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DOES THE ADMINISTRATION OF FREE WATER (FWA) DURING LABOR INCREASE MORBIDITY IN PREMATURE VLBW INFANTS?

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Objective: to evaluate the effect of FW administration during labor on neonatal morbidity of VLBW. **Design:** prospective, observational, cohort. Population: Pregnant women in labor with gestational age (GA) less than 32 weeks and estimated birth weight <1500 g. **Methods:** Two explicative type models of multivariate logistical regression were constructed. Interest variable: FWA (0: <94 ml/hr, 1: >94 ml/hr). Resulting variable of the first model: hyponatremia in the first 24 hours of life (hypoNa) (0: >130 mEq/l, 1: <130 mEq/l). The resulting variable of the second model was at least one of the following morbidities: RDS, PDA, and BPD (dichotomic). **Results:** 124 mother-newborn binomials were included. Univariate analysis showed that the risk of hypoNa was higher when FWA was >94 ml/hr (OR: 2.45, 95% CI: 1.1–5.45). This relation continues to be significant when adjusted for the variables of the model (OR: 2.97, 95% CI: 1.23–7.13). Only GA had a modifying effect and its interaction with FWA was not significant. The second model showed no relation between FWA and neonatal morbidity, though higher morbidity was observed when there was an increase in the unintentional administration of Na ($p = 0.02$) and the administration of fluids was greater than 100 ml/kg/day ($p = 0.002$) in the first 48 hours of life. **Conclusion:** FWA, more than 94 ml/hr, was associated with an increased risk of hyponatremia in VLBW in the first 24 hours of life, but no association with neonatal morbidity was observed. Greater attention should be given to the unintentional administration of Na in the first 48 hours of life.

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METABOLIC SYNDROME IN YOUNG ADULTS: WHEN DOES THE PROBLEM ARISE?

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Introduction: Metabolic syndrome (MS) is a complex disorder represented by a set of risk factors for cardiovascular disease related to central fat deposition and insulin resistance. The prevalence of MS is high, ranging from 10% to 40%, depending on age and sex. **Objectives:** To establish the prevalence of MS and its components among young adults born in a 1978/79 Ribeirão Preto cohort and to determine to what extent factors indicative of intrauterine malnutrition and childhood obesity are associated with the occurrence of MS. **Methods:** A total of 2063 participants out of 6827 singletons born at hospitals were evaluated at the age of 23/25 years. Blood was collected and a standardized questionnaire was applied to obtain information about occupation, schooling, family history of non-communicable chronic diseases, and smoking. Weight, height and arterial blood pressure were measured. Information was obtained about birth weight related to gestational age (small for gestational age – SGA, adequate – AGA, and large – LGA) and weight at school age (excess weight), and at 23/25 years ($n = 1070$). Multiple stepwise logistic regression analysis was applied to the data, with MS as the dependent variable. **Results:** The prevalence of MS was 10.3% (14.9% among men and 6% among women). The alterations detected among the components of the syndrome regarded waist circumference in 27% of cases, arterial blood pressure in 22.8%, 42% in HDL, glycemia in 3.1%, and triglycerides in 12.8%. At school age, 35% of the children presented excess weight, with a higher risk of having MS at 23/25 years, regardless of birth weight (AGA, SGA or LGA) (OR of 3.43, 3.57 and 2.84, respectively). **Conclusions:** The prevalence of MS was high for age range. Weight gain at school age was the most important risk for MS in this cohort.

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ALLERGIC RHINITIS IN CHILDREN WITH AGE OLDER THAN 6 AND YOUNGER THAN 15 YEARS WITH BRONCHIAL ASTHMA AND ITS RELATIONSHIP WITH ASTHMA CONTROL. STUDY IN SOME SCHOOLS OF LIMA.

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Introduction: An association between allergic rhinitis and bronchial asthma is explored. **Objectives:** To establish the point prevalence of allergic rhinitis in children of age older than 6 and younger than 15 years with asthma in some schools of Lima. To determine the association between allergic rhinitis and level of asthma control. **Methods:** Cross-sectional study performed in May and June 2007. A sample of 256 students from selected schools of Lima answered a validated questionnaire for the diagnosis of asthma, allergic rhinitis and asthma control. **Results:** 256 children with asthma were enrolled. The average age was 9.69 years $\pm$ SD. 66.4% of the asthmatic children had allergic rhinitis. In the asthmatic children with allergic rhinitis group, 69.4% presented with uncontrolled or partially controlled asthma, while in the group without allergic rhinitis these were present in 43% of cases. The presence of allergic rhinitis is associated with partially uncontrolled asthma ($p < 0.05$). A significant difference in the proportion of uncontrolled or partially controlled asthma was found between children with mild intermittent (58.8%) and severe persistent allergic rhinitis (88.4%) ($p < 0.05$). **Conclusion:** The prevalence of allergic rhinitis in asthmatic children of some schools of Lima is 66.4% and its presence is associated with partially controlled asthma.

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MOLECULAR MECHANISMS OF ARTERIAL HYPERTENSION: EXPRESSION OF HYPOTHALAMIC CRH AND LEVELS OF PLASMA CORTICOSTERONE IN A MODEL OF PRENATAL MALNUTRITION.

