NICE Chronic Kidney Disease Assessment and Guidelines

ACB summary of NG203 recommendations

In August 2021, the National Institute for Health and Care Excellence (NICE) published NG203, "Chronic Kidney Disease: assessment and management." This is an updated, combined version of three guidelines: "chronic kidney disease in adults: assessment and management," "chronic kidney disease (stage 4 or 5): management of hyperphosphataemia," and "chronic kidney disease: managing anaemia" and was also extended to cover children and young people (CAYP).

The purpose of this article is to summarise key new and updated recommendations from NG203, relevant to laboratory practice. The complete guideline is available at: https://www.nice.org.uk/guidance/ng203

Estimating glomerular filtration rate – removal of ethnicity adjustment factor

NG203 recommends that the estimation of GFR (eGFR) should not be adjusted by an ethnicity factor. Adjustment to eGFR equations for different ethnicities may not be valid or accurate. Categorisations based on ethnicity do not consider individuals with a diverse range of family or mixed ethnic backgrounds, and differences in eGFR across ethnicities are likely, at least in part to be due to differences in average muscle mass between ethnic groups. Additionally, muscle mass differs between individuals within the same ethnicity and an adjustment based on ethnicity may thereby be inaccurate for some people.

NG203 reminds of the need to use individual judgment when interpreting eGFR, for example individuals with extremes of muscle mass, adults with a high dietary protein intake.

Four-variable Kidney Failure Risk Equation

NG203 recommends the use of the four-variable Kidney Failure Risk Equation (KFRE) as a criterion for identifying people who will benefit from referral to secondary care. The equation validated in an adult UK population (Major 2019), based on age, sex, eGFR and urine albumin creatinine ratio (ACR), provides an adult's 5 year risk of needing renal replacement therapy (defined as the need for dialysis or renal transplant).

The guideline recommends that individuals with a KFRE greater than 5% are referred for specialist assessment. Hopefully, this will mean individuals who will progress to needing renal replacement therapy are identified earlier, and there are fewer unnecessary referrals to secondary care.

It is anticipated this equation would be built into laboratory computer systems, as part of how eGFR and ACR results are reported, and a laboratory implementation period is likely to be required. It is important to use the UK validated version (not one validated in another country) and be aware that people of African-Caribbean, African or east Asian family origin were likely under-represented in the validation study.

A webpage has also gone live for the KFRE and can be found at https://kidneyfailurerisk.co.uk/

Investigations for proteinuria

NG203 recommends a urine ACR should be used in the initial detection of proteinuria in adults, CAYP. This has greater sensitivity than protein:creatinine ratio (PCR) for low levels of proteinuria. A reagent strip should not be used to identify proteinuria.

If an initial ACR result is between 3 mg/mmol and 70 mg/mmol it should be checked in a subsequent early morning sample to confirm the result. However, if the initial ACR is 70 mg/mmol or more, a repeat sample is not needed. A confirmed ACR of 3 mg/mmol or more should be regarded as clinically important proteinuria.

Individuals with an unexplained and incidental finding of proteinuria on a reagent strip, should be offered testing for Chronic Kidney Disease (CKD) using eGFRcreatinine and ACR.

Updated recommendations on the indications to assess for proteinuria with urine ACR in adults, CAYP are included in the guideline (1.1.14, page 8).

Haematuria

NG203 recommends reagent strips should be used to test for haematuria in adults, CAYP, with further evaluation carried out for results of 1+ or higher. Microscopy should not be used to confirm a positive result.

Who should be tested for CKD

NG203 includes updated recommendations on who should be tested for CKD. This includes risk factors to identify adults, CAYP who should be offered testing for CKD using eGFRcreatinine and ACR (1.1.21, 1.2.22, 1.1.23, p 10-12). GFR should be monitored at least annually in adults, CAYP who are on medications that can adversely affect kidney function (such as lithium, calcineurin inhibitors, long-term non-steroidal anti-inflammatory drugs).

Adults, CAYP should be monitored for the development, or progression of CKD, for at least 3 years after acute kidney injury, even if eGFR has returned to baseline (longer monitoring is advised for individuals with a history of an acute kidney injury stage 3).

Frequency of monitoring

NG203 includes a table of recommendations (1.3.4, table 2, p15) on the frequency of monitoring individuals (including CAYP) with, or at risk of, CKD. This may be tailored depending on a number of factors including rate of eGFR decline and increase in ACR.

Anaemia – diagnostic role of GFR

NG203 includes recommendations on the diagnosis of a renal cause for anaemia for adults, CAYP, based on GFR. Individuals with an eGFR >60 ml/min/1.73m2 should be assessed for another cause of anaemia. In individuals with an eGFR <30 ml/min/1.73m2, it is important to consider other causes of anaemia, but at this level of renal function, it is often due to CKD. Recommendations are made on the assessment, management and monitoring of anaemia in individuals with CKD.

Anaemia – diagnostic tests to determine iron status

The recommendations on diagnostic testing to determine iron status, are unchanged from NICE NG8 published in 2015. Testing to diagnose iron deficiency and determine potential responsiveness to iron therapy and long-term iron requirements should be carried out every 3 months (every 1 to 3 months for people having haemodialysis).

If percentage of hypochromic red blood cells or reticulocyte Hb content/reticulocyte Hb content equivalent are not available or the person has thalassaemia or thalassaemia trait, use a combination of transferrin saturation (less than 20%) and serum ferritin measurement (less than 100 micrograms/litre) to diagnose iron deficiency. Do not request transferrin saturation or serum ferritin measurement alone to assess iron deficiency status in people with anaemia of CKD.

Take home messages

- Do not adjust eGFR based on ethnicity
- Screen individuals at risk of CKD using eGFR and ACR
- Implement and use the four-variable Kidney Failure Risk Equation as a threshold for referral
- Urine ACR (not reagent strips or PCR) should be used in the initial detection of proteinuria
- Do not request transferrin saturation or serum ferritin measurement alone to assess iron deficiency

NG203 "Chronic Kidney Disease: assessment and management" available at https://www.nice.org.uk/guidance/ng203.

Dr Grainne Connolly
Consultant Chemical Pathologist, Member of the NG203 Clinical Guideline Committee
November 2021