NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Single Technology Appraisal

Sodium zirconium cyclosilicate for treating hyperkalaemia

Draft scope (pre-referral)

Draft remit/appraisal objective

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

Background

Hyperkalaemia means an abnormally high level of potassium in the blood (normal range 3.5 to 5.0 millimoles per liter [mmol/L]).[1] Many people with hyperkalaemia may not have any symptoms, whilst other people 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 the elderly. 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 often in people with chronic kidney disease.

Between 1% and 10% of hospital inpatients have hyperkalaemia.[2] It is not known how many outpatients have the condition. Hyperkalaemia is observed in about 10% of people using ACE inhibitors and ARBs.[1] It is also present in about 5% to 10% of people having regular haemodialysis and about 10% of people with kidney failure who are not on dialysis.[2] In 2013-14 there were around 7,000 hospital admissions for hyperkalaemia in England resulting in around 21,000 bed days.[3]

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] Treatment options for mild and moderate hyperkalaemia include a low-potassium diet and stopping medicines that cause hyperkalaemia. Further options include sodium polystyrene sulphonate or calcium polystyrene sulphonate, which reduce the levels of potassium in the body.

NICE clinical guideline 169 recommends that people with acute kidney injury who have hyperkalaemia that is not responding to medical management should be referred for renal replacement therapy immediately. To prevent

hyperkalaemia, NICE clinical guideline 182 recommends the cautious use of renin–angiotensin system antagonists (ACE inhibitors and ARBs) in people with chronic kidney disease.

The technology

Sodium zirconium cyclosilicate (Lokelma, Astra Zeneca) is a potassium binder. It contains an insoluble, non-absorbed zirconium silicate with a structure designed to trap potassium ions. It is administered orally.

Sodium zirconium cyclosilicate does not currently have a marketing authorisation in the UK for treating hyperkalaemia. It has been studied in clinical trials compared with placebo in patients with potassium levels above 5.0 mmol/l. In the trials, sodium zirconium cyclosilicate was used initially for 48 hours then, in people whose potassium levels became normal, treatment was continued at a lower dose for up to 11 months.

Intervention(s)	Sodium zirconium cyclosilicate with standard care including low-potassium diet
Population(s)	Adults with hyperkalaemia
Comparators	Standard care without sodium zirconium cyclosilicate including low-potassium diet
Outcomes	The outcome measures to be considered include: • serum potassium level • optimised renin–angiotensin–aldosterone system inhibitor therapy • hospitalisations • overall survival • 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. 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.

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 and NICE Pathways	Related Technology Appraisals: 'Patiromer for treating hyperkalaemia'. Proposed NICE technology appraisal [ID 877]. Publication date to be confirmed. Related Guidelines: Acute kidney injury: Prevention, detection and management of acute kidney injury up to the point of renal replacement therapy (2013). NICE Clinical Guideline 169. Chronic kidney disease in adults: assessment and management (2015) NICE Clinical Guideline 182. Chronic heart failure in adults: management (2010) NICE Clinical Guideline 108. Related Quality Standards: Chronic kidney disease in adults (July 2017). NICE quality standard 5. https://www.nice.org.uk/guidance/qs5 Related NICE Pathways: Acute kidney injury. NICE pathway: http://pathways.nice.org.uk/pathways/acute-kidney-injury Chronic kidney disease. NICE pathway: http://pathways.nice.org.uk/pathways/chronic-kidney-disease Hypertension. NICE pathway: http://pathways.nice.org.uk/pathways/hypertension
Related National Policy	Manual for Prescribed Specialised Services 2016/17. Chapter 15 'Adult specialists renal services' page 52. https://www.england.nhs.uk/commissioning/wp-content/uploads/sites/12/2016/06/pss-manual-may16.pdf National Service Framework for Renal Services: http://www.nhs.uk/NHSEngland/NSF/Pages/Renalservices.aspx Department of Health, NHS Outcomes Framework

	2016-2017 (published 2016): Domains 1,2,3 and 5. https://www.gov.uk/government/publications/nhs-outcomes-framework-2016-to-2017

Questions for consultation

Have all relevant comparators for sodium zirconium cyclosilicate been included in the scope? Which treatments are considered to be established clinical practice in the NHS for treating adults with hyperkalaemia? Is patiromer currently used in clinical practice to treat adults with hyperkalaemia?

Are the outcomes listed appropriate?

Are there any subgroups of people in whom sodium zirconium cyclosilicate is expected to be more clinically effective and cost effective or other groups that should be examined separately?

Where do you consider sodium zirconium cyclosilicate will fit into the existing NICE pathways on acute kidney injury, chronic kidney disease and hypertension?

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 will be 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.

Do you consider sodium zirconium cyclosilicate to be innovative in its potential to make a significant and substantial impact on health-related benefits and how it might improve the way that current need is met (is this a 'step-change' in the management of the condition)?

Do you consider that the use of sodium zirconium cyclosilicate can result in any potential significant and 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 Appraisal Committee to take account of these benefits.

To help NICE prioritise topics for additional adoption support, do you consider that there will be any barriers to adoption of this technology into practice? If yes, please describe briefly.

NICE intends to appraise this technology through its Single Technology Appraisal (STA) Process. We welcome comments on the appropriateness of appraising this topic through this process. (Information on the Institute's Technology Appraisal processes is available at http://www.nice.org.uk/article/pmg19/chapter/1-Introduction).

References

1. European Resuscitation Council (2015) Guidelines for Resuscitation: 2015, Section 4. Cardiac arrest in special circumstances. Accessed September 2017.
2. The Renal Association (2014) Clinical Practice Guideline on Treatment of Acute Hyperkalaemia in Adults. Accessed September 2017.
3. Health and Social Care Information Centre, Hospital Episode Statistics for England. Inpatient statistics, 2013-14. www.hscic.gov.uk