PO-0709 ALTERATION OF ANTIOXIDANT DEFENSE STATUS IN MACROSOMIA

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Background and aims To investigate whether the anomalies affecting the antioxidant defenses could start at birth and to check the decrease in antioxidant defenses in macrosomic newborns.
Methods Thirty macrosomic and 30 sex-matched control newborns were recruited for a retrospective case-control study at the Maternity of Tlemcen University Hospital (Algeria).
Results The serum plasma ORAC, and albumin levels were significantly decreased in macrosomic than in control newborns, yet no difference was observed after adjustment for weight. Additionally, serum concentrations of malondialdehyde and xanthine oxidase were significantly higher in macrosomic than in controls before adjustment for weight. Moreover, macrosomia was significantly associated with low levels of ORAC (OR = 4.96, 95% CI 1.2–20.55), albumin (OR = 2.25, 95% CI 0.41612.48) and with high levels of MDA (OR = 10.29, 95% CI 2.02–52.36).
Conclusions Excessive weight could be a potential factor for decreased anti-oxidative capacity and increased oxidative stress.

PO-0710 DOSING ERRORS AND CLINICAL IMPACT IN PRETERM INFANTS DUE TO FLOW RATE VARIABILITY IN MULT-INFUSION THERAPY

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Background and aims Almost all preterm infants on the NICU receive continuous intra-venous infusion therapy. Commonly, multiple pharmaceuticals are administered through one catheter (multi-infusion). Due to the mutual influence of infusion pumps, dosing errors can occur that may lead to adverse events. We designed an *in vitro* experiment to measure flow rate variability and dosing errors. Subsequently, possible clinical impact was investigated.
Methods We conducted an n = 3 experiment with 3 syringe pumps and disposables as used in our NICU. A clinically relevant medication schedule was simulated using laser dyes as substitutes for pharmaceuticals. Real-time, inline, absorption spectrometry was used to measure dye concentrations and, subsequently, analyse flow rate variability. After changing the flow rate we registered temporary dosing errors in the parallel pumps, in addition, we registered start-up delays. A one-compartment pharmacological model was used to investigate the clinical impact of these errors.
Results The significant temporary dosing errors were between 48.1% ± 12.9% and -32.5% ± 22.5% over- and under-dose respectively. Start-up delays were up to 0.71 ± 0.11 h. Our pharmacological model indicates that these dosing errors could lead to haemodynamic instability for commonly used inotropes.
Conclusions Potential clinical impact includes hypertension, hypotension and intraventricular haemorrhages. We conclude that applying multi-infusion with currently used NICU infusion setups results in dosing errors with potential clinical impact. It is advised not to combine high-alert medication on a mutual lumen or line. In addition, it is advised to raise awareness about these phenomena.

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PO-0711 SIM: SCARY, INTIMIDATING OR MENACING OR SIM: STIMULATING, INTERACTIVE AND MEMORABLE

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Background and aims Simulation and simulated tasks have been used for the last 50 years. A Point of care study in our healthcare trust identified a need for a multidisciplinary approach to support individuals in the management of low frequency, high risk events in the clinical area.

We will demonstrate that SIM can be used as a safe environment where staff can learn, develop skills and highlight areas for development and change in practice.
Methods We have a fortnightly programme in Child Health, with all sessions debriefed and evaluated by Masterclass personnel. Data was collected on all paediatric and neonatal SIM sessions from August 2013 to March 2014.
Results 271 healthcare professionals (172 doctors, 59 nurses, 4 HCA's, 3 assistant practitioners, 16 medical students, 2 student nurses, 7 midwives, and 8 others) attended 18 sessions, of which 7 were multidisciplinary. Sim sessions were carried out in 4 different departments.

Feedback was excellent with comments such as 'fantastic session, seniors emphasised how it was for learning and no-one would be judged on it, this made it more relaxed and I found it very realistic and useful. Thank You'.
Conclusions Simulations using high fidelity manikins in life like circumstances have demonstrated that staff feel this has helped their confidence and abilty to cope in emergency situations. Feedback also suggests that it has given the opportunity to modify and change practice,aiming to improve standards of care and maintain patient safety.

PO-0712 THE BENEFICIAL EFFECTS OF BREASTFEEDING ON PARAMETERS OF ENDOTHELIAL DYSFUNCTION

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The purpose of this work was to investigate the association of serum asymmetric dimethylarginine (ADMA) and high sensitive C-reactive protein levels (hs-CRP) with duration of exclusive breastfeeding (BF) in children, and body composition.
Patients and methods The study group consisted of eighty eight patients aged median 12 months, (M – 42; F – 46), classified as never breastfed (NBF), or fully breastfed (BF). ADMA and hs-CRP were measured by immunoenzymatic ELISA commercial kits and expressed in µmol/L and ng/mL, respectively. Body composition analysis was performed by bioelectrical impedance (BIA).

Results We found significantly higher serum ADMA levels but not serum hs-CRP levels in NBF when compared to BF group ($p < 0.05$). According to BMI data starting from the age of 12 months more overweight/ obese children were found in NBF children when compared to BF. Serum ADMA was inversely associated with HDL-cholesterol levels and breastfeeding duration in studied children ($p < 0.05$). Positive correlation was found between ADMA and body fat mass ($p < 0.05$).

