G577(P) TARGETED NEONATAL ECHOCARDIOGRAPHY

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Introduction The incidence of congenital heart disease (CHD) varies between 6/1000 live births for moderate/severe CHD to 75/1000 for trivial lesions e.g. small muscular ventricular septal defects.¹ There are no guidelines for which neonates undergoing non-cardiac surgery require a pre-operative echocardiogram (POE). Paediatric anaesthetists and surgeons often request for stable babies to have a POE before surgery. In this unit, paediatricians with expertise in cardiology (PECs) perform these scans, often being approached out of hours.

Aims To review the cardiovascular status of babies undergoing surgery before 28 days corrected age and determine if the clinical examinations correlated with POE.

Methods Patients undergoing non-cardiac surgery less than 1 month corrected age between April 2015 – 2018 were identified using the Trust Theatreman system. Data was subsequently collected from the Badgernet and Epic systems.

Results We reviewed 270 surgical events in 235 patients. 173 (74%) had a normal clinical examination and 125 (53%) had POE. Of the 173 babies with normal examinations 71 (41%) had a POE, which was abnormal in only 6 (3%). In the 62 babies with an abnormal examination, a POE was performed in 54 (87%) babies with 14 (26%) having more significant CHD. Of the 125 POE only 16% were abnormal.

Conclusions There was a good correlation between normal examination and normal POE. An abnormal examination was more frequently associated with an abnormal POE. In developing local guidelines, we would hope to agree that a POE is not required in patients with normal examinations. Such patients could safely have echocardiography screening post-operatively.

G578(P) PROGNOSTIC ACCURACY OF MAGNETIC RESONANCE SPECTROSCOPY (MRS) BIOMARKERS IN NEONATES WITH HYPOXIC ISCHAEMIC ENCEPHALOPATHY (HIE): A SYSTEMATIC REVIEW AND META-ANALYSIS OF DIAGNOSTICS

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Introduction Magnetic Resonance Spectroscopy (MRS) biomarkers have been used for prognostication of neurodevelopmental outcomes in newborns affected by Hypoxic Ischaemic Encephalopathy (HIE). Previous studies have evaluated these markers primarily in non-cooled infants with HIE.¹ Here, we aim to also include recent studies on cooled infants and meta-analyse the full evidence base, to obtain updated predictive accuracy estimates of MRS biomarkers and explore the impact of cooling therapy on heterogeneity.

Methods We systematically searched MEDLINE, COCHRANE, EMBASE and CINAHL for studies assessing MRS biomarkers for prognostication of adverse neurodevelopmental outcome

(assessed ≥ 12 months of age) or death in infants (≥ 36 weeks gestation) affected by HIE. Data were extracted from eligible studies and meta-analysed using univariate approaches in RStudio with the madad package. We assessed the impact of effect modulators such as therapeutic hypothermia and strength of the magnetic field by means of subgroup analysis. We rated the methodological quality of the included studies using the QUADAS-2 tool.

Results We retrieved 72 eligible studies of which 25 reported outcomes on prognostic accuracy of MRS biomarkers; five of which were performed in infants who had received TH. The biomarker lactate (lac) to N-acetylacetate (NAA) -lac/NAA-ratio, measured in the basal ganglia, had a pooled sensitivity of 0.91 (95% CI : 0.82 – 0.95) and a pooled specificity of 0.90 (95% CI: 0.81 – 0.95) in predicting neurodevelopmental outcomes. The rest of the biomarkers, namely lac/cr (creatinine), NAA/cr and NAA/cho (choline) had similar pooled estimates, with mean sensitivity ranging from 0.66 to 0.77 and specificity from 0.8 to 0.91. Subgroup analysis revealed increased mean sensitivity of lac/NAA in infants who received hypothermia compared to those who did not (0.96 and 0.86 respectively, p-value=0.32). The specificity of the test remained similar (0.88 and 0.91 respectively, p-value=0.61).

Conclusion Lac/NAA measured by MRS can accurately predict adverse neurodevelopmental outcomes in infants with HIE. Therefore, Lac/NAA may be a useful surrogate marker for studies evaluating new therapies for HIE.

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G579(P) CAN THE ONLINE WINROP ALGORITHM PREDICT THE DEVELOPMENT OF SEVERE RETINOPATHY OF PREMATURITY IN A MULTI-ETHNIC POPULATION OF PRETERM BABIES?

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Retinopathy of prematurity (ROP), a retinal condition of the preterm retina, can cause blindness if undetected and untreated. Babies at risk (<32 w GA and/or <1501 g BW) undergo screening to detect ROP requiring treatment (ROP-T). Over 95% of at risk babies do not develop ROP-T¹ but are screened and utilise skilled resources. The online algorithm WINROP uses GA, BW and serial weights to identify early babies who subsequently develop ROP-T. It has the potential to improve ROP screening service delivery but it was developed and has been validated in mainly White populations. We investigated WINROP's ability to identify babies from a multi-ethnic population who subsequently developed ROP-T.

This service delivery improvement project was performed in a single NICU using retrospective data. Babies at risk of ROP, born between 01/09/2015 and 30/06/2016, and admitted to the NICU at <48 hours of age were identified. Data on GA, BW, and serial weights within the first 6 weeks of life were entered into WINROP. Its sensitivity and specificity for identifying babies who subsequently developed ROP-T was calculated.