Background Apnoea of prematurity (AOP) is a significant clinical problem in premature infants and is almost universal in infants <1000 g at birth. Caffeine has emerged as the methylxanthine of choice to treat AOP. Although it is commonly used, there is no unified consensus or guideline on its use in NNU in England.

Aim To study the current practice of caffeine use in AOP at NNU in England.

Methods A telephonic survey of level 3 and level 2 units in England was conducted, using a standardised questionnaire, over November and December, 2011.

Results Out of 52 units surveyed, 48% were level 3 units. All units used caffeine for treatment of AOP (base 60% and citrate 40% of units). 92% of units have written guidelines on caffeine use. Caffeine was started by 47% of units based on gestational age, regardless of symptoms. All units used a loading dose, which varied between 5 and 25 mg/kg (median of 10 mg/kg) for caffeine base and 15 to 20 mg/kg (median of 20 mg/kg) for citrate. The maintenance dose varied between 2.5–6 mg/kg/day (median of 5 mg/kg/day) for base and 5–12 mg/kg/day (median of 5 mg/kg/day) for citrate. Caffeine levels were routinely performed by 7% of units. Caffeine was discontinued between 30 to 36 weeks gestation.

Discussion Our survey depicts that practice of caffeine use varies significantly across NNU in England. The results from this survey could be used as a footing for further data collection, for formulation of a uniform guideline maximising the utilisation of this extensively studied drug.

A SYSTEMATIC REVIEW OF PHARMACOKINETICS (PK) OF DOBUTAMINE FOR USE IN NEONATES AND CHILDREN

doi:10.1136/archdischild-2012-302724.0158

Background Dobutamine has been used off-label in newborns and children for treating haemodynamic insufficiency for over 20 years. As preparation for a large randomised study to achieve Paediatric Marketing Authorisation for dobutamine in newborns we performed a structured literature review of PK data.

Methods Structured searches were conducted using the electronic databases Medline and Embase. Search terms included dobutamine, infant, newborn, paediatric/pediatric, prematurity, child, infant, low birth weight infant, preschool child, school child, adolescent, pharmacokinetics, clinical pharmacology. Data was extracted based on pre-defined criteria decided by the team.

Main results Six of eleven papers emerging from this search met our inclusion criteria. These reported dobutamine PK data in a combined total of 70 children (age range 0 days-22 years, 13 newborns, 27-42 weeks gestation), with infusion rates ranging from 0.5-20 μg/kg/min. Five papers found that the infusion rate was positively correlated to plasma dobutamine concentration. Dobutamine clearances showed great variability between individuals (range 35.1-482.2 mL/kg/min). Four papers found that clearance did not vary with infusion rate, suggesting first order kinetics, although one paper (n=12) showed a significantly negative relationship (p<0.001) of dobutamine clearance to steady-state plasma concentration (dobutamine dosage 2-15 μg/kg/min).

Conclusions The current dobutamine PK data is difficult to interpret due to inhomogeneity and variability of patients' age and conditions, dobutamine dosages and study designs. High quality prospective PK data - especially in newborns - is urgently required prior to our large randomised study.