NHS
South Yorkshire
Integrated Care Board

Chronic Kidney Disease (CKD) in Adults: Diagnosis and Management in Primary Care, a South Yorkshire Guideline

Authors: Dr Sabiha Atcha, BEST website GP Lead; Diana Vasile, Lead Pharmacist SY ICB

Acknowledgment: Dr Arif Kwhaja PhD, FRCP Consultant Nephrologist, Clinical Director, Sheffield Kidney Institute, Northern General Hospital; Dr Ian Stott, Consultant Nephrologist, Doncaster and Bassetlaw Department of Renal Medicine, Doncaster Royal Infirmary

Chronic Kidney Disease (CKD) Pathway and Guidance: Table of Contents

1.Diagnosis of Chronic Kidney Disease (CKD)

CKD Testing and Diagnosis (Simplified - NICE guidelines NG203)

using **eGFR** -creatinine (blood) **AND** Albumin: Creatine Ratio **ACR** (urine)

Offer annual CKD monitoring to risk factor patients:

- AKI - up to 3 yrs post AKI/ connective tissue disease /CVD /diabetic/ gout/ hypertension/ proteinuria/ prostatic hypertrophy /renal disease or FHx of renal disease/ haematuria not from a lower urinary tract infection
- Patient on nephrotoxic drugs eg. Lithium, NSAIDS, ACE inhibitors, ARB, ciclosporin, tacrolimus
- Children and young people with previous AKI
- Children and young people with solitary functioning kidney

Test eGFR (blood test)

- Advise no meat 12 hrs before test

- If eGFR <60mL/min/1.73m² as NEW finding THEN repeat within 2 weeks to exclude AKI

- otherwise, if eGFR <60 mL/min/1.73m² THEN Repeat in 90 days (3 months) before diagnosing CKD

Test for proteinuria using ACR (urine test) early morning urine sample (ideally)

- if eGFR < 60 mL/min/1.73m², diabetic or suspicion of CKD

- if ACR between 3-70mg/mmol - repeat on early morning urine sample

- if ACR> 70 mg/mmol – no need to repeat

Results of eGFR and uACR after 3 months

eGFR≥60mL/min/1.73 m² **and uACR<3**mg/mmol

eGFR<59*mL/min/1.73 m² (regardless of uACR)

uACR ≥3 mg/mmol (regardless of eGFR)

Do NOT Diagnose CKD

test eGFR annually if at risk

Diagnose CKD

*Classify, investigate, manage
BUT remember to only make diagnosis after at least **two eGFR readings** at least **two months** apart

Progressive CKD Criteria

- need three eGFR spread over at least 3 months
- Fall in eGFR of ≥25% AND change in eGFR category in 12 months
- OR sustained fall in eGFR of 15mL/min/1.73 m² per year

If ACR≥ 3

-check urine dipstick for **haematuria**

- If ≥+1 evaluate further
- do not use microscopy to confirm +ve result

2.Classification of CKD and frequency of further testing

Table 1. Classification of CKD using eGFR and urinary ACR categories and monitoring frequency: in line with NG203 and the STH Management of Chronic Kidney Disease Guidance

GFR categories (ml/min/1.73m2) **Description and range**	**ACR < 3** mg/mmol **A1** (Normal to mildly increased)	**ACR 3–30** mg/mmol **A2** (Moderately increased)	**ACR > 30** mg/mmol **A3** (Severely increased)	**Proteinuria** check annually	**FBC** 3/6/12 monthly depending if anaemia or not and if on ESA therapy	**Calcium + Phosphate**	**Vitamin D +/- PTH**
	Frequency of eGFR and ACR testing/year						
CKD Stage G1: normal or high **(eGFR > 90)**	**1**	**1**	**2**	**√**	**x**	**x**	**x**
CKD Stage G2: mildly decreased **(eGFR 60 to 89)**	**1**	**1**	**2**	**√**	**x**	**x**	**x**
CKD Stage G3a: mildly to moderately decreased **(eGFR 45 to 59)**	**1**	**2**	**3**	**√**	**x**	**x**	**X**
CKD Stage G3b: moderately to severely decreased **(eGFR 30 to 44)**	**2**	**3**	**3**	**√**	**√**	**√**	**x**
CKD Stage G4: severely decreased **(eGFR 15 to 29)**	**3**	**3**	**4**	**√**	**Target Hb10.5 -12.5**		**Vit D and maybe PTH? see SY Guideline**
CKD Stage G5: kidney failure (eGFR < 15)	**4**	**4**	**4**	**√**			**Vit D and maybe PTH? see SY Guideline**

