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ABNORMAL TROPONIN AND COAGULATION AND RENAL INDICES MAY INDICATE RECENT INSULT IN INFANTS WITH NEONATAL BRAIN INJURY

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Objective: Troponin CK and LDH are sensitive markers of tissue damage sustained in global hypoxia-ischemia. This study aims to examine the relationship between Troponin-T, coagulopathy, CK, LDH, creatinine and neuroimaging in infants with neonatal encephalopathy and coagulopathy.

Methods: Serum troponin was sampled in infants requiring resuscitation at birth and/or neonatal encephalopathy in a tertiary referral neonatal centre from July 2006-October 2009. Infants with congenital defects, evidence of infection and maternal drug addiction were excluded from the study. Infants were retrospectively divided into those with normal and abnormal troponin. Birth history, biochemical parameters and brain imaging were evaluated.

Results: 37 infants with neonatal encephalopathy had troponin CK LDH and coagulation screening. Infants with an elevated troponin (n=16) had significantly increased PT and APTT and creatinine compared with infants with a normal troponin (n=21) (Table 1). Five infants in the normal troponin group had normal cerebral imaging compared with two in the raised troponin group. (Cranial ultrasound and/or MRI).

Troponin	Troponin	Prothrombin time (PT)	Activated Partial Thromboplastin Time (APTT)	Fibrinogen	Creatinine kinase (CK)	Lactate dehydrogenase (LDH)	Maximum Creatinine	MRI Normal
Abnormal n= 16	0.34+/- 0.23	20.1+/- 9.7	38 +/- 12.8	1.62+/- 0.78	4278+/- 6718	2816+/- 3772	143.81 +/- 59.14	2
Normal n=21	0.055+/- 0.048	14.0+/- 2.6	31.7+/- 3.86	1.95+/- 0.88	1278+/- 805	1070+/- 742	100.76 +/- 41.10	5
p value	0.019	0.007	0.03	0.24	0.048	0.058	0.013	Not applicable

[Normal vs abnormal troponin]

Conclusions: Infants with brain injury on MRI or cranial ultrasound following perinatal asphyxia who have elevated troponin may also be coagulopathic. Infants with elevated troponin are more likely to have abnormalities on MRI. In the current context of therapeutic hypothermia it is crucial to evaluate

multisystem involvement in infants with neonatal encephalopathy.

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EARLY PREDICTION OF LONG TERM OUTCOME OF LOW RISK PREMATURE NEONATES WITH THE AEEG

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Background and aims: Preterm infants of lower gestational age(GA) display advanced maturation of aEEG in comparison to others of higher GA at the same post conceptional age(PCA). Brain ontogeny follows specific developmental stages and any deviations from this process may influence later cognitive function.

To investigate the association between aEEG evolution during the neonatal period and outcome of premature infants with different GA.

Methods: 84 clinically stable preterm infants(GA 26-32 wks) without ultrasonographic evidence of neurological abnormalities at birth were assessed at the age of 3 years (Bayleys screening test,III edition). aEEG traces of all neonates were recorded within the first 72 h of life and then weekly until discharge. Four aspects of each tracing (continuity,sleep-wake cycling, bandwidth, and amplitude of the lower border)were evaluated applying pre-established criteria.

Results: None of the children had gross motor disturbances, but one, and severe developmental delays. The children were divided into group A (n=23, mild developmental problems) and group B(n=61 normal for the age). Both groups had comparable initial neonatal characteristics. Group A showed higher scores in all 4 components of the aEEG as compared to group B, with significant differences around 31-32 wks PCA. Total score(T) of the 4 aspects of aEEG was significantly higher between 28-32wks (figure).