Quantum Amplitude Integrated Relationship Between Cerebral and Systemic Trigeminal Odours Released by Healthcare Products May Have Clinical Implications Which Need to Be Further Investigated

In neonates is 35 mg/kg/24 hrs however safe brain levels are unknown.

Objective To determine the PG levels in MRS of infants with NE.

Design/methods MRS between July 2010 and August 2013 were reviewed in infants with NE (PRESS sequence TE: 288ms) All MRS spectra were reviewed by an MR Physicist. Cases with an observable doublet at 1.1 ppm were reprocessed with Tarquin V4.3.2 using a simulated basis set the included PG and referenced to unsurpassed water signal to obtain institutional units of concentration.

Results 29 infants with NE. MRI was performed at mean age of 120 hrs (35–197 hrs) Diagnosis HIE (27), Congenital lactic acidosis (1) GBS meningitis (1) MCA infarction (1) PG was present in 24% of infants (n = 7). The mean level on MRS was 10.76 mM (2.11–26.48).

All infants with PG peaks received 40mg/kg PhB, and 18 mg/kg Pb and 6/7 received Clonazepam. No PG group required less anticonvulsants (13.6% no treatment, 63% PhB, 23% PhB and Pb).

Conclusions PG is detected on MRS in NE infants.

The level may correlate with underlying diagnosis. PG accumulation may have clinical implications which need to be further investigated. Additionally PG must be correctly differentiated from lactate on MRS.

Quantitative Amplitude Integrated Electroencephalography Analysis in Very Low Birth Weight Infants on First Days of Life

Background and aims Amplitude integrated electroencephalography (aEEG) is a tool for continuous brain function monitoring in NICU patients. The aEEG classification related to pathology and visually assessed by examiners is fully described. Nevertheless the quantitative analysis of these signals is still not well defined.

The aim was to check if a quantitative analysis of an aEEG can be a useful tool in early diagnosis of morbidities such as intraventricular haemorrhage (IVH), periventricular leukomalacia (PVL) and haemodynamically significant persistent ductus arteriosus (PDA).

Methods Very low birthweight newborns admitted to NICU in a first day of life were included. On 1st, 3rd and 10th day of life the aEEG power was analysed in 3 ranges (below 5μV, between 5μV and 40μV and above 40 μV). The study group consisted of sick newborns with either IVH (III and IV grade), PVL or PDA (with surgical closure of PDA). The control group were children without these abnormalities. Groups were cross-matched according to gestational age. U Mann-Whitney test had been used.

Results There were 12 newborns in each: study and control group. There were 15 samples of an aEEG power from each patient. The aEEG power for children in study group was significantly lower on 1st day of live for a range above 40μV (p < 0.000000). On a 3rd day the aEEG power was significantly lower in a study group for range below 5μV (p < 0.000000) and higher for ranges between 5μV and 40μV and above 40μV (p < 0.000000). On a 10th day the power above 40μV was significantly lower in a study group (p = 0.000006).

Conclusions Quantitative analysis of an aEEG could be a useful method of identifying high risk neonates on a first and 10th day of live. Diminished power above 40μV reflects decreased CNS activity described as electrical bursts.