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 Ph and 6/7 received Clonazepam. No PG group required less anticonvulsants (13.6% no treatment, 63% PhB, 23% PhB and Ph).

**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.

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**PO-0412 RELATIONSHIP BETWEEN CEREBRAL AND SYSTEMIC PERFUSION, AND SHORT-TERM OUTCOMES IN INFANTS WITH PERINATAL ASPHYXIA**

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**Background and aims** The effects of haemodynamic changes on cerebral and systemic perfusion in infants with perinatal asphyxia are not well understood. We investigated the relationship between cerebral and systemic perfusion, and short-term outcome in infants with asphyxia.

**Methods** Ten infants (gestation age >35 weeks) with asphyxia (Apgar score <7 at 1 min) were divided into 2 groups: those with hypoxic-ischaemic encephalopathy (HIE; HIE group, n = 4) and those without HIE (non-HIE group, n = 6). Cerebral tissue oxygenation index (TOI) and cerebral fractional tissue oxygen extraction (FTOE) were measured by near-infrared spectroscopy (NIRS) at 12, 24, 48, and 72 h after birth. Superior vena cava (SVC) flow and left ventricular cardiac output (LVCO) were simultaneously measured by echocardiography.

**Results** TOI was significantly higher and FTOE was significantly lower in the HIE group (n = 4) than in the non-HIE group (n = 6). Cerebral tissue oxygenation index (TOI) and cerebral fractional tissue oxygen extraction (FTOE) were measured by near-infrared spectroscopy (NIRS) at 12, 24, 48, and 72 h after birth. Superior vena cava (SVC) flow and left ventricular cardiac output (LVCO) were simultaneously measured by echocardiography.

**Conclusions** Combined bedside monitoring of TOI and FTOE by NIRS and SVC flow may be useful for evaluating secondary energy failure and disrupted regulation of brain circulation in infants with asphyxia.

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**PO-0413 TRIGEMINAL ODOURS RELEASED BY HEALTHCARE PRODUCTS ACTIVATE OLFACTORY AND PAIN CORTICAL AREAS IN PRETERM AND FULL TERM NEWBORNS**

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**Background/aim** Hospitalised newborns are highly exposed to nosocomial odorous substances (OS) triggering possibly the intranasal trigeminal subsystem. Irritation of the nasal mucosa can induce pain and activations in pain processing areas in adults. We aimed to evaluate cortical activation in trigeminal/olfactory and pain areas following OS exposure in newborns.

**Methods** Forty-four newborns (17 full-terms, 12 preterms at term PMA and 15 preterms <33 weeks PMA when tested) were lower in a study group for range below 5uV (p < 0.000000) and higher for ranges between 5uV and 40uV and above 40uV (p < 0.000000). On a 10th day the power above 40uV was significantly lower in a study group (p = 0.000006).

**Conclusion** 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 40uV reflects decreased CNS activity described as electrical bursts.