

Sodium Zirconium Cyclosilicate (Lokelma®)

<p>Indication and additional Information</p>	<p>Chronic hyperkalaemia despite optimal adjunctive therapy in adults with chronic kidney disease (CKD) to facilitate maximum renin-angiotensin-aldosterone system (RAAS) blockade.</p> <p>Patients with proteinuric CKD, particularly diabetic nephropathy, have a compelling indication for RAAS blocking drugs, such as ACE inhibitors (ACEI) and angiotensin receptor blockers (ARB), to slow the progression of renal disease.</p> <p>Hyperkalaemia is a frequent serious adverse effect of these drugs that often results suboptimal dosing or discontinuation. This can occur despite low dietary potassium intake, diuretics to promote potassium excretion and correction of CKD-associated metabolic acidosis. Sodium zirconium cyclosilicate (SZC) is a new class of non-absorbed cation exchange compound that preferentially traps potassium in exchange for sodium and hydrogen.</p> <p>In September 2020, the Scottish Medicines Consortium accepted SZC for restricted use “in patients with CKD stage 3b to 5 and/or heart failure who would otherwise need to lower or stop a renin-angiotensin-aldosterone system inhibitor, so that their blood potassium is kept at a normal level.”</p>
<p>Criteria for treatment</p>	<p>Inclusion criteria</p> <p>Patients MUST:</p> <ul style="list-style-type: none"> • Be an adult patient attending general nephrology clinics in NHS Lothian • Have CKD stage 3b to 5 and proteinuria (PCR >50mg/mmol) <p>AND all of the following:</p> <ul style="list-style-type: none"> • Be on submaximal dose RAAS blockade or RAAS blockade discontinued/not commenced because of hyperkalaemia • Have a documented episode of hyperkalaemia >6mmol/L <ul style="list-style-type: none"> ○ Unrelated to acute kidney injury or confounding factors such as NSAIDs, potassium sparing diuretics or antibiotics, or a single high glucose >20mmol/L ○ Confirmed on atraumatic sample, analysed without delay in sample reaching labs (ie NOT solely on primary care bloods)

Written by: Tariq Farrah, Renal Registrar
Reviewed by: Maggie Davidson, Renal Pharmacist
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Adapted from protocols of the following NHS trust: Imperial College London

	<ul style="list-style-type: none"> • Have had correction of acidosis (to serum bicarbonate >22mmol/L) with sodium bicarbonate up to 1.5g twice daily as tolerated • Have had a trial of a diuretic as tolerated/appropriate • Have had verbal and written advice on a low potassium diet • Have had optimisation of diabetic management where appropriate <p>Exclusion criteria</p> <ul style="list-style-type: none"> • Acute hyperkalaemia in acute kidney injury • Gastrointestinal motility disorders • Women of childbearing age who may become pregnant
<p>Dosage and administration</p>	<p>Available Preparations 10g powder for oral suspension x 3 10g powder for oral suspension x 30 5g powder for oral suspension x 30</p> <p>Correction phase 10g three times daily administered as an oral suspension in water. When normokalaemia is achieved (typically after 24-48 hours) the maintenance regimen should be followed. If patients are still hyperkalaemic after 48 hours continue the same dose for an additional 24 hours. If normokalaemia is not achieved after 72 hours of treatment, discontinue.</p> <p>Maintenance phase 5g once daily starting dose. Dose range: 5g on alternate days up to 10g once daily depending on potassium. No more than 10g once daily should be used for maintenance therapy. Serum potassium levels should be monitored regularly during treatment.</p> <p>If a patient misses a dose they should be instructed to take the next usual dose at their normal time.</p>
<p>Monitoring</p>	<p>After two weeks of SZC treatment patients can be advised to increase their RAAS inhibitor dose. Potassium should be measured 1 to 2 weeks after this dose increase. Action to be taken:</p> <p>If potassium <4mmol/L - reduce dose to 5g alternate days and recheck potassium in two to four weeks.</p> <p>If potassium >5.2mmol/L – Increase dose to 10g once daily and recheck potassium in two to four weeks.</p>

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	<p>Once stable, patients potassium should be monitored approximately every three to four months and dose adjusted as above.</p> <p>If patients continue to suffer from hyperkalaemia despite the use of maximal dose of SZC the dosage of RAAS inhibitor should be reduced. If the dose of the RAAS inhibitor cannot be increased above the baseline dosage then SZC should be stopped.</p>
Side Effects	<p>Hypokalaemia, oedema related events, constipation, diarrhoea, nausea</p> <p>QT prolongation – during correction of hyperkalaemia, a lengthening of the QT interval can be observed.</p>
Patient Counselling	<p>Mix the contents of each 5g or 10g sachet of powder with approximately 45 mL of water and stir well. The powder will not dissolve and the suspension should be taken while it is cloudy; if the powder settles it should be stirred again. Take with or without food.</p> <p>Patients should be advised of potential side effects and seek medical attention if they develop swelling of their ankles.</p> <p>SZC is considered high in sodium therefore patients should be advised to reduce salt intake (as would be the case for all patients in whom inhibitors of the renin angiotensin system are indicated) and not to use “Lo-salt”</p> <p>Patients should be advised that SZC may be opaque to X-rays and if undergoing any abdominal x-ray they should let the radiographer know that they are on this drug.</p>
Drug Interactions	<p>As SZC is not absorbed or metabolised by the body, and does not meaningfully bind other medicinal products, there are limited effects on other medicinal products.</p> <p>SZC can transiently increase gastric pH by absorbing hydrogen ions and can lead to changes in solubility and absorption kinetics for co-administered medicinal products with pH-dependent bioavailability. These drugs should be administered 2 hours before or after SZC:</p> <ul style="list-style-type: none"> • antifungals (ketoconazole, itraconazole and posaconazole), • anti-HIV drugs (atazanavir, nelfinavir, indinavir, ritonavir, saquinavir, raltegravir, ledipasvir and rilpivirine) • tyrosine kinase inhibitors (erlotinib, dasatinib and nilotinib).

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