preparation process was completed and a mini isolator was re-commissioned for this purpose following appropriate testing by Quality Control. The Department of Pharmacology at Newcastle University were contacted to establish if therapeutic drug level analysis might be possible. Local approval for pazopanib use was obtained from the Drug and Therapeutic Group and an IFR was submitted to NHS England.

Challenges It was challenging to establish a dose regimen since the recommended paediatric dose from Phase I studies of pazopanib were dependent on the formulation used.[1 4] Pharmacokinetic sampling was not possible as no assay had been developed in the UK. The lack of availability of any commercial or compassionate use liquid preparation meant that the only way of giving the drug to this child was to prepare an extemporaneous preparation, despite paucity of evidence to support the stability of the preparation. Funding was not approved by NHS England; local funding was agreed.

Outcome and Discussion The child commenced treatment with the suspension in October 2018, administered via the gastrostomy tube. By July 2019 the patient had completed 10 cycles of therapy. Treatment was well tolerated. Minor side effects included abdominal and leg pain, vomiting, and a change in hair colour. The patient has had a good clinical response and a recent scan has shown substantial improvements in morphological appearance and size of the tumour.

These results indicate that a locally prepared extemporaneous oral chemotherapy suspension can be successfully used to deliver treatment for a rare type of children's cancer. Pharmacy colleagues from across the department collaborated to facilitate this novel treatment option.

REFERENCES

1. Glade Bender J, Lee A, Reid J, *et al*. Phase I pharmacokinetic and pharmacodynamic study of pazopanib in children with soft tissue sarcoma and other refractory solid tumors: a children's oncology group phase I consortium report. *JCO* 2011;**31**:3034–3043.
2. Agresta L, Lee H, Turpin B, *et al*. Pazopanib therapy for desmoid tumors in adolescent and young adult patients. *Pediatr Blood Cancer* 2018;**65**:e26968.
3. Allen L Jr. Pazopanib 50 mg/ml oral suspension. *US Pharm* 2015;**40**:61–62.
4. Heath E, Forman K, Malburg L, *et al*. A phase I pharmacokinetic and safety evaluation of oral pazopanib dosing administered as crushed tablet or oral suspension in patients with advanced solid tumors. *Invest New Drugs* 2012;**30**:1566–1574.

SP5 TENFOLD MEDICATION ERRORS IN CHILDREN – WELSH PAEDIATRIC SURVEILLANCE UNIT STUDY 2017–9

[1]Yincent Tse*, [2]David Tuthill. [1]*Great North Children's Hospital, Newcastle Upon Tyne*; [2]*Children's Hospital for UK*

10.1136/archdischild-2020-NPPG.5

Aims To establish the incidence and characteristics of tenfold or greater and a tenth or less medication errors in children <16 years in Wales to help inform patient safety on a population level.

Method Population-based incidence study in Wales, UK, from June 2017 - May 2019 (24 months). Cases were reported from paediatricians and hospital pharmacists using the monthly Welsh Paediatric Surveillance Unit (WPSU).

Results 46 confirmed incidents in 44 children from 63 notifications were identified. Cases came from 8 hospitals in Wales with 29 (63%) from the sole tertiary hospital. Median age was 1.7 (range 1 week to 15) years and weight 10 kg (0.6 to 59).

39 (85%) were overdosing (up to 1000x fold error) and 7 underdosing. 40 different medications were involved, 16 (37%) intravenous. Of 29 cases involving enteral medication, 26 (90%) were liquid formulations. Three cases were discharge medication prescribed or dispensed incorrectly and administrated at home. Stage of errors were primarily in prescribing 37 (80%), administration 7 (16%) and dispensing 2 (4%).

18 (42%) cases reached the patient, 10 from prescribing. Seven cases were spotted after multiple doses were given. Six errors resulted in harm, three which required intensive care treatment. No deaths or permanent disabilities were reported. Half (23/46) of all errors reported and two-thirds (12/18) of cases that reached the child occurred in <10 kg children.

