

ferritin (SF), hemoglobin (Hb) and hemoglobin content in reticulocytes (CHr). We measured C-reactive protein (CRP) to identify infections. Parents filled in a questionnaire to identify risk factors for ID.

**Results** Until now we included 350 healthy infants. Forty infants were excluded (CRP>5 mg/l). ID (SF < 12 µg/l) and IDA (SF < 12 µg/l and Hb < 6.8 mmol/l) were detected in 60 (19.4%) and 27 (8.7%) of the 310 remaining infants respectively. CHr was measured in 249 infants. 32 of 249 (12.9%) infants showed iron deficient erythropoiesis (CHr < 26 pg). Iron intake and use of iron fortified formula were associated with less ID (p=0.02 and p=0.01). Intake of >500 ml cow's milk/day was negatively associated with iron status (p=0.01).

**Conclusion** ID is present in 19.4% of healthy young infants aged 0.5 to 3 years in the Netherlands.

Iron status was positively associated with iron intake and the use of iron fortified formula and negatively associated with excessive intake of cow's milk.

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### SCHOOL-BASED OBESITY AND RELATED CARDIOVASCULAR DISEASE PREVENTION INTERVENTIONS IMPROVE WEIGHT AND ACADEMIC PERFORMANCE OVER A THREE-YEAR STUDY

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**Background** Childhood obesity and related health consequences continue to be major clinical and public health issues in the US and abroad. Healthier Options for Public Schoolchildren (HOPS) was a school-based obesity prevention intervention with nutrition and physical activity components implemented in the elementary school setting and targeting 6–12 year olds.

**Methods** HOPS was implemented in August, 2004 through December 2009, and included approximately 3,200 children (48% Hispanic) attending four elementary schools in Florida. Demographic, anthropometric (height, weight, body mass index [BMI]) and academic (Florida Comprehensive Assessment Test [FCAT]) were collected during the school year. Interventions included modified dietary offerings, nutrition and lifestyle educational curricula, school gardens, and other school-based wellness projects.

**Results** Repeated measures analysis showed over a three year study period the intervention Z weight scores decreased significantly among boys (0.81 to 0.71, P<0.001) with a trend among girls (0.56 to 0.51, P<0.07). Within ethnicity, a significant decrease in Z weight score for Hispanics (0.66 to 0.59 P<0.01) and whites (0.62 to 0.54, p<0.02) was shown. Over the same time period, FCAT math scores improved significantly among girls (308 to 319, p<0.001) and reading scores improved significantly among boys (299 to 307, P<0.01). Within ethnicity, Hispanics significantly improved both FCAT math (298 to 309, p<0.001) and reading (286 to 301, p<0.0001) scores.

**Conclusions** School-based obesity prevention interventions including nutrition and physical activity components show promise in improving health and academic performance in elementary-aged children longitudinally, especially among Hispanics.

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### CESAREAN SECTION IS ASSOCIATED WITH BODY MASS INDEX IN CHILDHOOD IN TWO BRAZILIAN BIRTH COHORT STUDIES

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**Background** A significant association was found between cesarean section (CS) and obesity at adulthood in our previous study.

**Objective** To assess the association between CS and obesity in schoolchildren.

**Methods** We carried out two birth cohorts in Brazil: in Ribeirão Preto (RP) in 1994 and in São Luís (SL) in 1997. 2846 pairs of mothers-newborns were evaluated in RP and 2542 pairs in SL. Birth length and weight and variables were collected after delivery: gender, gestational age, type of delivery, maternal schooling and smoking. In 2004/2005 a random sample were reassessed with anthropometric measurements: 790 children aged 10–11 years in RP and 673 children aged 7–9 years in SL. The outcomes were BMI in Z score and obesity (>95<sup>th</sup> percentile per age). A logistic model was used to investigate the association between CS and obesity. A multiple regression model was applied to investigate the association between CS and BMI.

