

Checklist for Causes of Hyperkalaemia in Chronic Kidney Disease (CKD) and Dialysis

This factsheet is for health care professionals to assist in the management of hyperkalaemia in CKD

Hyperkalaemia in CKD is common and multifactorial. Medication and clinical causes should be considered before recommending changes to dietary potassium intake.

Please rule out these common causes of hyperkalaemia and refer to the dietitian when required:

<input type="checkbox"/>	<p>Constipation*</p> <p>Bowel excretion of potassium is up regulated by up to $\approx 3x$ in dialysis. Increased stool frequency may reduce serum potassium by $\approx 0.4\text{mmol/L}$. Increasing dietary fibre and/or use of fibre supplements have been shown to be effective.</p>
<input type="checkbox"/>	<p>Metabolic Acidosis*</p> <p>Due to intracellular to extracellular potassium and hydrogen ion shifts. Patients with serum bicarbonate of $<22\text{mEq/L}$ are at 2.4 times higher risk of developing hyperkalaemia. Caution with adding additional sodium bicarbonate medications as this can worsen oedema.</p>
<input type="checkbox"/>	<p>Hyperglycaemia*</p> <p>Hyperosmolarity of the extracellular fluid can increase serum potassium. Patients with diabetes due to insulin deficiency have a 53% increased risk of hyperkalaemia.</p>
<input type="checkbox"/>	<p>Medications</p> <p>ACE-I, ARBs, beta blockers, potassium sparing diuretics, NSAIDs and some antibiotics (co-trimoxazole 'Bactrim') can contribute to hyperkalaemia.</p>
<input type="checkbox"/>	<p>Changes to dialysis prescription, or dysfunctioning fistula</p> <p>Ensuring patients receive their full dialysis prescription (number of hours per session and days per week) is critical. Consider potassium content of dialysate and fistula function.</p>
<input type="checkbox"/>	<p>Catabolism and muscle breakdown*</p> <p>$\approx 70\%$ of potassium is stored in muscle tissue. Rapid breakdown of muscle tissue in severe weight loss, trauma, burns, tumour lysis syndrome and rhabdomyolysis can increase serum potassium.</p>
<input type="checkbox"/>	<p>Timing and effectiveness of blood tests</p> <p>Singular high potassium results should be interpreted with caution. Recent exercise, diurnal variations, blood transfusions and traumatic blood draws can all impact serum potassium.</p>
<input type="checkbox"/>	<p>Hypoaldosteronism (Type 4 Renal Tubular Acidosis)</p> <p>Low aldosterone, either through hyporeninaemic hypoaldosteronism or medications (heparin, ACE-I, ARB) can cause reduced potassium excretion in the urine.</p>
<input type="checkbox"/>	<p>Hypovolaemia</p> <p>Can result in the concentration of electrolytes. Consider gastrointestinal losses (including high output stoma), renal losses and skin losses.</p>

*In an outpatient or dialysis setting, consider whether dietary counselling is required to address cause

Mathialahan T, et al. *J Pathol.* 2005 May;206(1); Goia-Nishide K et al. *Diseases.* 2022 March 28;10; KDIGO 2024, April;105(4S)