CKD Interventions in Primary Care

Medscape UK X Guidelines
Primary Care Hacks

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1. Lipids[3–5,15–18]

- For primary prevention, start **atorvastatin 20 mg OD**
- For secondary prevention, do not stop or attenuate dose if eGFR <30 ml/min/1.73 m^2
- Offer **aspirin** for **secondary prevention** of CVD.

2. Blood Pressure[3–5,12,18–22]

- **Standard target: SBP <120 mmHg**[A]
- Follow NG136 (**nice.org.uk/ng136**)[19] and NG203 (**nice.org.uk/ng203**)[3] when choosing medications
- When RAASi is first line, choose an **ARB**[B]
- Independent of BP:[B]
  - if uACR >30 mg/mmol: start **ARB** and titrate to maximum tolerated dose
  - if uACR >3 mg/mmol in people with diabetes: start **ARB** and titrate to maximum tolerated dose
    - additional agents may be required
- If eGFR <45 ml/min/1.73 m^2 when starting or increasing RAASi, check creatinine and electrolytes within 28 days; eGFR drop <25% and creatinine rise <30% can be accepted. NICE endorses potassium binders, as they enable RAASi use in those not on dialysis. If hyperkalaemia encountered, follow Figure 1.

3. Further Medications

Add an **SGLT2i** in eligible groups[B],[C] (see Figure 2 and **medscape-uk.co/Hack-SGLT2i**) after RAASi has been titrated to maximum tolerated dose.[21,23]

- Omit in type 1 diabetes.[23]

In those with T2DM and CKD, finerenone[B] is a **nonsteroidal MRA** that can be added as third line to an RAASi and an SGLT2i (or second line if SGLT2i is inappropriate or not tolerated) if eGFR ≥25 ml/min/1.73 m^2, uACR ≥3 mg/mmol (≥30 mg/g), AND serum potassium concentration is normal.[6,8,18,20,24] See **bit.ly/3v8PX4f**.

4. Further Considerations

- Opportunistically check FBC/HbA$_{1c}$/lipids/LFTs/weight/BP at the same time as checking U&E and ACR, to support holistic interventions (see **medscape-uk.co/Hack-CVRM**)
- Offer the following vaccinations:[4,5,25]
  - annual **flu vaccine**
  - polyvalent **pneumococcal vaccine** if eGFR <30 ml/min/1.73 m^2
  - **hepatitis B vaccination** for adults with GFR <30 ml/min/1.73 m^2 who are at high risk of progression
- Refer to the *Renal drug handbook*[26] (if accessible) for dosing for antimicrobials, anticoagulants, and hypoglycaemics.

Lifestyle and Dietary Modification

A. Encourage **weight loss** and **smoking cessation**[3–6,8]
B. Advise on **salt restriction** (ideally <2 g of sodium per day, equating to <5 g of sodium chloride)[3–5,8,12]
C. If gastric protection is required, consider **H$_2$RAs** over PPIs, as PPI use has been associated with increased risk of nephritis and progression of CKD[13,14]
D. Avoid **NSAIDs**[3–5]
E. Promote **exercise** of at least 150 minutes per week.[3–6,8]

Figure 1: Managing Hyperkalaemia[22]

Clinical context	Serum K+ (mmol/l) 5.5–6.1	6.2–6.4	≥6.5
Clinically well, no AKI	Repeat in 14 days	Repeat within 1 working day[1]	Consider urgent referral to hospital[5]
Unexpected result	Repeat within 3 days	Repeat within 1 working day[1]	Consider urgent referral to hospital[5]
Clinically unwell or AKI[3]	Consider if hospital referral is indicated[2]	Urgent referral to hospital	Urgent referral to hospital
Taking RAASi[4]	Consider reducing dose by 50%	Withhold, restart at lower dose when K+ <5.5	Consider urgent referral to hospital

