British association of perinatal medicine in conjunction with the neonatal society

Plenary

P01 IMPROVED GROWTH OF EXTREMELY AND VERY PRETERM BABIES: EVALUATION OF A QUALITY OF CARE INITIATIVE

I Levene, K McCormick. *Newborn Care Unit, John Radcliffe Hospital, Oxford University Hospitals NHS Trust, UK*

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Aim Measure weight gain in preterm infants after introduction of a nutritional care bundle.

Methods 509 infants less than 32 weeks gestation were studied until discharge home from the tertiary unit or their local neonatal unit. Growth and feeding data were prospectively collected for 18 months before and after the intervention. The intervention consisted of increasing the urgency of parenteral nutrition, routine introduction of enteral feeds from the first day of life, standardised weight-based daily increments of enteral feeds, use of donor human milk until at least 34 weeks corrected gestation (if insufficient mothers' own milk) and routine fortification of human milk from 120 ml/kg/day.

Results After the intervention, growth velocity by discharge home increased by 1 g/kg/day to 12.7 ± 2.2 g/kg/day ($p < 0.00002$) and weight z score change reduced from -1.38 ± 0.77 to -1.16 ± 0.76 ($p = 0.005$). The largest effect was seen in infants discharged home from the tertiary unit (z score change from -1.35 ± 0.73 to -1.04 ± 0.77 , $p = 0.007$) and in those discharged home on exclusive human milk (z score change from -1.65 ± 0.8 to -1.20 ± 0.9 , $p = 0.006$, growth velocity from 10.8 ± 2.2 g/kg/day to 13.0 ± 2.8 g/kg/day, $p < 0.00001$). The significant differences in growth previously seen between infants discharged on exclusive human milk compared to any infant formula were eliminated.

Conclusion Introduction of a simple nutritional bundle was associated with improved weight gain, particularly in those fed exclusive human milk at discharge. In order to achieve international growth recommendations further intensification of macronutrient provision may be required.

Plenary

P04 CHILDHOOD MORBIDITIES AFTER NEONATAL ABSTINENCE SYNDROME: A SYSTEMATIC REVIEW AND META ANALYSIS

¹P Rees, ²P Stilwell, ³C Bolton, ⁴M Arkilloglu, ⁵B Carter, ⁶C Gale, ¹A Sutcliffe. ¹Population Policy and Practice, UCL Institute of Child Health, London, UK; ²General Paediatrics, University College London Hospital, London, UK; ³Department of Paediatrics, Whittington Health NHS Trust, London, UK; ⁴School Of Medicine, Acibadem University, Istanbul, Turkey; ⁵Department of Biostatistics and Health Informatics, Institute of Psychiatry, Psychology and Neuroscience, King's College London, London, UK; ⁶Section of Neonatal Medicine Department of Medicine, Imperial College London, London, UK

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Background Neonatal abstinence syndrome (NAS) has garnered international attention by reaching epidemic

proportions in countries such as the USA. Given the surge in incidence, the potential impact of NAS on the developing infant's physiology, and the prevalence of adverse childhood experiences amongst this cohort, it is critical that we gain a handle on the future health and wellbeing of this population.

Methods We undertook a systematic review and meta-analysis exploring the association between NAS and adverse childhood outcomes. A search strategy was developed in Medline Ovid and adapted for other databases. An all-language search was conducted across 11 databases between January 1, 1975, and September 3, 2019. Observational studies of children between 28 days and 16 years of age, in whom a previous diagnosis of opiate-related NAS was documented, were included.

Of 5864 studies identified, 580 full-text articles were screened for eligibility, independently by three reviewers, and data from 14 studies were extracted. Data were pooled using a random-effects model and presented as crude and adjusted Odds Ratios (aOR) with accompanying 95% confidence intervals and I^2 statistics.

Results Fourteen studies were included, five of which were suitable for meta-analysis. This included 11,549 children with previous NAS and 1,463,846 children without previous NAS, aged 0–16 years. Studies were conducted in the USA ($n=7$), Australia ($n=4$), the UK ($n=2$), and Norway ($n=1$). There was a strong association between NAS and: subsequent child abuse (aOR 6.49 (4.46, 9.45, $I^2=52\%$)), injuries and poisoning (aOR 1.34 (1.21, 1.49, $I^2=0\%$)), and conduct disorders (aOR 1.72 (1.19, 2.48, $I^2=0\%$)). Studies consistently demonstrated increased incidence of strabismus and nystagmus after NAS. There was a weak association between NAS and speech and language impairment (crude OR 2.81 (1.82, 4.33, $I^2=26\%$)); as well as emotional and behavioural disorders (crude OR 4.29 (3.13, 5.88, $I^2=0\%$)).

Conclusion NAS was significantly associated with future child abuse, injuries and poisoning, certain mental health diagnoses, and visual impairment. This review does not suggest causation but highlights important associations requiring urgent further investigation and targeted intervention to positively impact the life course trajectories of this growing cohort of children.

G552 ASSESSMENT OF CONTINUOUS SIDE-STREAM END TIDAL CAPNOGRAPHY MONITORING ON THE NEONATAL INTENSIVE CARE UNIT

^{1,2}E Williams, ^{1,3}T Dassios, ^{1,2}A Greenough. ¹Women and Children's Health, Faculty of Life Sciences and Medicine, King's College London, London, UK; ²The Asthma UK Centre for Allergic Mechanisms in Asthma, King's College London, London, UK; ³Neonatal Intensive Care Unit, King's College Hospital NHS FT, London, UK

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Background End tidal capnography (EtCO₂) provides a non-invasive form of continuous monitoring, but there have been concerns about its reliability on the neonatal unit. Our aim was to evaluate a novel side-stream capnograph device against gold standard mainstream capnography and in ventilated infants with differing respiratory disease severities.

Methods A prospective study of ventilated infants was undertaken. Simultaneous measurements of EtCO₂ were made using a gold standard mainstream capnograph and the newer side-