

387 POLYUNSATURATED FATTY ACIDS IN COLOSTRUM AND COGNITIVE DEVELOPMENT IN BREASTFED CHILDREN OF THE EDEN MOTHER-CHILD COHORT STUDY

doi:10.1136/archdischild-2012-302724.0387

^{1,2}JY Bernard, ^{1,2}M de Agostini, ^{1,2}A Forhan, ^{3,4}C Garcia, ^{3,4}M Armand, ^{5,6}M Bonet, ^{5,6}L Marchand, ^{5,6}B Blondel, ^{5,6}V Champion, ^{5,6}M Kaminski, ^{1,2}B de Lauzon-Guillain, ^{1,2}MA Charles, ^{1,2}B Heude, EDEN Mother-Child Cohort Study Group. ¹Center for Research in Epidemiology and Population Health, Inserm, Villejuif; ²Faculté de Médecine, Université Paris-Sud 11, Le Kremlin-Bicêtre; ³Center for Magnetic Resonance in Biology and Medicine, CNRS UMR 7339; ⁴Faculté de Médecine de la Timone, Université Aix Marseille, Marseille; ⁵Epidemiological Research Unit on Perinatal Health and Women's and Children's Health, Inserm Unit 953; ⁶Université Pierre et Marie Curie, Université Paris 6, Paris, France

Background and Aims Epidemiological studies suggest that breastfeeding could be beneficial for child cognitive development, but pathways involved remain to be elucidated. We aimed to investigate the potential role of breast milk content in polyunsaturated fatty acids (PUFAs), by studying their associations with later cognitive development.

Methods We analyzed lipid contents of colostrum samples collected from 613 breastfeeding mothers of the EDEN mother-child cohort. Cognitive development at 3 years was assessed with the Ages and Stages Questionnaire (ASQ, score between 0 and 300). We investigated associations between colostrum PUFAs and ASQ score using multiple linear regressions adjusted for centre, child's age, gender and gestational age, maternal tobacco and alcohol consumptions, parental education, siblings, caregivers, preschool attendance and exclusive breastfeeding duration.

Results Mean ASQ score was 274.2 (± 25.1). Total PUFAs and *n*-6 PUFAs means were respectively 14.3% (± 2.0) and 12.1% (± 1.9) of total lipids in colostrum. Mean *n*-6/*n*-3 ratio was 5.7 (± 1.3). After adjustment, ASQ score was negatively associated with total PUFAs ($\beta = -1.8$ [-2.8; -0.8]), *n*-6 PUFAs (-1.95 [-3.0; -0.9]) and *n*-6/*n*-3 ratio (-1.7 [-3.3; -0.2]). No association was found with *n*-3 PUFAs. Associations did not differ according to breastfeeding duration ($P_{interaction} > 0.57$).

Conclusions After adjustment for confounders, especially maternal education, colostrum content in *n*-6 PUFA was negatively associated with child cognitive development, independently of exclusive breastfeeding duration. These results suggest that *n*-6 PUFAs provided in excess might compete with *n*-3 PUFAs biosynthesis necessary for early brain maturation and impact negatively on later cognitive development.

388 THE PRESCHOOLERS ACTIVITY TRIAL (PAT): A RANDOMIZED CONTROLLED TRIAL OF PHYSICAL ACTIVITY INTERVENTION IN THE EARLY YEARS

doi:10.1136/archdischild-2012-302724.0388

^{1,2,3}GS Goldfield, ¹A Harvey, ¹K Grattan, ¹R Colley, ³AS Alberga, ^{1,2}ZM Ferraro, ⁴VA Temple, ⁴PJ Naylor, ⁵N Barrowman, ^{1,2,3}KB Adamo. ¹Healthy Active Living & Obesity Research Group, Children's Hospital of Eastern Ontario (CHEO), Research Institute; ²Department of Paediatrics; ³School of Human Kinetics, University of Ottawa, Ottawa, ON; ⁴School of Exercise Science, Physical & Health Education, University of Victoria, Victoria, BC; ⁵Clinical Research Unit, Children's Hospital of Eastern Ontario (CHEO), Research Institute, Ottawa, ON, Canada

Background Physical activity (PA) provides widespread health benefits, including pediatric obesity prevention, but less than 10% of Canadian children meet PA guidelines and one in three are overweight or obese. Since PA levels track from childhood into adulthood, early intervention may increase the likelihood of a physically active lifestyle and associated health benefits throughout the lifespan.

