

# NICE guidance update on chronic kidney disease classification

Partially updated national guidelines on the identification and management of chronic kidney disease (CKD) have recently been published. The 2014 guidelines focus on diagnostic investigations, pharmacotherapy, self-management and acute kidney injury. Karen Jenkins gives renal health professionals an overview of the important changes in CKD classification and testing.

■ chronic kidney disease ■ national guidelines ■ pharmacotherapy ■ dietary interventions ■ progression

**T**he National Institute for Health and Care Excellence (NICE) (2008) guidance on the early identification and management of chronic kidney disease (CKD) in adults in primary and secondary care has been updated using new available evidence (NICE, 2014). New information in the guidance focuses on:

- Identification and investigation of people who have or are at risk of developing CKD
- Classification of CKD and identification of people at risk of CKD complications and progression
- Definition of CKD progression
- Relationship between acute kidney injury (AKI) and CKD
- Self-management of CKD
- Pharmacotherapy.

This article provides a brief overview of changes in the guidance, which will have implications for practice. A full version of the updated guidance is now available online (NICE, 2014).

## Investigations

The equation used to calculate estimated glomerular filtration rate (eGFR) will change from the Modification of Diet in Renal Disease (MDRD) equation (Levey et al, 1999) to the Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) creatinine equation. If there is a need to confirm CKD in someone with an eGFR creatinine 45–59 ml/l/min/1.73m<sup>2</sup> for at least 90 days and no proteinuria, health professionals should consider using a one-off eGFRcystatin-C test to confirm the diagnosis. The key message is that those with an eGFRcreatinine 45–59 ml/min/1.73m<sup>2</sup>, an eGFRcystatinC >60 ml/min/1.73m<sup>2</sup> and no other marker of kidney disease should not be diagnosed with CKD.

When testing for proteinuria, if the albumin:creatinine ratio (ACR) is between 3mg/mmole and 70mg/mmole, it should be confirmed by an early morning urine sample. If ACR is >70mg/

mmole, a repeat specimen is not required. A confirmed ACR of >3mg/mmole should be regarded as clinically significant proteinuria and trigger regular monitoring.

## Who should be tested for CKD?

ACR and eGFR creatinine testing should be offered to those with the following risk factors:

- Diabetes
- Hypertension
- AKI
- Cardiovascular disease (e.g. ischaemic heart disease, chronic heart failure, peripheral vascular disease or cerebral vascular disease)
- Structural renal tract disease, recurrent renal calculi or prostatic hypertrophy
- Multisystem diseases with potential kidney involvement (for example, systemic lupus erythematosus)
- Family history of stage 5 CKD or hereditary kidney disease
- Opportunistic detection of haematuria.

Those who have had an episode of AKI should be monitored for at least 2–3 years (even if creatinine has returned to baseline) and advised that they are at increased risk of developing CKD or it progressing if they are already known to have CKD.

People who are prescribed nephrotoxic drugs (e.g. non-steroidal anti-inflammatory drugs (NSAIDs), lithium, ciclosporin) should also have annual eGFR testing. A plan to establish the cause of CKD should be discussed with the patient, and the use of eGFR and ACR categories should be used to indicate the probability of CKD progression, all-cause mortality and cardiovascular events.

## Karen Jenkins

- Consultant Nurse, East Kent Hospitals University NHS Foundation Trust
- karenjenkins1@nhs.net

**Table 1. Chronic kidney disease classification**

Glomerular filtration rate (ml/min/1.73 m <sup>2</sup> )	Albuminuria categories (mg/mmol)			
	<3		3–30	>30
	A1		A2	A3
≥90 Normal and high	G1	No CKD	G1 A2	G1 A3
60–89 Mild reduction related to normal range for a young adult	G2	No CKD	G2 A2	G2 A3
45–59 Mild to moderate reduction	G3a	G3a A1	G3a A2	G3a A3
30–44 Moderate to severe reduction	G3b	G3b A1	G3b A2	G3b A3
15–29 Severe reduction	G4	G4 A1	G4 A2	G4 A3
<15 Kidney failure	G5	G5 A1	G5 A2	G5 A3

**Table 2. Frequency of monitoring (number of times per year)**

Glomerular filtration rate (GFR) ml/min/1.732 m <sup>2</sup>	Albumin:creatinine ratio (mg/mmol)			
	<3		3–30	>30
	A1		A2	A3
≥90	G1	≤1	1	≥1
60–89	G2	≤1	1	≥1
45–59	G3a	1	1	2
30–44	G3b	≤2	2	≥2
15–29	G4	2	2	3
<15	G5	4	≥4	≥4

**Risk and progression**

The progression of CKD is now defined as a sustained decrease in eGFR of ≥25% in a year or a decrease in eGFR 15 ml/min/1.73m<sup>2</sup>. Obtaining a minimum of three GFR estimations over a period of <90 days remains the same, but on finding new reduced eGFR the test should be repeated within 2 weeks to exclude causes of acute deterioration in kidney function (e.g. AKI) or starting a renin-angiotensin system antagonist therapy (RAAS anti-hypertensive). New for 2014 is a recommendation to optimise the health of people with risk factors for CKD progression, such as:

- Cardiovascular disease
- Proteinuria
- AKI
- Hypertension

- Diabetes
- Smoking
- African, African-Caribbean or Asian origin
- Chronic use of NSAIDs
- Untreated urinary outflow obstruction.