Conclusion In NBF children increased circulating ADMA is observed, however further studies are needed to assess whether breastfeeding duration affects body fat and other measures of body composition at older ages.

PO-0713 SYSTEMIC EFFECTS OF ANTICHOLINERGIC – SYMPATHOMIMETIC EYE DROPS DURING SCREENING FOR RETINOPATHY OF PREMATURITY

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Background and aims Anti cholinergic and sympathomimetic eye drops are widely used to achieve mydriasis. Normally systemic effects of these eye drops are ignorable but adverse events in preterm infants are reported. In this study during routine screening for retinopathy of prematurity (ROP), preterm infants were searched for the systemic effects of eye drops.

Methods The standard protocol was to instil 3 drops per eye which is a mixture of short acting tropicamide 0.5% with long acting cyclopentolate 1% and phenylephrine 2.5% ophtalmic solution in equal volumes. Each drop instilled at a 15 min interval before examination. Body temperature, heart rate, respiration, blood pressure, spO2, presence of flashing were recorded three times; before the instillation of eye drops, just before the examination and after an hour. Parents were informed about the adverse side effects and presence of complaints were asked after 24 h with the telephone interview. Data were analysed by 2 two-way ANOVA and independent samples t-test.

Results Forty eight (27 male+21 female) infants with birth weight 1498 ± 432(720–2500)g and gestational age 31,7 ± 3.3 (25–37)weeks were examined at postmentruel age of 41.95 ± 4.74(34–58) weeks. Body temperature rised subsequently with each eye drop ($p = 0.023$). The change in other physiologic parameters were not statistically significant. Apnea over10 seconds were developed in 9 infants. Within 24 h gastrointestinal symptoms developed in 8, discomfort/sleeplessness in 22, hyperemia/discharge from the eye in 20 infants.

Conclusion It was concluded that doctors must be aware of the the systemic effects of mydriatic eye drops used in screening examination for ROP and parents have to be informed about these effects.

PO-0714 RESPIROMETRY OF PLATELETS SUGGESTS MITOCHONDRIAL DISORDER IN A NEWBORN INFANT WITH LETHAL HEPATOPATHY AND ENCEPHALOPATHY

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Background and aims Rapid diagnosis of mitochondrial disorder is difficult in newborn infants with metabolic crisis. We studied whether respiratory chain disorder can be assessed from circulating platelets.

Methods A full-term girl of consanguineous parents was born after uncomplicated pregnancy (2690 g, Apgar 10/10/10). On day one she was transferred to NICU with metabolic acidosis (pH 7.11, pCO_2 2.8, BE -24, lactate 19 mmol/l). CSF/plasma lactate ratio (5.3/6.9) was increased. Cerebral MRI revealed diffuse changes in pyramidal tract and internal capsule. On day 4 she developed hepatic failure, conjugated hyperbilirubinemia and slight hyperammonemia. Urine metabolic analysis revealed increased 3-methylglutaconic acid (160 mmol/mol creatinine), and 4-hydroxyphenyllacetate suggestive of mitochondrial disorder. Respirometry (Oroboros Oxygraph, SUIT-protocol) was performed on blood cells. Isolated mitochondria from fibroblasts and liver were assessed with Blue Native-PAGE (BNGE) for respiratory chain complex assembly. Intensive care was withdrawn because of deterioration, and postmortem biopsies performed.

Results Respirometry on platelets showed a borderline oxygen consumption. Histology of muscle was normal, liver was cholestatic with iron accumulation. In fibroblasts, respiratory chain complex assembly was normal, but in liver levels of Complexes I, III and IV were decreased. Whole genome sequencing identified the candidate genes *Sycp2*, *Clybl* and *Foxred1*. The deficient complexes all possess mtDNA encoded subunits thus nuclear encoded translator mutation or other mtDNA related mutation might be causative.

Conclusions Respirometry from blood cells might suggest mitochondrial dysfunction that can be verified by structural analyses of respiratory chain complexes from the target organ. Causative mutation might be achieved with next generation sequencing.

PO-0715 WITHDRAWN

PO-0716 CONTINUOUS VENOVENOUS HEMODIAFILTRATION EXPERIENCE OF FOUR NEWBORNS

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Aim Conventional methods are the first treatment modalities of renal failure or metabolic diseases in newborns. If these modalities fail to treat, we start to use peritoneal dialysis (PD). Continuous venovenous hemodiafiltration (vvHDF) is used when PD can not be performed. Our continuous vvHDF experience of 4 patients in neonatal intensive care unit, is presented.

Case1: A male term newborn infant, having mapple syrup urine disease with a high serum leucine value after PD could not be performed, vvHDF was successfully provided. He was discharged from our hospital on 34th postnatal day.

Case2: A preterm newborn, having polycystic renal disease and could not use under PD and vvHDF was started on 13th postnatal day. He died due to ventilator associated pneumonia on 135th postnatal day.

Case3: A term newborn, having "polycystic renal disease" and could not perform PD, was referred to our unit for continuous vvHDF administration on 3rd postnatal day. vvHDF application was continued until his 61st postnatal day.