**Results** Obesity rate was 13% in RP and 2.0% in SL. In the logistic regression, the association between CS and obesity remained significant after adjustment only in RP [1.72 (CI95% 1.01–2.92)]. The linear coefficient after adjustment the association were 0.31 (95%CI 0.11–0.51) in SL and 0.25 (95%CI 0.05–0.46) in RP.

**Conclusion** Cesarean section was associated to increased BMI in both cities, as previously found in adults. CS remained associated with obesity only in RP. We reinforce the previous hypothesis that intestinal flora related to type of delivery may play a role in the epidemic of obesity worldwide.

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### MATERNAL PERCEPTION OF CHILD BODY MASS INDEX (BMI) AND CONCERNS RAISED BY HEALTH PROFESSIONALS

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**Background and Aims** To describe maternal perceptions of their child's BMI and maternal report of concerns about body weight raised by a health professional.

**Methods** Data collection took place in 2010 when children were between 6 and 8 years of age and questionnaires were mailed to 706 mothers who were part of a longitudinal cohort that had been followed since pregnancy. Mothers reported the child's anthropometric measures, and BMI was categorized as underweight, healthy, overweight, or obese based on the child's age and sex according to the World Health Organization Growth Charts adapted for Canada.

**Results** 450 participants completed the questionnaire (response rate 64%). 74% of children had a healthy BMI, 10% were underweight, 9% were overweight, and 7% were obese. 80% of parents whose child was underweight believed their child was about the right weight and only 13% recalled a health professional recently raising concerns about their child being underweight. 89% of parents whose child was overweight believed their child was about the right weight and only 6% recalled a health professional recently raising concerns about their child being overweight. 62% of parents whose children were obese believed their child was about the right weight and only 18% recalled a health professional recently raising concerns about their child being overweight.

**Conclusions** The majority of parents whose children were not a healthy BMI misclassified their child's weight status, suggesting that there are opportunities for health professionals to educate parents about healthy BMI for their child's age and sex.

**366 ASSOCIATION BETWEEN METABOLIC SYNDROME AND NUTRITION, SLEEP AND PHYSICAL ACTIVITY IN CHILDREN**

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**Background and Aims** Metabolic syndrome includes a collection of risk factors that increase the risk of cardiovascular diseases and diabetes type 2. The prevalence of both conditions has been increased due to urbanization and changes in life style. The purpose of this study was to determine the prevalence of metabolic syndrome in children and its relationship with nutritional habits sleep duration and physical activity.

**Methods** A cross-sectional study was conducted on 338 (166 male, 172 female) children aged 10–18 years old. Waist circumference, blood pressure, blood sugar and lipid profile were measured. Metabolic syndrome defined according to IDF criteria. The pattern of nutrition, physical activity and sleep evaluated with Iranian version of international valid questionnaires.

**Results** Prevalence of metabolic syndrome was 11.8%. There was no significant association between sleep duration and metabolic syndrome except association between short sleep duration and high level of LDL ( $P < 0.03$ ). The average daily salt consumption of in metabolic syndrome patients was more than healthy children. Subjects with daily active activity more than 2 hours had lower level of LDL and metabolic syndrome prevalence ( $p = 0.04$ ). Metabolic syndrome was significantly lower in subjects with organized activity.

**Conclusion** Metabolic syndrome is highly prevalent in Iranian children. These findings suggest importance of healthy nutritional habits and organized physical activity to prevent metabolic syndrome.

**367 POST RESUSCITATIVE FACTORS INFLUENCING SURVIVAL AFTER IN-HOSPITAL PEDIATRIC CARDIAC ARREST**

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**Background and Aims** In-hospital pediatric cardiac arrest (CA) achieves high return of spontaneous circulation (ROSC) rates but survival to hospital discharge is low. The aim of this study was to determine post-resuscitative features that may influence survival.

