NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Health Technology Evaluation

Sodium zirconium cyclosilicate for treating hyperkalaemia (Review of TA599) ID6439

Draft scope

Draft remit/evaluation objective

To appraise the clinical and cost effectiveness of sodium zirconium cyclosilicate within its marketing authorisation for treating hyperkalaemia in adults.

Background

Hyperkalaemia refers to an abnormally high level of potassium in the blood (normal range 3.5 to 5.0 millimoles per litre [mmol/L]). The European Resuscitation Council classifies hyperkalaemia as mild (serum potassium level of 5.5 to 5.9 mmol/l), moderate (6.0-6.4 mmol/l) or severe (6.5 mmol/l and above).[1] Many people with hyperkalaemia may not have any symptoms, while some people may have muscle weakness, muscle stiffness or fatigue. Severe hyperkalaemia can cause irregular heart beat (arrhythmia) leading to cardiac arrest and death.

Hyperkalaemia usually occurs in people with impaired kidney function which may be caused by acute kidney injury or chronic kidney disease. Chronic kidney disease is prevalent among people with diabetes or chronic heart failure. Hyperkalaemia is common among people with end-stage renal disease and in older people. The risk of hyperkalaemia is increased further by medicines such as potassium supplements, inhibitors of renin–angiotensin–aldosterone system that include angiotensin-converting-enzyme inhibitors (ACE), angiotensin II receptor blockers (ARB) and potassium-sparing diuretics. These medicines are used to treat high blood pressure and heart failure in people with chronic kidney disease. Some people with chronic kidney disease have chronic acidosis, which is treated using sodium bicarbonate which would lower the risk of hyperkalaemia.[2]

The prevalence of hyperkalaemia in adults is about 6% while the incidence is 2.8 cases per 100 person-years. The prevalence of adult hyperkalaemia in outpatient or primary care settings is about 5%.[3] Between 1% and 10% of hospital inpatients have hyperkalaemia.[4] Hyperkalaemia is observed in about 10% of people using ACE inhibitors and ARBs.[1]

Treatment options for mild and moderate hyperkalaemia include a low-potassium diet and stopping medicines that cause hyperkalaemia. NICE technology appraisal guidance 623 recommends patiromer as an option for treating hyperkalaemia in adults only if used:

- in emergency care for acute life-threatening hyperkalaemia alongside standard care or
- for people with persistent hyperkalaemia and stages 3b to 5 chronic kidney disease or heart failure, if they:
    - have a confirmed serum potassium level of at least 6.0 mmol/litre and
    - are not taking, or are taking a reduced dosage of, a renin-angiotensin-aldosterone system (RAAS) inhibitor because of hyperkalaemia and
    - are not on dialysis.

In 2019 (updated in 2022), NICE evaluated sodium zirconium cyclosilicate and recommended it as an option for treating hyperkalaemia in adults only if used:

- in emergency care for acute life-threatening hyperkalaemia alongside standard care or
- for people with persistent hyperkalaemia and chronic kidney disease stage 3b to 5 or heart failure, if they:
    - have a confirmed serum potassium level of at least 6.0 mmol/litre and
    - because of hyperkalaemia, are not taking an optimised dosage of renin-angiotensin-aldosterone system (RAAS) inhibitor and
    - are not on dialysis.

This evaluation will review and replace the recommendations in TA599.

The technology

Sodium zirconium cyclosilicate (Lokelma, Astra Zeneca) has a marketing authorisation in the UK for the treatment of hyperkalaemia in adult patients.

Intervention(s)	Sodium zirconium cyclosilicate
Population(s)	People with hyperkalaemia
Subgroups	If the evidence allows the following subgroups will be considered: • people with acidosis • people with acute hyperkalaemia • people with chronic kidney disease • people with heart failure
Comparators	• patiromer for treating hyperkalaemia in adults only if used in emergency care for acute life-threatening hyperkalaemia alongside standard care **or** for people with persistent hyperkalaemia and stages 3b to 5 chronic kidney disease or heart failure, if they have a confirmed serum potassium level of at least 6.0 mmol/litre **and** are not taking, or are taking a reduced dosage of, a renin-angiotensin-aldosterone system (RAAS) inhibitor because of hyperkalaemia **and** are not on dialysis • standard care