Several human factor themes were identified: Prescribing confusion between gram milligram and microgram (none reached patient, n=7), confusing between mg and mg/kg (n=6 including 3 underdosing errors), leading zero errors (e.g. 0.1 vs 0.001 mg, n=6) and prescribing reconciliation errors where admitting doctor attempted to prescribe chronic medication in mg by reversing calculating liquid dosage expressed in mL (n=4).

During this study period 164,000 hospital admissions occurred in children <16 years in Wales. Our data estimates a tenfold error incidence of 1:3600 paediatric admissions, with drug reaching the child in 1:9000 admissions.

Conclusion In this unique first ever population surveillance study, tenfold errors in children occurred at every stage of medication process and in the full range of care settings. Errors found were very different from those obtained from tertiary hospital single centre study and UK National Reporting and Learning System (NRLS). Strategies for error reduction will be more productive if designed across a whole national healthcare system.

SP6 BUILDING ON THE DRUGGLE: PERSONALISED FEEDBACK TO IMPROVE AND MAINTAIN GOOD PRESCRIBING PRACTICE

Thomas Wyllie*. *University Hospital UK*

10.1136/archdischild-2020-NPPG.6

Background Inspired by work from a number of other centres,[1 2] a weekly 'Druggle' was set up on our 28 cot tertiary, level 3 neonatal intensive care unit in June 2018. The Druggle is a short pharmacist-led briefing in the clinical area involving doctors and nurses, focussing on prescribing and administration issues and errors. Over the first year a concurrent zero tolerance audit shows an improvement in prescribing practice, with an increased number of charts with zero errors (63% in June 2018, 95% in June 2019). Despite the improvements in prescribing practice, average attendance at the Druggle has fallen from 17 people per week to 7 over the year. It was decided to consider personalised feedback on prescribing as a potential new mechanism to improve and maintain prescribing standards.

Aim To investigate if structured, personalised feedback to prescribers on a neonatal unit could be an innovative way of improving prescribing standards and patient safety. The project was set up to gain an insight into prescribers attitudes towards prescribing feedback and to see what impact that feedback might have on their attitudes after it had been carried out.

Method All prescribers on the unit were invited to complete an online questionnaire which included questions on previous

experience of feedback and attitudes towards structured, personalised prescribing feedback. Participants were also able to express their interest in participating in a feedback session.

A selection of prescribers who had chosen to participate were then monitored and contacted to arrange a feedback session. This comprised of a short interview style session based on Pendleton's rules for feedback[3] in which pictures of their prescriptions were appraised and a structured feedback form completed by the pharmacist was reviewed. The feedback form was split into sections covering legibility, accuracy and completeness, with each section having a non-numerical scoring system, together with practical examples and suggestions for improvement.

After the feedback session, prescribers were asked to complete a feedback response form which allowed them to express how useful they found the feedback, whether they felt it would change their practice and to give comments.

Results The initial questionnaire was completed by a wide variety of prescribers including different grades of doctor and advanced neonatal nurse practitioners (ANNPs) with a range of 0–15 years of neonatal prescribing experience. 45% of respondents had never received personalised prescribing feedback, and 90% of respondents said they would welcome it. Comments included a desire for positive feedback as well as suggestions for how to improve. Feedback sessions are still ongoing, and initial results of the post-feedback questionnaire are positive – mean score of 4.3/5 for usefulness of feedback to practice. Comments include 'This has been the single most useful feedback for my prescribing practice to date' – ST5 Doctor.

Conclusion Providing personalised feedback to prescribers is welcomed and should be explored more widely. Initial results show that prescribers find personalised feedback useful and they can use it as a basis for reflecting on prescribing practice.

