P34 THE INTRAVENOUS USE OF STRONG POTASSIUM CHLORIDE IN PAEDIATRIC INTENSIVE CARE (PICU)

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Aim Incorrect use of strong potassium is listed as a 'Never Event',[1] a largely preventable patient safety incident if national[2] or healthcare provider guidance is followed. Local guidance for the use of strong intravenous (IV) potassium is available for paediatric intensive care, with multiple considerations to follow before it should be considered. This audit investigates the use of strong IV potassium in a Paediatric Intensive Care Unit (PICU) against the current PICU specific safety guidance. The aims being to assure and provide direction to improve compliance and patient safety.

Method Audit standards were adapted from hospital guidelines on the use of IV strong potassium in PICU. Data points were set using these audit standards, and a standardised data collection form was piloted before being finalised. Data were collected during a 12 hour window each day over a total of 20 days. Patients were identified through entries in the potassium section of the PICU IV infusion chart. Data were analysed using excel.

Results Nineteen out of 31 patients (61%) had their serum potassium measured within 2 hours of administration. Nineteen patients requiring IV strong potassium had increased urine output, with 11 of these (58%) having diuretic therapy review. Nine out of 28 patients (32%) had been prescribed a potassium sparing diuretic (PSD), with 3 patients excluded due to a recent serum potassium > 4.5 mmol/L. Of the patients not given a PSD, reasons included unintentional omission, being previously crossed off the chart and not re-prescribed, and a high urine output. Patients on IV maintenance fluids or parenteral nutrition could have their contents optimised. Optimisation of the potassium content in IV maintenance fluids or parenteral nutrition was missed with only 3 out of 13 patients (23%) on IV maintenance and 2 out of 9 patients on PN having the potassium content increased. Fifteen patients from the total of 31 (48%) were tolerating enteral feeds and should have been given oral potassium supplements where possible, as there was no clinical need or urgency to opt for IV.

Conclusion Several steps detailed in PICU IV potassium guidance could reduce the need for IV strong potassium if followed to a greater extent, reducing the risks of using strong IV potassium. Relaunching the guideline and further education is required; with particular emphasis on the use of PSDs, optimising the potassium content of IV maintenance and parenteral nutrition, reviewing diuretic therapy, and oral potassium supplementation. Reminding prescribers that use of enteral potassium in patients tolerating enteral feeds should be considered prior to electing for the IV route. Education regarding the omission of PSD in patients with high urine output is required. Time savings could be made by following the guideline as IV strong potassium requires several safety checks and is time consuming to prepare. Following the relaunch of the guideline a re-audit is needed to measure whether the interventions have improved compliance and reduced the unnecessary risks of strong IV potassium use.[3]

REFERENCES

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3. Rhodes LA, Wall KM, Abernathy SL, *et al*. Decreasing IV potassium in pediatric cardiac intensive care: quality improvement project. *Pediatr Crit Care Med* 2016;**17**:772–8.

P35 REMDESIVIR IN A PRE-TERM NEONATE – WAS IT WORTH IT?

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Background Situation On day 24 of life, a pre-term neonate (GA at birth 31+2 weeks) with achondroplasia tested SARS-CoV-2 positive on PCR. The patient was ventilated for increasing oxygen requirements, eventually necessitating transfer to the regional PICU. Meeting the clinical case definition for severe acute respiratory COVID-19, the patient was initiated on hydrocortisone 0.5 mg/kg BD as per Scottish Paediatric Consensus Guidelines for COVID-19.[1] Respiratory decline, with bilateral consolidation on chest X-Ray led to oscillation on day 27 of life. An MDT was set up to consider next steps. There is a paucity of evidence for managing severe acute respiratory COVID-19 in this age group. The MDT considered unlicensed use of tocilizumab (TOC) and remdesivir (RDV) as potential therapies. Evidence on the utility of RDV in severe acute COVID-19 is conflicting.[2 3] TOC use in <18 years is extrapolated from adult data, with sparse dosing information in <1 years. CRP remained below adult threshold (44). Concern regarding immunosuppressive effect of TOC was raised as secondary bacterial infection had not been excluded. On balance, the MDT concluded RDV be offered as the 'next step' treatment option. Renal and liver function were normal pre-RDV (ALT 19, AST 57), however within 48hour (2 doses) of RDV, transaminases had increased to >5x ULN (ALT 354, AST 873). Clinical status remained otherwise stable, and no other changes to medication were identified, thus the decision was made to withdraw RDV as the likely cause. 48 hours post withdrawal transaminases has normalised. The patient clinically improved over the next 5 days and was extubated ~7 days later.

Clinical Contribution Pharmacy played a significant role in the MDT, and were heavily involved in all risk:benefit decision making. Initial literature searches were conducted to establish current data on both TOC and RDV in this age group. A Phase 2/3 trial protocol evaluating RDV safety, tolerability and pK in COVID-19 patients from birth-18 years was obtained to further guide decision making. Assessment of treatment eligibility based on UK CAS alert and the Phase 2/3 study was undertaken, along with assessment of baseline clinical parameters. On MDT decision to treat, Pharmacy supported in the ULM application process (internal and Gilead compassionate access scheme) and advised on dosing, administration and monitoring. Pharmacy played a pivotal role in monitoring and recognition of adverse events. On identifying rapidly developing transaminitis, a full review was undertaken to determine RDV as a likely causative agent to support the decision to withdraw treatment. A Yellow Card was completed.

Conclusion Despite withdrawal of RDV after only 2 days, the patient clinically improved and was extubated and discharged a short time after, raising the question as to whether RDV offered any clinical benefit in this case. Managing severe acute COVID-19 in neonates presents a significant challenge for clinical teams. There remains a paucity of evidence in this age group.[4] Treatment decisions are made on a case-by-case basis,