Aim To evaluate the efficacy of an intervention with day care providers on volume and intensity of PA, motor skill development, and body mass index (BMI) in 3–5 year old children attending daycares.

Methods A randomized controlled trial comparing children (*n*=40) whose daycare providers received intervention designed to promote PA versus children (*n*=43) whose providers implemented the normal preschool curriculum. Intervention included two, 3-hour workshops plus 12 bi-monthly "booster" sessions. Children were assessed at baseline and 3-months, with a plan to collect data at 6-months. PA was measured objectively using accelerometry. Motor skills were measured using the Test of Gross Motor Development-2. BMI was assessed by measured heights and weights (kg/metres²).

Results Compared to controls, the intervention produced greater increases in mean steps/day (-83 vs. +1,185, *p*<0.01), gross motor percentile scores (+6 vs. +16, *p*<0.05) and reductions in BMI (+0.21 vs -0.22, *p*<0.001) at 3-months but not moderate to vigorous PA (MVPA).

Conclusions Intervening with daycare providers may be an efficacious method of increasing preschoolers' volume of PA, promoting motor skill development that is critical to PA and sport participation later in life, and reducing adiposity.

389 IS THE HIGHER PREVALENCE OF ASTHMATIC SYMPTOMS FOLLOWING PRETERM BIRTH RESTRICTED TO CHILDHOOD?

doi:10.1136/archdischild-2012-302724.0389

¹ALDB Damgaard, ²R Mathiasen, ¹BM Hansen, ²F Buchvald, ¹G Greisen. ¹Department of Neonatology; ²Department of Paediatrics, Copenhagen University Hospital Rigshospitalet, Copenhagen, Denmark

Background and Aim Preterm birth is associated with increased risk of asthmatic symptoms in childhood, but it seems uncertain whether this association persists into adulthood. We have investigated the association between gestational age (GA) and the use of prescription asthma medication in young adults.

Methods This is a register study of a Danish national cohort of all infants born 1980–1989 and followed up at the age of 21–30 years. The retrieval of prescription asthma medication (inhaled beta-2 agonists and/or inhaled corticosteroids and/or oral leukotriene antagonists) in 2009–2010 was evaluated. Logistic regression analyses were performed to determine the relationship between the use of asthma medication and gestational age, adjusted for gender, small-for-gestational age and multiple births.

Results Data were obtained on 516 337 individuals (72.7% of all infants born in the period). The prevalence of asthma medication use in young adults born term was 6.33%, compared to 6.91% in those born preterm. Comparing with the term group, we found slightly increased adjusted OR for the use of asthma medication for individuals born at GA 32–36 weeks (*n*=20 848) OR=1.12 (95% CI=1.06–1.18) and GA 28–31 weeks (*n*=2 256) OR=1.23 (95% CI=1.05–1.44). In the extremely preterm group (GA=24–27 weeks, *n*=355) the association was not significant: OR=1.04 (95% CI=0.68–1.58).

Conclusion There was an association between gestational age and the use of asthma medication at 21–30 years, but it was weak. The adjusted OR increased slightly with decreasing GA except in adults born extremely preterm. Further analyses will be performed to investigate our findings.