REFERENCES

1. Reece A, Hill A, Platt B, *et al*. G171 Improving situation awareness in prescribing: A medication safety huddle – the DRUG-gle (Druggle). *Arch Dis Child* 2016;**101**: A89.
2. Bell C, Jackson J, Shore H. P3 S.a.f.e. – the positive impact of 'druggles' on prescribing standards and patient safety within the neonatal intensive care environment. *Arch Dis Child*,2018;**103**:e2.
3. Pendleton D, Schofield T, Tate P, *et al*. The consultation: an approach to learning and teaching. Oxford: Oxford University Press,1983.

SP7 SWITCHING TO CLONIDINE TRANSDERMAL PATCHES IN FOUR PAEDIATRIC CASES: STRATEGIES BENEFITS AND CHALLENGES

Kazeem Olalekan*, Amanda Bevan, Andrea Whitney. *Southampton Children's Hospital, University Hospital Southampton NHS Foundation Trust*

10.1136/archdischild-2020-NPPG.7

Background Clonidine is an alpha-2 agonist acting in the central nervous system (CNS) and licensed for use in all grades of hypertension, prophylactic management of migraine or recurrent vascular headache and management of vasomotor conditions.[1] In paediatrics, clonidine has been used for a variety of indications which include use as pre-medication, as analgesia adjuvant, for sedation in paediatric intensive care units (PICU), treatment of spasticity and dystonias, prevention of emergency agitation and in hypertension.[2] Oral clonidine has a short half-life of 12 to 16 hours and is associated with peaks and troughs in drug concentration resulting in 2 to 8 hourly dosing intervals. Long-term intravenous clonidine is unviable for a variety of reasons which includes intravenous (IV) access, infection risks and complex ongoing management. Clonidine transdermal patches, approved for use in 1984, provide approximately constant therapeutic drug level for 7 days[3] and may represent a viable option for paediatric patients on long-term clonidine.

Aim To describe the strategies adopted in converting four paediatric patients to clonidine transdermal patches from either enteral or parenteral clonidine; the benefits and challenges of the conversion.

Method The intrinsic characteristics of clonidine transdermal patches[4] and the therapeutic/clinical goal for each patient informed the switch strategy. Evaluation of the effect of switch was done at least three months after switch through consented open interviews with stakeholders, and evaluation of clinical symptoms.

Results The switch strategy to clonidine patch is complex and different for each patient. The factors to consider include: (i) clinical/therapeutic goal for the patient; (ii) the characteristics of the patch (iii) patient's characteristics – weight and surface area; (iv) detailed counselling of patients and carers; (v) individualised prescription; (vi) ongoing review of supply and patch effectiveness. All patients were switched to patches and achieved approximately equivalent clinical effects, although one child required further dose adjustment. One parent considered the switch to patches to be very good:

'We struggled....we employed the services of night carers four times a week...and we were too exhausted. (The change) has a massive impact on everyone's quality of life...it has been brilliant'.

Another parent observed that the application of patches was not difficult and that the change has been good:

'The nurse gives me the patch, I label them and make three lines on the child's skin and rotate the patch, so there is always a space spare for 2 weeks before re-applying there again. It is not difficult'.

In a clinic letter for another child who was switched to patches, the clinician noted:

'Since he changed to the patches there was no change in his dystonia (and) he has tolerated well. According to mother the main trigger for his dystonic episodes is heat'.

One of the nurses looking after another child considered the switch overall to be poor to fair:

'(Using patches) is good in general as they (children) are not attached to pump and easy to move them around...(however) for him (this child), he was too sweaty and patch will fall off...his skin is really dry/red around the cover patches. It would be better if you didn't have as many as nine patches to apply. It is difficult to wash him with so many patches. He responded better with IV clonidine but we were able to get him off infusion to patches. Education on what to do when it (the patch) falls off will be really useful'.

Conclusion The use of clonidine transdermal patches is a viable option for children needing long-term clonidine. This option has the potential to offer significant cost saving to the National Health Service (NHS) and improved quality of life of children and their carers; especially in those cared for at home. The strategy for conversion is complex and requires taking a number of factors into account. Switch to transdermal patches will not be suitable for all patients and criteria for selecting suitable patients and a generalised framework for switching are yet to be fully described.