AN AUDIT OF PRESCRIBING, ADMINISTRATION AND STORAGE OF CONCENTRATED ELECTROLYTES

Beakey A., Holacka K., Kieran M., Brown J.
Mater Misericordiae University Hospital (MMUH), Dublin, Ireland
abeakey@mater.ie

PHARMACY & MEDICINES OPTIMISATION DIRECTORATE
MATER MISERICORDIAE UNIVERSITY HOSPITAL

1 INTRODUCTION

Concentrated electrolytes can be fatal if administered inappropriately. Patient safety is optimised by using ready-mixed non-concentrated electrolyte bags where possible and ensuring correct storage of IV electrolytes in clinical areas (both concentrated electrolyte ampoules and ready-mixed non-concentrated electrolyte bags). Local hospital policies and protocols exist to ensure appropriate concentrated electrolyte treatment for patients, while reducing the risk of inappropriate or incorrect administration.

2 AIMS & OBJECTIVES

- Conduct an audit on the prescribing, administration and storage of concentrated electrolytes.
- Assess compliance with MMUH *'Procedures for Ordering, Supply, Storage, Prescribing & Administration of Concentrated Electrolyte Solutions'*

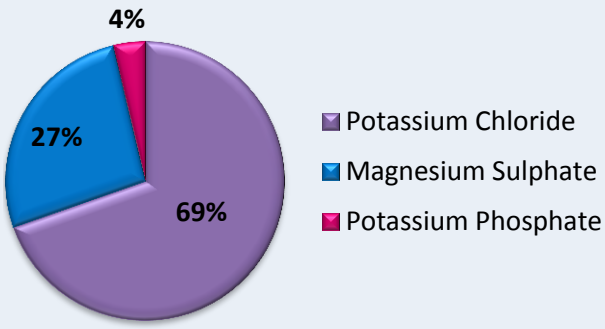

Figure 1: Concentrated Electrolyte Prescribed

3 METHODS

- A point prevalence audit was completed by clinical pharmacists in February 2019, on twenty-nine wards.
- While data was collected on a single day, in-patient prescriptions over the preceding 7 days were included.
- The audit tool recorded details of prescribing, administration and storage of IV electrolytes.
- Results were collated and analysed using Microsoft Excel® and adherence to hospital concentrated electrolyte protocols and guidelines was determined.

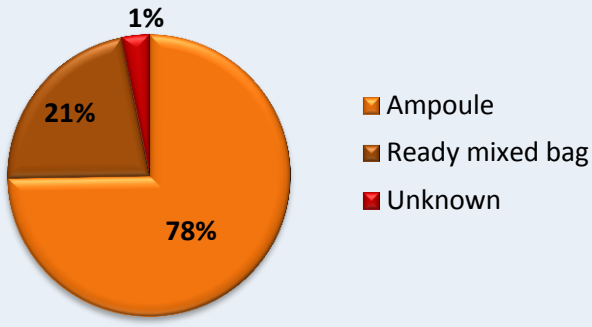

Figure 2: Presentation of Potassium Chloride Administered

4 RESULTS

- There were 133 prescriptions for IV electrolytes on 14 wards during the audit period.
- Potassium chloride was the most commonly prescribed concentrated electrolyte (69%), followed by magnesium sulphate (27%) and potassium phosphate (4%). See Figure 1.
- Both prescribing and administration was appropriate for 32% (*n* = 43) of prescriptions.
- As required prescribing in the cardiothoracic patient cohort accounted for the majority of prescriptions not complying with hospital policy as they were incomplete, i.e. no documentation of rate, diluent, dilution.
- Of the 94 prescriptions for potassium chloride, ampoules were administered in 78% (*n* = 73) of cases, ready-mixed bags were administered in 21% (*n* = 20) of cases and in 1 case (1%) the product administered could not be determined. See Figure 2.
- Use of potassium chloride ampoules was appropriate in 57% (*n* = 42) of cases however, in the remaining 43% (*n* = 31) of cases, no diluent or volume was specified therefore, it was unclear if use of ampoules was warranted or if a ready-mixed bag would have been suitable.
- Appropriate storage of concentrated electrolyte ampoules was noted on 95% of wards and segregated storage of ready-mixed potassium chloride bags on 30% of wards.

5 CONCLUSION

- Data was analysed and circulated by the Pharmacy Department to educate nursing and medical colleagues.
- A number of areas were highlighted for improvement:
  - Concentrated electrolyte prescriptions must be completed in accordance with hospital protocols, avoiding 'as required' prescriptions with incomplete details.
  - Definition of parameters for IV electrolyte replacement post-operatively in cardiothoracic patients is required.
  - Clearer definition of segregated storage for ready-mixed potassium chloride bags is needed.
- Annual re-audit is planned to continue to monitor adherence to hospital procedures and progress quality improvement initiatives.

REFERENCES:

1. MMUH Protocol. Procedures for Ordering, Supply, Storage, Prescribing & Administration of Concentrated Electrolyte Solutions. Policy version 3. p. 1-9.
2. Irish Medication Safety Network. Best Practice Guidelines for the Safe Use of Intravenous Potassium in Irish Hospitals. September 2018 (v.5)

DISCLOSURE:

Ms. Aisling Beakey: Nothing to disclose
Ms. Jennifer Brown: Nothing to disclose
Ms. Karolina Holacka: Nothing to disclose
Ms. Maríosa Kieran: Nothing to disclose.

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