SODIUM ZIRCONIUM CYCLOSILICATE TO PREVENT HYPERKALAEMIA IF HAEMODIALYSIS IS POSTPONED DUE TO VASCULAR ACCESS COMPLICATIONS: EXPERIENCE FROM CLINICAL PRACTICE

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Background and Aims:

Vascular access is a fundamental aspect of haemodialysis (HD) treatment. Vascular access may be compromised due to central venous catheter (CVC) thrombosis, arterio-venous fistula (AVF) or graft (AVG) stenosis, infections or perioperative complications that require urgent resolution or the formation of alternative emergency or definitive access. Sodium zirconium cyclosilicate (SZC) (Lokelma®) is a new oral potassium binder. We offer an insight into SZC treatment to prevent hyperkalaemia in patients where HD is postponed due to vascular access complications.

Method:

Adult prevalent HD patients were included for analysis. Each patient was unable to receive their full scheduled HD treatment due to a vascular access complication. SZC was prescribed on the day HD was not possible (D1) until the vascular access issue was resolved and HD could recommence. The primary efficacy measures were the prevention of increases in serum potassium (sK^+), the safe postponement of HD and the avoidance of emergency hospital admission.

Results:

Four patients receiving thrice-weekly HD (mean age 69 years, all male) received SZC for a mean duration of 3.5 days (min 2 days, max 6 days). No patients were admitted during these acute episodes. The mean pre-dialysis sK^+ on D1 was 6.0mmol/L (K1). No post-dialysis sK^+ values were obtained on D1 because HD was not possible or cut-short (Table 1).

For patients 2 and 3, one and 10 HD treatments preceded the next sK^+ (K2) respectively. sK^+ reduced from 5.8mmol/L (K1) to 4.8mmol/L (K2) for patients 1 and 4 (Table 1). No statistical analyses were undertaken due to the low patient numbers.

HD was delayed beyond the scheduled treatment date for 3 of the 4 patients, with a mean delay of 1.75 days (min 0 days, max 3 days) (Table 2). There was no delay between HD treatments for patient 2, who only received 1 hour HD treatment on D1. The last full HD treatment for patient 2 was 3 days prior to D1. A gap between SZC initiation (D1) and the next HD treatment was seen for all four patients, with a mean gap of 2 days (min 1 day, max 3 days) (Table 2).

Conclusion:

Sodium zirconium cyclosilicate can be used to successfully reduce, or avoid an increase in sK^+ in mild to moderate hyperkalaemia, avoid emergency hospital admission and allow HD to be postponed for a valuable short period until HD vascular access can be re-established.

Tables:

Table 1							
Patient	**HD vascular access type on D1 and summary of complication**	**Hours of HD received on D1**	**Pre-dialysis sK^+ (mmol/L) on D1 (K1)**	**SZC dose from D1**	**Next recorded pre-dialysis sK^+ (mmol/L) (K2)**	**The number of HD treatments between K1 and K2**	**HD vascular access type for the next HD treatment**
1	Tunnelled CVC – poor flows, likely thrombosis	0	5.8	10g TDS for 2 days then 10g OD for 4 days	4.8	0	AVF – now ready to use
2	AVF – stenosis	1	6.2	10g OD for 2 days	4.6	1	Non-tunnelled CVC – newly inserted
3	AVF – severe bruising	0	6.2	10g OD for 4 days	5.2	10	AVF – bruising improved
4	Tunnelled CVC – poor flows, likely thrombosis	0	5.8	10g OD for 2 days	4.8	0	Tunnelled CVC – improved flows

Table 1. HD vascular access types at D1 and the next HD treatment, SZC dose, sK^+ K1 and K2 and the number of HD treatments between K1 and K2.

Table 2				
Patient	**Gap (days) between previous HD and D1**	**Gap (days) between SZC initiation (D1) and next HD treatment**	**Total gap (days) between HD sessions in this acute episode**	**The number of days' delay beyond scheduled HD treatment**
1	4	2	6	3
2	0 (1 hour HD on D1)	2	2	0
3	2	3	5	3
4	2	1	3	1

Table 2. Gap (days) between the previous HD treatment and D1, gap (days) between SZC initiation (D1) and the next successful HD treatment, total gap (days) between HD treatments and the number of days' delay after the scheduled HD treatment.