3. CKD and Anaemia

- if eGFR > 60ml/min/1.73m^2 consider/investigate other causes of anaemia other than CKD

- if eGFR 30-60ml/min/1.73m^2 CKD possible cause, still exclude other cause of anaemia

- if eGFR < 30ml/min/1.73m^2 CKD most likely cause of anaemia

DO NOT use transferrin saturation/ ferritin alone to assess iron deficiency status in CKD

if iron treatment given, it is reasonable to withhold routine iron if ferritin>700 mcg/l

4. CKD optimisation of medicines- BP and CVD Risk

Think **C**ardiovascular - Think **K**idneys - Think **D**iabetes

CKD with type 2 diabetes	**CKD without type 2 diabetes**
Step 1: **ACEi/ARB** If uACR ≥3 mg/mmol, irrespective of BP initiate and optimise **an ACEi or ARB**, ideally within a month **Step 2**: **SGLT2i** *offer SGLT2i if appropriate. See SY Position Statement preference for SGLT2i See prescribing criteria on next page **Step 3: Finerenone** consider nephrology referral for initiating finerenone in line with TA877 and SY Finerenone SCP	**Step 1**: **ACEi/ARB** if uACR ≥70mg/mmol irrespective of BP or CVD, initiate and optimise **ACEi or ARB,** ideally within a month **Step 2**: **SGLT2i** *offer SGLT2i if appropriate. See prescribing criteria on next page. See SY Position Statement preference for SGLT2i

*Currently only dapagliflozin and empagliflozin are licensed for CKD

Optimise Blood Pressure
Clinic BP Targets NG 203 If uACR <70 mg/mmol: BP<140/90mmHg If uACR ≥70mg/mmol: BP<130/80mmHg Age ≥80 years irrespective of uACR: BP<150/90mmHg (Caution in the elderly/frail – consider reviewing the targets) For treatment options see NICE NG 136 Visual summary

Optimise Cardiovascular Risk
Weight management, alcohol consumption and smoking cessation Offer atorvastatin (primary or secondary prevention) as per SY Lipid Optimisation If non-HDL reduction <40%: Follow guideline for SY Lipid Optimisation Offer antiplatelet for the secondary prevention of CVD, but be aware of increased risk of bleeding (consider gastric protection)

5. SGLT2 inhibitors-Stepwise approach to Prescribing in CKD

SGLT2i (Dapagliflozin OR Empagliflozin)

eGFR 20-44 mL/min/1.73m^2 (irrespective of uACR levels)

OR

eGFR 45-90 mL/min/1.73m^2 **and** uACR ≥22.6mg/mmol **or** T2DM

Must be able to tolerate Polyuria

Consider avoiding if Systolic BP < 99mmHg

Caution required for those who are frail and/or >75 years

Cautions and Contraindications for SGLT2 inhibitors (High Risk)	
Diabetes contraindications	**Non-diabetes contraindications/ cautions**
• History of DKA • Rapid progression to insulin (<1 year from diagnosis) • Latent autoimmune diabetes of adulthood • Ketosis-prone T2DM • T1DM (diagnosed or suspected) • Genetic diabetes • Diabetes due to pancreatic disease • Previous lower limb amputation • Existing diabetes foot ulcers eGFR<15 mL/min/1.73m^2	• Cognitive impairment • Alcoholism likely to increase the risk of falls and metabolic disturbance • Severe hepatic impairment • Acute illness • Recent major surgery • Pregnancy, planning pregnancy or breastfeeding • History of Fournier's gangrene • Recurrent genitourinary infections requiring hospitalisation • Eating disorder eGFR<15 mL/min/1.73m^2