Involving patients in their care is paramount to managing CKD and the recommendation of self-management systems is welcomed. Informing patients about their diagnosis, involving them in decision-making and giving them access to their data will help to support this part of the guidance.

**Classification**

CKD will now be classified using a combination of eGFR and ACR categories (Table 1). An independent decrease in eGFR and increase in ACR enhances the risk of adverse outcomes. A combination of a reduction in eGFR and increase in ACR multiplies the associated risks of adverse outcomes. For example, someone with category G4 and A3 is at higher risk that someone with G3a and A1.

**Frequency of monitoring**

Frequency of monitoring should be agreed with the person with or at risk of CKD and be tailored according to the:

- Underlying cause
- Past patterns of eGFR and ACR
- Comorbidities
- Changes in treatment (RAAS, NSAIDs, diuretics)
- Intercurrent illness
- Whether they chose to have renal replacement therapy or be treated conservatively.

Table 2 shows recommended frequency of monitoring in number of times per year.

**Dietary interventions**

Advice should be offered to CKD patients about potassium, phosphate, calorie and salt intake, appropriate to the severity of CKD. Low-protein diets with a protein intake of <0.6–0.8 g/kg/day should not be offered to people with CKD

**Pharmacotherapy**

Slight changes to the choice of anti-hypertensive therapy have been made in particular with regard to RAAS antagonists. It is recommended that they be offered to people with:

- CKD, diabetes and ACR ≥3 mg/mmol (A2/A3)
- CKD, hypertension and ACR ≥30 mg/mmol (A3)
- CKD and ACR ≥70 mg/mmol (irrespective of hypertension or cardiovascular disease).

A combination of RAAS antagonists should not be offered to CKD patients. Those with CKD, hypertension and ACR <3 mg/mmol,

without diabetes, should follow the NICE (2011) hypertension guidelines.

Vitamin D supplementation in the management of CKD-mineral bone disorders (CKD-MBD) should not be routinely offered to prevent or manage CKD-MBD. If vitamin D deficiency is diagnosed in people with CKD, colecalciferol or ergocalciferol should be offered. If vitamin D deficiency has been corrected and symptoms of CKD-MBD persist, then alfalcidol or calcitriol should be offered to people with an eGFR of  $<30\text{ml/min/1.73m}^2$ , with serum calcium and phosphate levels being monitored.

Oral bicarbonate supplements should also be considered to manage metabolic acidosis if eGFR is  $\leq 30\text{ml/min/1.73m}^2$  and serum bicarbonate concentrate is  $<20\text{mmol/litre}$ .

Oral antiplatelet therapy should be given to CKD patients to help secondary prevention of cardiovascular disease. Apixaban can be considered in preference to warfarin in people with eGFR  $30\text{--}50\text{ml/min/1.73m}^2$  with nonvalvular atrial fibrillation and one or more of these risk factors:

- Prior stroke or transient ischaemic attack
- $\geq 75$  years
- Hypertension
- Diabetes
- Symptomatic heart failure.

## Conclusion

In the updated NICE (2014) CKD guidelines, recommendations have been made for future research into self-management, antiplatelet therapy, vitamin D supplementation in the management of CKD-MBD and the clinical effectiveness of RAAS antagonists. The NICE (2014) guidance was

## Key points

- The equation used to calculate eGFR will change from the MDRD equation to the CKD-EPI creatinine equation
- If there is a need to confirm CKD in someone with an eGFR creatinine  $45\text{--}59\text{ml/min/1.73m}^2$  for at least 90 days and no proteinuria, a one-off eGFRcystatin-C test can be used to confirm the diagnosis
- CKD will now be classified using a combination of eGFR and ACR categories
- The health of people with risk factors for CKD progression, such as cardiovascular disease, hypertension and smoking, should be optimised
- ACR and eGFR testing should be offered to at-risk patients, such as those with diabetes and a family history of CKD stage 5
- Informing patients about their diagnosis, involving them in decision-making and giving them access to their data will help to support this part of the guidance

published this month and it will take time to digest how the recommendations will be implemented into daily practice in primary and secondary care. **JRN**

## References

- Levey AS, Bosch JP, Lewis JB, Greene T, Rogers N, Roth D et al (1999) A more accurate method to estimate glomerular filtration rate from serum creatinine: a new prediction equation. Modification of Diet in Renal Disease Study Group. *Ann Intern Med* **130**(6): 461–70
- National Institute for Health and Care Excellence (2008) *Chronic Kidney Disease: Early Identification and Management of Chronic Kidney Disease in Adults in Primary and Secondary Care*. <http://tinyurl.com/mfdha3q> (accessed 14 July 2014)
- National Institute for Health and Care Excellence (2011) *Hypertension: Clinical Management of Primary Hypertension in Adults*. <http://tinyurl.com/oa944ne> (accessed 14 July 2014)
- National Institute for Health and Care Excellence (2014) *Chronic Kidney Disease: Early Identification and Management of Chronic Kidney Disease in Adults in Primary and Secondary Care*. NICE, London

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