390 CEREBRAL PALSY AND NEONATAL DEATH IN SINGLETONS BORN SMALL FOR GESTATIONAL AGE AT TERM

doi:10.1136/archdischild-2012-302724.0390

^{1,2}M Stoknes, ^{1,3}GL Andersen, ¹MO Dahlseng, ¹J Skranes, ^{1,4}KÅ Salvesen, ^{5,6}LM Irgens, ⁷JJ Kurinczuk, ^{1,7}T Vik. ¹Department of Laboratory Medicine, Children's and Women's

Health, Faculty of Medicine, Norwegian University of Science and Technology;
²Department of Pediatrics, St. Olavs Hospital, Trondheim University Hospital, Trondheim;
³The Cerebral Palsy Registry of Norway, Habilitation Center, Vestfold Hospital, Tønsberg;
⁴National Center for Fetal Medicine, Department of Obstetrics and Gynecology, St. Olavs Hospital, Trondheim University Hospital, Trondheim; ⁵Medical Birth Registry of Norway, Locus of Registry-Based Epidemiological Research, Norwegian Institute of Public Health; ⁶Department of Public Health and Primary Health Care, University of Bergen, Bergen, Norway; ⁷National Perinatal Epidemiology Unit (NPEU), University of Oxford, Oxford, UK

Background and Aims To investigate the role of antenatal versus intrapartum causes in the pathway leading to cerebral palsy (CP) in children born small for gestational age (SGA) at term.

Methods Data on 400488 singleton term live births during 1996–2003 recorded in the Medical Birth Registry of Norway were linked with clinical data for 342 children diagnosed with CP recorded in the CP Registry of Norway. 'Low' Apgar score, defined as Apgar score < 4 at five minutes, MRI-findings and subtype of CP were used to assess the timing of the brain injuries leading to CP.

Results In the group of 69 SGA children with CP, six (9%; CI: 4–18) had 'low' Apgar scores, and five of these were considered to be of intrapartum origin (7%; CI: 3–16). In the group of 263 non-SGA children with CP, 26 (10%; CI: 7–14) had 'low' scores, and 18 of these probably had an intrapartum cause. In addition, an intrapartum cause was assessed as probable in 13 cases among children with Apgar scores > 3. Thus, an intrapartum cause was considered likely in 31 non-SGA children (12%; CI: 8–16), not different from the SGA group ($p=0.31$).

Conclusions Despite increased odds of both low Apgar score and CP among children born SGA, our findings suggest that the role of intrapartum causes in the causal chain leading to CP in these children is limited. Instead the results suggest that the majority of children with CP born SGA have antenatal brain injuries, also supported by MRI-findings.

391 PROPHYLACTIC ANTIBIOTICS AND SEPSIS IN NEONATES BORN THROUGH MECONIUM STAINED AMNIOTIC FLUID (MSAF) - A RANDOMIZED CONTROLLED TRIAL

doi:10.1136/archdischild-2012-302724.0391

¹A Goel, ²S Nangia, ²A Saili, ³S Sharma, ⁴V Randhawa. ¹Department of Pediatrics; ²Division of Neonatology, Department of Pediatrics, Lady Hardinge Medical College and Kalawati Saran Children's Hospital, New Delhi; ³Department of Pathology; ⁴Department of Microbiology, Lady Hardinge Medical College, New Delhi, India

Background Most newborns with MSAF receive antibiotics as meconium has been incriminated to increase incidence of both intraamniotic and postnatal sepsis. Due to rising concerns about inadvertent overuse of antibiotics, this practice needs to be systematically evaluated.

Objective To evaluate the role of prophylactic antibiotics on occurrence of neonatal sepsis in term neonates born through MSAF. **Methods** Out of 359 eligible neonates, 109 were excluded based on exclusion criteria and remaining 250 randomized to Study (Antibiotic group - receiving first line antibiotics for 3 days), and Control (No Antibiotic) group. Both the groups were evaluated for sepsis on clinical and laboratory parameters. All neonates were monitored for complications related to MSAF. After discharge babies were followed up for sepsis till 28 days of life.