1. Routine blood tests during weekday OOH and weekends are not available in primary care. Depending on clinical circumstances and risk of deterioration, hospital referral or repeat testing at next working day may be reasonable.
2. The clinical circumstances, likely cause, and risk of deterioration will guide need for referral.
3. AKI as defined by KDIGO criteria:
   - AKI stage 1: current creatinine ≥1.5x baseline (or creatinine rise >26 umol/l within 48 hours)
   - AKI stage 2: current creatinine ≥2x baseline
   - AKI stage 3: current creatinine ≥3x baseline (or creatinine 1.5x baseline AND >354 umol/l)
4. RAASi=ACEis/ARBs/K-sparing diuretics. For patients with decompensated HF in the community, the threshold for withholding RAASi is higher; thus, they may be continued (at reduced dose) when K+ is 6.0–6.4 and if previously withheld, restarted when K+ <6.0.
5. If pseudohyperkalaemia is likely then urgent hospital referral may not be required; please use clinical judgement.

Figure 2: SGLT2i Initiation in CKD

eGFR (ml/min/1.73 m^2)	uACR (mg/mmol) <20	≥20
≥60	Suggested in T2DM	Recommended
45–60	Suggested in T2DM	Recommended
20–45	Recommended	Recommended
<20	Suggested[D]	Suggested[D]
Dialysis	Not recommended[D]	

Footnotes

[A] BP target can be relaxed and individualised if the patient cannot tolerate SBP <120 mmHg or because of other factors, e.g. frailty, reduced life expectancy, syncope.[3–5,12] NICE recommends targets of 120–139 mmHg (SBP) and <90 mmHg (DBP) if ACR <70 mg/mmol, and targets of 120–129 mmHg and <80 mmHg if ACR ≥70 mg/mmol.[3] However, in various studies, intense SBP control has not resulted in compromise.[3,6,12]

[B] Provide advice on **SICK day rules** and review the **SADMANS mnemonic** (to include finerenone). See **bit.ly/4bRbejF**.[18,27]

[C] Counsel patient on the main side effects of SGLT2i use, including risk of UTIs, mycotic genital infections, Fournier's gangrene, DKA, foot disease, and dehydration.[23,28] Provide **SICK day guidance**, including a leaflet (**bit.ly/4bRbejF**).[23,27] **DO NOT** routinely check renal function after commencing an SGLT2i.[3,23] Consider the patient's hydration status and adjust/reduce diuretic or anti-BP doses if high risk of hypovolaemia.[23] As eGFR drops below 45 ml/min/1.73 m^2, SGLT2is' glycaemic efficacy reduces.[23] However, SGLT2is can be continued if tolerated until RRT.[18,20,23]

[D] Do not discontinue SGLT2i if renal function deteriorates (eGFR <20 ml/min/1.73 m^2), as long as the SGLT2i was initiated prior to this.[23]

ACEi=angiotensin-converting enzyme inhibitor; **ACR**=albumin to creatinine ratio; **AKI**=acute kidney injury; **ARB**=angiotensin II receptor blocker; **BP**=blood pressure; **CKD**=chronic kidney disease; **CVD**=cardiovascular disease; **DBP**=diastolic blood pressure; **DKA**=diabetic ketoacidosis; **eGFR**=estimated glomerular filtration rate; **FBC**=full blood count; **GFR**=glomerular filtration rate; **H$_2$RA**=histamine-2 receptor antagonist; **Hb**=haemoglobin; **HbA$_{1c}$**=haemoglobin A1c; **HF**=heart failure; **KDIGO**=Kidney Disease: Improving Global Outcomes; **K+**=potassium; **LFT**=liver function test; **MRA**=mineralocorticoid receptor antagonist; **NG**=NICE Guideline; **NSAID**=nonsteroidal anti-inflammatory drug; **OD**=once daily; **OOH**=out of hours; **PPI**=proton-pump inhibitor; **RAASi**=renin–angiotensin–aldosterone system inhibitor; **RRT**=renal replacement therapy; **SADMANS**=sulfonylureas, ACEis, diuretics, metformin, ARBs, NSAIDs, SGLT2is; **SBP**=systolic blood pressure; **sCr**=serum creatinine; **SGLT2i**=sodium–glucose co-transporter-2 inhibitor; **SICK**=sugar, insulin, carbohydrate, ketones; **T2DM**=type 2 diabetes mellitus; **U&E**=urea and electrolytes; **uACR**=urine albumin to creatinine ratio; **UTI**=urinary tract infection