SGLT2i initiation and monitoring		**Patient counselling on SGLT2 inhibitors**
Dapagliflozin 10mg Empagliflozin 10mg OD **Document CKD as indication**	If **patient is on insulin +/or sulfonylureas** referral can be made to DSNs for support with glycaemic control For T2DM with: eGFR>45mL/min/1.73m^2 &HbA1c<58mmol/mol Consider dose titration: **SGLT2i + insulin**: ↓ insulin dose 20% **SGLT2i + Sulfonylureas**: ↓ SU dose 50%	**Genital thrush or UTI** **Diabetic ketoacidosis (DKA)** and symptoms to look out for: nausea (feeling sick) or vomiting, new sudden worsening of shortness of breath, new sudden stomach pain **Necrotising fasciitis of the perineum** (Fournier's gangrene) and symptoms to look out for: pain and redness of the genitals or the area around the genitals and the buttocks; a fever or high temperature **Patient information letter**: Getting the most from your SGLT2 inhibitors; SGLT2 inhibitors, Kidney Care UK Sick day rules

6. SGLT2 inhibitors-information & monitoring

1. Prior to initiation, assess the patient's **renal function, BP, volume status and blood glucose control**.
   Consider avoiding initiation if systolic blood pressure is persistently below 95 mm Hg

2. **Anticipate an acute drop in eGFR of up to 30% in the first 3-4 weeks of treatment** (reversible on cessation), likely due to reduction in intra-glomerular pressure.
   The acute decline will reflect in sustained renovascular benefits over time with reduction to progression to end-stage CKD.
   In the absence of haemodynamic instability, SGLT2i do not increase risk of AKI.

3. Conduct **regular electrolyte and renal function measurements**, as appropriate for individual circumstances, comorbidities and concomitant medications which will be determined by clinical judgement on a case-by-case basis (see NG203).
   For those on additional agents including angiotensin converting enzyme inhibitors (**ACEi** eg ramipril), angiotensin receptor blockers **(ARB** eg losartan), mineralocorticoid receptor antagonists (**MRAs** eg spironolactone) and sacubitril/valsartan (**Entresto**), renal function and electrolytes need to be assessed on a **3-monthly interval**.

4. The effectiveness of the glycaemic lowering activity of SGLT2is is highly dependent on renal function and as the eGFR drops so does the glycaemic effect such that by eGFR < 45 mL/min/1.73 m2 there is virtually no glycaemic effectiveness.

5. **Stop SGLT2is when patient starts renal replacement therapy (dialysis or transplantation).**

6. **There is an increased risk of hypoglycaemia when SGLT2i is used alongside sulfonylureas (SU eg gliclazide) and/or insulin,** monitor glycaemic control and adjust doses of SU and/or insulin as per below or a referral can be made to the community diabetes team to advise on any dose adjustments;

   - For patients with T2DM and eGFR >45 ml/min/1.73m² + HbA1c<58 mmol/mol on SGLT2i and insulin consider reducing the insulin dose by 20%;

   - For patients with T2DM and eGFR >45 ml/min/1.73m² + HbA1c<58 mmol/mol on SGLT2i and SU consider reducing the SU dose by 50%.

7. Due to its mechanism of action, **patients on SGLT2is will test positive for glucose in their urine**.

8. All patients should be counselled appropriately and provided with the STH Patient Information Leaflet: Sodium Glucose Co-transporter 2 inhibitors (SGLT2is), Getting the most from your medication; SGLT2 inhibitors, Kidney Care UK

Documentation: It must be clearly documented on the patient's medical record that the **primary indication for SGLT2i is CKD and not T2DM or HF** to ensure follow up and monitoring is appropriate. Though it should be noted some patients may have multiple conditions for which SGLT2is will be of benefit.

7.Referral criteria for Secondary Care

Taking into account individual's preferences and other health conditions discuss with (via ERS)/refer to a nephrologist as per NICE NG 203:

- A 5-year Kidney Failure Risk Equation **KFRE predicted risk over 5%.**
- **an ACR of 70 mg/mmol or more**, unless known to be caused by diabetes and already appropriately treated
- **an ACR of more than 30 mg/mmol (ACR category A3), together with haematuria**
- a **sustained decrease in eGFR of 25% or more and** a change in eGFR category within 12 months
- a **sustained rapidly declining in eGFR of 15 ml/min/1.73 m^2 or more/year**
- **hypertension that remains poorly controlled** (above the person's individual target) despite the use of at least 4 antihypertensive medicines at therapeutic doses
- known or suspected **rare or genetic causes of CKD**
- **suspected renal artery stenosis** (STH recommendation >25% reduction in eGFR within 3 months of starting or increasing the dose of ACEi/ARB, refractory hypertension, pulmonary oedema and/or renal artery bruit).
- **Advanced – CKD 4/5**. However, in frail or older patients with stable CKD stage 4, referral may not always be required.
- Refer patients with CKD and **renal outflow obstruction to urology services.**
- Consider discussing management with a specialist via **Advice & Guidance in ERS** if there are concerns but the person with CKD does not need to see a specialist.