Results 121 babies were randomized to Antibiotic group and 129 to No Antibiotic group. Of the total 250 neonates, 24 (9.6%) developed suspected sepsis, 8 in Antibiotic (6.6%) and 16 in No Antibiotic group (12.4%) ($p=0.12$, OR 0.5, 95% CI: 0.21–1.22). Culture proven sepsis occurred in 12 babies (4.8%), 5 in Antibiotic and 7 in No Antibiotic group (4.13% vs. 5.42%, $p=0.63$, OR 0.75, 95% CI: 0.23–2.43). The incidence of mortality (2.5% vs. 2.3%), meconium aspiration syndrome (18.2% vs. 15.5%, $p=0.57$) and other complications like air

leaks, PPHN and intracranial hemorrhage was comparable between the two groups.

Conclusions Prophylactic antibiotics in neonates born through MSAF do not reduce the incidence of sepsis. Hence, empiric use of antibiotics without documented evidence of infection should be avoided.

392 PREVALENCE OF THE SYSTEMIC INFLAMMATORY RESPONSE SYNDROME, SEPSIS, SEVERE SEPSIS AND SEPTIC SHOCK IN A NEONATAL INTENSIVE CARE UNIT

doi:10.1136/archdischild-2012-302724.0392

N Hofer, E Zacharias, W Mueller, B Resch. Medical University of Graz, Graz, Austria

Aim To examine the prevalence of the definitions of the systemic inflammatory response syndrome (SIRS), sepsis, severe sepsis, and septic shock during the first three days of life.

Methods Retrospective cohort study including all term neonates hospitalized at our neonatal intensive care unit within the first 24 hours of life from 2004 to 2010. SIRS and the different stages of sepsis were defined according to the International Pediatric Sepsis Consensus Conference.

Results 476 neonates included had a median birth weight of 3250g (range 1250–5300g), a median gestational age of 38 weeks (37–43 weeks), and 258 (54%) were male. Of 476 neonates included 116 (24%) had SIRS, 61 (13%) had sepsis, 55 (12%) had severe sepsis, and 28 (6%) had septic shock. Among 116 neonates with SIRS the single diagnostic criteria were fulfilled as follows: 37/116 neonates (32%) had fever or hypothermia, 92 (79%) had a white blood cell count >34000/ μ l and/or an immature to total neutrophil ratio >0.1, 115 (99%) had respiratory and 40 (34%) cardiocirculatory symptoms.

Conclusion A quarter of all term neonates hospitalized in our neonatal intensive care unit had SIRS during the first three days of life, half of them had sepsis. The vast majority of infants with sepsis had severe sepsis.

393 HIGH-FLOW NASAL CANNULA VERSUS NASAL CONTINUOUS POSITIVE AIRWAY PRESSURE IN THE MANAGEMENT OF RESPIRATORY DISTRESS SYNDROME

doi:10.1136/archdischild-2012-302724.0393

R Iranpour, A Sadeghnia, M Hesaraki. Pediatrics/Neonatology, Isfahan University of Medical Sciences, Isfahan, Iran

Background and Aims Although nasal continuous positive airway pressure (NCPAP) in the treatment of respiratory distress syndrome (RDS) is an effective and a non-invasive method, some complications such as septal trauma and intolerance of NCPAP apparatus are occurred. Our objectives are to assess safety and effectiveness of humidified high flow nasal cannula (HFNC) as compared to NCPAP in premature neonates with RDS.

Methods Seventy uncomplicated preterm infant (30–35 weeks gestation) with RDS at the neonatal ward of Shahid-Beheshti hospital, Isfahan, Iran, randomized into two groups; Group1 (CPAP) received NCPAP from birth and continued till respiratory distress (RD) and oxygen (O_2) need improved and Group 2 (HFNC) received NCPAP for the first 24 hours after birth, then standard HFNC till RD and O_2 need improved. Short outcomes and some long outcomes compared between two groups.

Results There were no differences in death, duration of hospitalization, failure to treatment, duration of improvement of RD, necrotizing enterocolitis(NEC), patent ductus arteriosus (PDA), Intraventricular hemorrhage (IVH), chronic lung disease (CLD), pneumothorax, pulmonary hemorrhage, apnea, sepsis, duration of hospitalization, duration to reach to full enteral feeding between