CHILD PRESENTING WITH PAROXYSMAL ATRIO-VENTRICULAR HEART BLOCK, A MULTI-DISCIPLINARY TEAM APPROACH

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Clinical Pearl What the case involved: 16 month old female presented to local emergency department with short sudden episodes of floppiness and head dropping, followed by immediate return to normal self. Referred to regional centre for neurology review, 24 hour ECG noted marked bradycardia during episodes of head dropping. On cardiology review there were no abnormalities detected on examination, echo or 12 lead ECG. Multi-disciplinary team approach required to determine management. 24 hour ECG evidenced abrupt onset of complete atrio-ventricular block, ventricular standstill of up to 7 seconds with spontaneous recovery of atrio-ventricular conduction.

Pharmacist contribution: Literature reviewed and treatment options determined by multi-disciplinary team. Evidence strongly supportive of theophylline.2-3 Issues with prescribing and use of unlicensed medicines considered and authorisation obtained. Treatment commenced and 24 hour ECG performed and analysed daily to determine effect of theophylline on number of atrio-ventricular block episodes. Pharmacokinetic knowledge applied to determine appropriate dose, dosage interval, interpretation of levels and response to treatment. A family centred care approach was taken throughout and parents understood and engaged with the treatment plan. A response to treatment was observed as demonstrated by reduced clinical symptoms, confirmed by ECG findings which showed a small reduction in the number of atrio-ventricular block episodes. However, parents and nursing staff reported notable drug side effects of sweating, agitation and bad behaviour two hours post dose, despite achieving therapeutic concentrations. Parents also felt the frequency of drug administration required at home would be difficult to manage and they had a level of anxiety regarding the unpredictable frequency of the episodes and feeling the need to be in attendance at all times. In the long-term this could have significant implications for family life. On review the multi-disciplinary team and parents agreed the response to theophylline was not adequate enough for a long-term option and the patient proceeded to pacemaker insertion. All were in agreement that this was the correct decision.

Outcome Permanent pacemaker inserted, programmed to VVI mode. This mode will prevent bradycardia by pacing the ventricle if there is a loss of atrio-ventricular synchrony and inhibit ventricular pacing in response to intrinsic ventricular rhythm. Most recent pacing check: ventricular pacing 1.8% of the time = approx. 2.7hours/week

Lessons Learned Advantage of multi-disciplinary team approach to care. The benefits of engaging parents in discussions and treatment plans were highlighted and improved the patient and family journey. The multi-disciplinary team acknowledged this and will endeavour to apply this approach in the future. The multi-disciplinary team improved their knowledge of the processes involved when using unlicensed medicines and the complex issues around this. The processes followed in this scenario confirmed the importance of evidence and research to plan future novel treatment options.

REFERENCES
introduction of a standardised hyperglycaemia guideline which resulted in babies not receiving restricted glucose amounts in their PN by day 5 (16g/kg/day compared to an average of 9g/kg/day previously). More than 90% of babies in this cohort remained on standardised PN, compared to 15% when first introduced.

**Conclusion** Following the introduction of standard additions of sodium glycerophosphate and the slower titration regimen for babies weighing less than 1.5kg, most babies were now tolerating standardised PN and it was deemed a suitable regimen for this cohort. NICE recommended nutritional support was reached by day 5 of PN. The introduction of a hyperglycaemia management guideline also standardised the use of insulin in this cohort, resulting in glucose reduction in PN being required less frequently.

**REFERENCE**


**P22 UNLICENSED MEDICINES USE IN NEONATES: DO WE KNOW WHAT WE’RE GIVING?**

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**Background** The use of unlicensed and off-label medicines is common within neonatal intensive care.1 Their use presents challenges, including inconsistent supply, high cost and lack of information together with increased risk of medication errors and adverse drug reactions.2 Despite these significant drawbacks, the dearth of products licensed for the neonatal population necessitates the routine use of these medicines.3,4

‘Unlicensed’ describes medicines that do not have a marketing authorisation, whereas an off-label medicine is a licensed product used outside of the terms of its licensing, i.e., for a different age, dose or route.2

**Aim** Determine health care professional’s (HCP’s) knowledge of the license status of medicines in common use on a tertiary neonatal unit. Explore how confident they are in using unlicensed and off label medicines.

**Method** A survey was developed to examine the views of HCPs regarding unlicensed medicines and their knowledge of the licensing status of medicines used routinely in their practice. Doctors, nurses and advanced neonatal nurse practitioners (ANNPs) working on a tertiary neonatal unit were invited to complete the survey.

The survey asked whether HCPs felt they understood what unlicensed medicines were and whether they thought they knew the license status of the medicines they prescribe/administer. A second section was a list of 20 commonly used drugs and HCPs were asked to specify for each if it was a licensed, unlicensed or off-label use.

**Results** All HCP respondents (n=28) answered that they understood the concept of unlicensed medicines (partially or fully) and that they were confident in using them (89% reported confidence ≥3 out of 5).

Tested on their knowledge of the license status of specific medicines, the average number of medicines that each respondent correctly identified was 8.9 out of 20 (range 5-13, median 9). Prescribers who scored themselves higher on the question ‘Do you know the license status of the medicines you prescribe?’ knew the license status of more medicines when tested (correlation coefficient = 0.775, p=0.0002). This correlation was not observed for nurses and there was no correlation with number of years of experience within neonatology.

Only a minority of prescribers (three) said they would look up the license status of a medicine before prescribing. When asked what resource they would use to find out the license status, most respondents said British National Formulary for Children.

**Conclusion** HCPs working on a tertiary neonatal unit reported that they understood the concept of unlicensed and off-label medicines and felt confident in prescribing and administering them. However, there is a lack of awareness of the licensing status of drugs in common use. Prescribers had good insight into the gap in their knowledge but did not seek out information on medication license status before prescribing.

The routine use of medicines outside their product licenses may have created a culture where there is felt to be no need to be aware of the status of a specific medicine. Further research is warranted into how to best communicate the license status of medicines to HCPs.

**REFERENCES**


**P23 OFF-LABEL USE OF INTERLEUKIN-6 INHIBITORS IN PAEDIATRICS: A SYSTEMATIC REVIEW**

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**Aim** Elevated Interleukin-6 (IL-6) is associated with the pathogenesis of various chronic inflammation and autoimmune conditions.1 Currently, only three IL-6 inhibitors, tocilizumab, siltuximab and sarilumab, are approved for a limited number of conditions in adults, and only tocilizumab is licensed in children.2 However, off-label use of these drugs has been reported in paediatrics. This review aimed to summarise the evidence base for the off-label use of these three IL-6 inhibitors in children, the indications for off-label use, and the doses prescribed. The nature of adverse events associated with the off-label use of these drugs and the clinical effectiveness were also identified.

**Method** A systematic search was conducted on EMBASE, Medline, and PubMed; studies published in the English language between 2009-2020, reporting the off-label use of tocilizumab, siltuximab and sarilumab in children aged 18 years or under were included. Data screening and extraction were