8. Referral criteria for Finerenone

In line with TA877 and prescribing guidance from the SY Finerenone SCPl :
-Adults with **stage 3 and 4 chronic kidney disease** (with an eGFR between 25 and 60 ml/min/1.73 m^2) **and**
-with **albuminuria (uACR > 3** mg/mmol**) and**
-associated with **type 2 diabetes and**
-already on an ACEi/ ARBs and SGLT2 inhibitors at the highest tolerated licensed doses,
-unless unsuitable.
-Patients requiring spironolactone for heart failure are not suitable(STH Management of Chronic Kidney Disease guidance)

Finerenone prescribing: contraindications and cautions	
Contraindications	**Cautions**
• Hypersensitivity to the active substance or to any of the excipients • Addison's disease • Severe hepatic impairment • Concomitant treatment with strong inhibitors of CYP3A4 (e.g., clarithromycin, itraconazole, ketoconazole, ritonavir).	• Risk of hyperkalaemia • Moderate hepatic impairment; • Pregnancy: women of childbearing potential should use effective contraception during finerenone treatment

For more details on contraindications and cautions please consult **finerenone** (Karendia®)
SmPC and the SY Finerenone SCP

Monitoring: eGFR and serum potassium levels

For frequency of monitoring in primary care, please refer to section 9 of the SY Finerenone SCP;
for dose adjustments depending on K levels, see section 5 of the SY Finerenone SCP.

Advice to patients and carers

The specialist will counsel the patient about the benefits and risks of treatment and will provide the patient with any relevant information and advice, including patient information leaflets on individual medicines.

The patient should be advised to report any of the following signs or symptoms to their GP without delay:

- Palpitations
- Shortness of breath
- Chest pain
- Nausea and/or vomiting

9. Self-care advice for patients with CKD

Provide patients with sources of information, advice, and support. For more details see NICE CKS for Management of chronic kidney disease

Provide sources of information, advice, and support, such as:

- Kidney Care UK (website available at www.kidneycareuk.org) a national kidney charity which has a telephone support helpline (telephone 01420 541424) and several Patient information booklets on CKD and associated condition
- The NHS patient information leaflet Chronic kidney disease
- Patient information for Chronic Kidney Disease (CKD): Causes, Symptoms, and Treatment

Advise on healthy lifestyle measures, such as
- stop smoking: Barnsley, Doncaster, Rotherham , Sheffield
- drinking alcohol in moderation;
- maintaining a healthy body weight: Barnsley; Doncaster; Rotherham; Sheffield
- eating a healthy diet
- taking regular exercise

Advise the person to avoid the use of over-the-counter nonsteroidal anti-inflammatory drugs (NSAIDs) where possible and avoid herbal remedies, and use protein supplements with caution.

10. Sick Day Rules

Always offer advice on sick day rules and reiterate this at every opportunity.

- Always offer counselling on signs and symptoms of DKA.
- Stop SGLT2is if unwell or restricted food intake or dehydration.
- Stop SGLT2is in patients who are hospitalised for major surgery or acute medical illnesses and measure blood ketones.
- Stop taking the following medicines, until you are feeling well again and are eating and drinking normally: diuretics/"water pills"; ACEi medicines ending in "pril" eg ramipril, lisinopril, perindopril; ARBs - names ending in 'sartan' eg losartan, candesartan, irbesartan; NSAIDs - anti-inflammatory pain killers eg ibuprofen, naproxen, diclofenac
- Never stop insulin; adjust the dose as advised, then change the dose gradually back to normal when recovered.
- Omit finerenone during periods of acute illness, such as when experiencing vomiting, diarrhoea, or severe dehydration
- Drink regularly, to avoid dehydration - half a glass (150ml) of milk or fruit juice, or calorie rich soup or yoghurt every hour.

Restart medication when the patient is well and eating and drinking normally. If a patient remains unwell 48h after re-initiation, advise them to seek immediate medical help

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