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| Renal Directorate Guidelines  Royal Infirmary of Edinburgh |

**Sodium Zirconium Cyclosilicate (Lokelma®) – ACUTE USE**

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| **Indication and additional Information** | Hyperkalaemia (serum K+ >5.5mmol/L) is frequently encountered in patients with acute kidney injury (AKI) and patients with kidney failure on renal replacement therapy. Treating acute life-threatening hyperkalaemia (serum K+≥6.5mmol/L) in emergency care is established clinical practice.  Sodium zirconium cyclosilicate (Lokelma**®**) is a novel cation exchange resin that binds potassium in the gut for excretion thus lowering the serum potassium concentration. It is approved by NICE and the SMC in the emergency care setting for the treatment of acute, life-threatening hyperkalaemia alongside standard care.  See ‘Management of hyperkalaemia in adults in hospital’. |
| **Criteria for treatment** | **Inclusion criteria**  Patients with acute life-threatening hyperkalaemia (serum K+≥6.5mmol/L) ***alongside standard care***  Patients with acute hyperkalaemia (serum K+ 6.0 – 6.4mmol/L) without ECG changes but with high-risk features for progressive hyperkalaemia (rapid rise in serum K over 24hrs or progressive AKI with oligoanuria) ***alongside standard care***  **Exclusion criteria**  Patients with gastrointestinal obstruction  Caution in patients with gastrointestinal dysmotility |
| **Dosage and administration** | **Available Preparations**  10g powder for oral suspension x 3 sachets  10g powder for oral suspension x 30 sachets  5g powder for oral suspension x 30 sachets  **Correction phase**  **10g three times daily** administered as an oral suspension in water. When normokalaemia (serum K+<5.5 mmol/L) is achieved (typically after 24-48 hours) the maintenance regimen should be followed.  If patients are still hyperkalaemic (K+ ≥5.5mmol/L) after 48 hours continue the same dose for an additional 24 hours. If normokalaemia is not achieved after 72 hours of treatment, consider discontinuation due to lack of efficacy.  **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. Treatment should be discontinued when risk of acute hyperkalaemia has resolved (e.g. resolution of acute kidney injury).  If a patient misses a dose they should be instructed to take the next usual dose at their normal time. |
| **Monitoring** | **Inpatient use**  Potassium should be measured at 2 hours and 6 hours after starting treatment as indicated in ‘Management of hyperkalaemia in adults in hospital’ guideline. Beyond this period, potassium should be **checked at least daily** to assess response.  Continue corrective dosing until normokalaemia (serum K+ <5.5mmol/L) achieved up to a maximum of 72 hours of treatment. Continue maintenance dosing until risk of hyperkalaemia has resolved.  **Discontinue if serum K+ <4.0mmol/L.**  **Outpatient use**  Selected patients being managed through Ambulatory Care or Hospital at Home **may** be suitable for outpatient treatment with close monitoring. These cases must be discussed with Renal Medicine and Lokelma use approved by a Registrar or Consultant in Renal Medicine. A named specialist will be required for pharmacy dispensing of Lokelma for outpatient use. In these cases:   * Maximum 6 days of maintenance dosing will be dispensed * Potassium should be checked every 48hr as a minimum * Organising follow up and monitoring in secondary care remains the responsibility of the discharge team and should NOT be deferred to primary care. * Dose adjustments and discontinuation can be discussed with Renal Medicine. |
| **Side Effects** | Hypokalaemia, oedema related events, constipation, diarrhoea, nausea  QT prolongation – during correction of hyperkalaemia, a lengthening of the QT interval can be observed. |
| **Patient Counselling** | 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.  Patients should be advised of potential side effects and seek medical attention if they develop swelling of their ankles.  Sodium zirconium cyclosilicate (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”  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. |
| **Drug Interactions** | 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.  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:   * antifungals (ketoconazole, itraconazole and posaconazole), * anti-HIV drugs (atazanavir, nelfinavir, indinavir, ritonavir, saquinavir, raltegravir, ledipasvir and rilpivirine) * tyrosine kinase inhibitors (erlotinib, dasatinib and nilotinib). |