Outcomes	The outcome measures to be considered include: • serum potassium level • use of renin–angiotensin–aldosterone system inhibitor therapy • mortality • time to normalisation • adverse effects of treatment • health-related quality of life.
Economic analysis	The reference case stipulates that the cost effectiveness of treatments should be expressed in terms of incremental cost per quality-adjusted life year. If the technology is likely to provide similar or greater health benefits at similar or lower cost than technologies recommended in published NICE technology appraisal guidance for the same indication, a cost comparison may be carried out. The reference case stipulates that the time horizon for estimating clinical and cost effectiveness should be sufficiently long to reflect any differences in costs or outcomes between the technologies being compared. Costs will be considered from an NHS and Personal Social Services perspective. The availability of any commercial arrangements for the intervention, comparator and subsequent treatment technologies will be taken into account. The availability and cost of biosimilar and generic products should be taken into account.
Other considerations	Guidance will only be issued in accordance with the marketing authorisation. Where the wording of the therapeutic indication does not include specific treatment combinations, guidance will be issued only in the context of the evidence that has underpinned the marketing authorisation granted by the regulator.
Related NICE recommendations	**Related technology appraisals** Patiromer for treating hyperkalaemia (2020) NICE technology appraisal guidance 623. Sodium zirconium cyclosilicate for treating hyperkalaemia (2019) NICE technology appraisal guidance 599. **Related NICE guidelines** Chronic kidney disease: assessment and management (2021) NICE guideline NG203.

	Acute heart failure: diagnosis and management (2014, updated 2021) NICE guideline CG187. Chronic heart failure in adults: diagnosis and management (2018) NICE guideline NG106. **Related quality standards** Chronic kidney disease in adults (2017) NICE quality standard 5.
Related National Policy	The NHS Long Term Plan (2019) NHS Long Term Plan NHS England (2023) Manual for prescribed specialist services (2023/2024) Chapter 15.

Questions for consultation

Where do you consider sodium zirconium cyclosilicate will fit into the existing care pathway for hyperkalaemia?

Please select from the following, will sodium zirconium cyclosilicate be:

A. Prescribed in primary care with routine follow-up in primary care
B. Prescribed in secondary care with routine follow-up in primary care
C. Prescribed in secondary care with routine follow-up in secondary care
D. Other (please give details):

For comparators and subsequent treatments, please detail if the setting for prescribing and routine follow-up differs from the intervention.

Would sodium zirconium cyclosilicate be a candidate for managed access?

Do you consider that the use of sodium zirconium cyclosilicate can result in any potential substantial health-related benefits that are unlikely to be included in the QALY calculation?

Please identify the nature of the data which you understand to be available to enable the committee to take account of these benefits.

NICE is committed to promoting equality of opportunity, eliminating unlawful discrimination and fostering good relations between people with particular protected characteristics and others. Please let us know if you think that the proposed remit and scope may need changing in order to meet these aims. In particular, please tell us if the proposed remit and scope:

- could exclude from full consideration any people protected by the equality legislation who fall within the patient population for which sodium zirconium cyclosilicate is licensed;
- could lead to recommendations that have a different impact on people protected by the equality legislation than on the wider population, e.g. by making it more difficult in practice for a specific group to access the technology;
- could have any adverse impact on people with a particular disability or disabilities.

Please tell us what evidence should be obtained to enable the committee to identify and consider such impacts.

NICE intends to evaluate this technology through its Single Technology Appraisal process. (Information on NICE's health technology evaluation processes is available at https://www.nice.org.uk/about/what-we-do/our-programmes/nice-guidance/nice-technology-appraisal-guidance/changes-to-health-technology-evaluation).

References

1. European Resuscitation Council (2015) Guidelines for Resuscitation: Section 4. Cardiac arrest in special circumstances. Accessed August 2024.
2. Evans KJ, Greenberg A. (2005) Hyperkalemia: a review. J Intensive Care Med. 20(5):272-90.
3. Humphrey T, Davids MR, Chothia MY, et al (2021) How common is hyperkalaemia? A systematic review and meta-analysis of the prevalence and incidence of hyperkalaemia reported in observational studies. Clin Kidney J. 2021 Dec 2;15(4):727-737. doi: 10.1093/ckj/sfab243.
4. Alfonzo A, Harrison A, Baines R, et al. (2023) UK Kidney Association Clinical Practice Guidelines Treatment of Acute Hyperkalaemia in Adults. Accessed August 2024.