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

Avinash Sharma*, Rhian Isaac. *Birmingham Women's and Children's NHS Foundation Trust*

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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]

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

Susan Kafka. *NHS Greater Glasgow and Clyde*

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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,

however outcomes are rarely published. More evidence is required before significant conclusions can be drawn about the utility or safety profile of RDV in neonates.

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P36 AN AUDIT OF STANDARDISED (NEON) PN USE IN A TERTIARY NICU

Patrick To. *Chelsea and Westminster NHS Foundation Trust*

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The most vulnerable patients on NICU are our extreme preterm babies who require various mechanisms of support during the beginnings of their lives. One method of support is the provision of parenteral nutrition (PN) to these patients.[1] NICE recommends the use of standardised PN for neonates,[2] the PN of choice at this Trust is NEON, which was introduced in May 2018. Local guidelines have specific indications for PN, and the management of electrolyte and glucose disturbances.[3] Our NHS Foundation Trust is a tertiary NICU with a specialism in neonates requiring surgical management of gastrointestinal issues and uses both standardised and bespoke PN. The aim of the audit was to discover if the patients in NICU were receiving NEON PN at the right time, and if any changes to the provision of PN followed the recommendations of local guidelines. This included assessment of; the indication for PN, the timeliness of prescription and administration of PN, the suitability of electrolyte and glucose corrections, and the correct documentation of any discontinuation of standard PN. Data was collected prospectively on working days over 3 weeks in August 2019 on NICU ITU and HDU using a pro-forma that collected key demographic data, including gestational age at birth and starting PN, time of birth, along with indication for PN, and the date and time of PN prescribed and administered. Patients were followed up daily during the data collection period by the NICU pharmacist with changes documented on the pro-forma. Any patients admitted outside of pharmacy working hours (Monday to Friday 0900–1700) were followed up retrospectively by the NICU pharmacist. During the data collection period, 21 patients were admitted onto NICU and 11 patients were identified as suitable for starting NEON PN. All 11 patients received NEON for the correct indications. Only 2 of 5 patients less than 31+0 gestational age received PN on time. All 11 of patients requiring NEON for other indications received it on time. 1 of 3 patients who required electrolyte or glucose changes to NEON were corrected as per guidelines. All 11 patients who switched to bespoke PN or stopped PN had the reasons documented in the notes. The results of this clinical audit showed that whilst all patients were initiated on NEON PN for the correct indications, not all of them received it on time, particularly patients who were less than 31+0 gestational age; local guidelines specify that these patients should have PN initiated within 6 hours of life. Patients with electrolyte or glucose issues were also changed to bespoke PN without following local guidelines. Reasons suggested by the clinical team once the results were fed back included a shortage of staff during the night-time delaying the insertion of appropriate peripheral or central venous catheters, and lack of experienced staff overnight with confidence to administer peripheral PN. Patients who were changed to bespoke PN were done so by consultants who were not well versed in using NEON and insisted on the change.

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P38 EVALUATING COMPLIANCE TO THIOPURINE MONITORING GUIDELINES IN PAEDIATRIC INFLAMMATORY BOWEL DISEASE

Maria Treadwell*, Shiras Patel. *Chelsea and Westminster Hospital NHS Foundation Trust*

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Aim Paediatric inflammatory bowel disease (IBD) accounts for 7–22% of IBD cases globally and there is evidence to suggest that the incidence is rising.[1] The aims of therapy in paediatric IBD are to relieve symptoms, optimize growth, improve quality of life while minimizing drug toxicity and reducing the risk of complications without surgery. Treatment involves two main steps, inducing remission and maintaining remission. Thiopurines are effective at maintaining remission in IBD but have serious adverse effects, such as myelosuppression and hepatotoxicity,[2] therefore, patients on thiopurines must have regular monitoring to ensure safe prescribing. Several national and international guidelines have been created recommending monitoring parameters for patients on thiopurines. At our trust we follow the British Society of Paediatric Gastroenterology, Hepatology and Nutrition (BSPGHAN) guidelines.[3] The primary aim of this study was to evaluate compliance to the BSPGHAN guidelines for initiating and monitoring paediatric IBD patients on thiopurines at a tertiary paediatric gastroenterology unit.

Method Paediatric patients on thiopurines were identified using the pharmacy dispensing system. Subsequently, patient electronic records were accessed to collect demographics and data comparing compliance to the BSPGHAN guideline. The BSPGHAN guidelines state that patients should have a thiopurine methyl transferase screen, FBC, LFT and documented counselling before initiating thiopurines, with subsequent FBC, LFT and metabolite monitoring at specific frequencies while on maintenance therapy. Data analysis was performed in two ways. Firstly, overall guideline compliance was assessed by examining compliance with each guideline criterion. Secondly, percentage compliance scores were generated for each patient to assess the variation in guideline compliance between