**Methods** Prospective, international, observational, multicentric study. CA in children between 1 month and 18 years were analyzed using the Utstein template. Post-resuscitative clinical features after achieving sustained ROSC that correlated with survival to discharge were analyzed.

**Results** 563 episodes of in-hospital CA in 502 patients were evaluated. 346 (68.9%) achieved ROSC for at least 20 minutes. 180 of them (52%) survived to hospital discharge. Cardiac rhythm at the time of ROSC was sinus rhythm in 56.5% of the survivors and 43.5% of non survivors ( $p = 0.03$ ). 74% of the patients were mechanically ventilated and 68.7% received inotropic drugs with no statistically significant differences observed between survivors and non survivors. Survivors received significantly lower mean dopamine (10.2 vs 13.4 mcg/kg/min;  $p = 0.002$ ) and dobutamine (10.1 vs 12.3 mcg/kg/min;  $p = 0.03$ ) doses. Patients who survived had significantly higher mean pH (7.26 vs 7.17;  $p = 0.02$ ), and HCO<sub>3</sub> (20.2 vs 18.4;  $p = 0.04$ ), and lower base excess (-5.6 vs -8.2  $p = 0.02$ ) and lactic acid (5.3 vs 7.7;  $p = 0.006$ ) values one hour after ROSC. Patients who survived had higher mean PO<sub>2</sub> values and lower mean PCO<sub>2</sub> values, but these differences did not achieve statistical significance.

**Conclusion** In-hospital pediatric CA, the post ROSC factors associated with mortality were cardiac rhythm, metabolic acidosis and doses of inotropic drugs.

**368 MARKERS FOR INVASIVE BACTERIAL INFECTION IN WELL-APPEARING YOUNG FEBRILE INFANTS. THE VALUE OF PROCALCITONIN**

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**Background** In the last decade, the procalcitonin (PCT) has been introduced in many protocols for the management of the febrile child. However, its value among young well-appearing infants is not completely defined.

**Objective** To assess the value of PCT in diagnosing serious bacterial infections and specifically invasive bacterial infections (IBIs) in well-appearing infants under 3 months of age with fever without source (FWS).

**Design and Methods** Retrospective study including well-appearing infants under 3 months of age with FWS attended in seven European Paediatric Emergency Departments. An IBI was defined when a bacterial pathogen was isolated in blood or cerebrospinal fluid culture.

**Results** A total of 1,531 infants under 3 months of age with FWS were attended. There were 1,112 well-appearing infants in whom PCT and a blood culture were performed. Among them, 23 (2.1%) were diagnosed with an IBI. A multivariate analysis showed that, among different epidemiological data and blood tests, PCT was the only independent risk factor for having an IBI (OR 21.69 if PCT 0.5 ng/mL). Comparing with C-Reactive Protein, PCT showed a better performance to rule-in an IBI. Among patients with normal urine dipstick and short-evolution fever (less than 6 hours), areas under the ROC curve were 0.819 and 0.563, respectively for detecting IBIs.

**Conclusions** Among young infants with FWS, PCT showed a better performance than C-Reactive Protein in identifying patients with IBIs and, mainly in those patients with normal urine dipstick and short-evolution fever, PCT seems to be also the best marker to rule out an IBI.

**369 EVALUATION OF CARBON MONOXIDE POISONING IN CHILDREN**

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Carbon monoxide poisoning is an important health problem that may lead to deaths during winters. The purpose of this study was to patients who were diagnosed with carbon monoxide poisoning.

**Methods** 196 patients between 0–17 years of age, who were treated at the Ankara Education and Research Hospital Child Emergency Service for the carbon monoxide poisoning diagnosis between November 2011 and April 2012 were evaluated. Patients' complaints, socio-demographic data, biochemical parameters were recorded.

**Findings** The age median of the patients was 10.0 while 51.5% were female. The most frequent complaint was: nausea, vomiting (27.6%). Carboxyhemoglobin (COHb) level average was 25.5±10.3