hemoglobin levels are associated with increased morbidity and mortality in patients with CKD. [Palaka] And anemia of CKD can lead to a substantial burden in patients and healthcare systems. [GBD Chronic Disease Collaboration]

Thank you for listening, and I hope you found this presentation helpful for understanding the prevalence and burden of anemia of CKD.

#### Announcer:

This program was sponsored by GSK. If you missed any part of this discussion, visit Industry Features on ReachMD.com, where you can Be Part of the Knowledge.

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