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Introduction: Epidemiological studies suggest an association between low birth weight and later hypertension in adult life. Experimental evidence shows that maternal malnutrition during pregnancy leads to fetal malnutrition and retarded fetal growth, and eventually elevated arterial pressure during postnatal life. The hyperactivity of the hypothalamo-pituitary-adrenal axis (HPA) could be considered among the sequence of events induced by prenatal malnutrition resulting in later development of arterial hypertension. **Objective:** To determine of corticotrophin releasing hormone (CRH) mRNA expression and CRH peptide in hypothalamic tissue and plasma corticosterone concentration in rats. **Methods:** In rats of 2 and 40 days of age, born from mothers submitted to protein-energy malnutrition during gestation, the hypothalamic levels of mRNA for CRH were determined by real-time PCR, as well as the concentrations of hypothalamic CRH and plasma corticosterone by radioimmunoassays. **Results:** Results showed that the gene expression, as well as the peptide, were both increased in the hypothalamus of rats experiencing prenatal malnutrition, as compared to healthy controls. Concomitantly, the malnourished rats exhibited increased levels of plasma corticosterone. **Conclusions:** These alterations could form part of the sequential events leading to hyperactivity of the HPA axis and therefore to programming of hypertension during adult life of in utero malnourished animals.

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COMPARATIVE STUDY OF THE LEVEL OF PHYSICAL FITNESS BETWEEN PHYSICALLY ACTIVE BOYS WITH NORMAL WEIGHT OR OVERWEIGHT

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Introduction: A good condition of physical fitness in children can participate in the prevention of those chronic diseases associated with a sedentary condition and the excess of body fat. **Objectives:** To compare the physical fitness status between normal weight boys and overweight boys, participants of physical exercises in a school of sports. **Methods:** 35 boys participated in the study, (10.2 ± 0.85 y; 8–11 years of age); 18 had a normal weight (G1) and 17 above of percentile 85 of BMI for the age (G2). The functional variables were horizontal impulse (IH), abdominal exercise in 1 min, hurl of medicine ball 2.0 kg (MB2), a 20 m race, Shuttle Run test of agility, seat and reach test, and a 9 min. race. Comparison between the groups was carried out with student t-test for independent samples and the level of significance was $p < 0.05$. **Results:** G1 presented significantly lower BMI than G2 (16.27 ± 1.35 vs 20.68 ± 1.35 kg/m²; $p = 0.000$). In the IH test the G2 presented significantly lower performance comparing with G1 (145.41 ± 18.03 vs 168.5 ± 14.69 cm; $p = 0.000$). For MB2, the G2 presented better performance than G1 (229.18 ± 40.67 vs 194.83 ± 29.34 cm; $p = 0.007$). No significant differences between groups were observed in the other tests. **Conclusion:** Taking into account the time of practice in this school of sports was more than one year for both groups, we concluded that this practice apparently allowed the overweight and obese boys had a similar performance to the normal weight children, functioning as a protective factor for physical fitness, despite of excess body fat.

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AGGRESSIVE CLINICAL DEBUT ASSOCIATED WITH GGCC GENOTYPE OF CYTOTOXIC T LYMPHOCYTE-ASSOCIATED ANTIGEN-4 (CTLA4) IN CHILEAN POPULATION WITH TYPE-1 DIABETES.

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Introduction: The susceptibility to type-1 diabetes is determined by genetic and environmental factors. Between non HLA genes, CTLA-4 (ITDM12) has been propose as candidate gene with a crucial role as negative regular in the T cell proliferation. **Aim:** To analyse the frequency and association of two CTLA-4 polymorphisms with type 1 diabetes and to correlate CTLA-4 haplotypes with: diagnosis characteristics, serum concentration of IA-2, GAD65, and TNF α , TGF β 1 and INF γ cytokines. **Methods:** the study included 260 incident cases of type 1 diabetic children, under <15 years and 255 unrelated control children with similar age, gender and socio-demographic characteristics. The A+49G and C-318T polymorphisms of CTLA-4 was determined by PCR and RFLPs. IA-2, GAD65, TGF β 1, INF γ y TNF α by means of ELISA. Statistical analysis included Fishers and student t test. **Results:** There was no significant difference in the distribution of +49*318 CTLA-4 haplotypes in patients and controls (A-C: 56.8% vs 56.3%; A-T: 8.7% vs 7.7%; G-C: 34.5% vs 34.9% y G-T: 0% vs 1.2%. In type 1 diabetes cases, the GG/CC genotype was associated with high frequency of GAD65 (68.2%) and IA-2 (54.5%), high levels of TNF α (5.6 vs 1.9 pg/ml, $p < 0.02$), INF γ (114.8 vs 81 pg/ml, $p < 0.05$) and low concentrations of TGF β 1 (9.4 vs 5.2 μ g/ml, $p = \text{NS}$) compared with healthy children and with others genotype combinations. Finally, type 1 diabetes patient carriers of GG/CC genotype showed an early debut (average 8 years old), more keto-acidosis and hyperglycaemia at diagnosis (651 ± 110 mg/dl). **Conclusion:** The GG/CC CTLA-4 genotype was related with an aggressive immunological response at diagnosis.

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PONDERAL GROWTH IN RATS WITH INTRAUTERINE GROWTH RETARDATION TREATED WITH GROWTH HORMONE ADJUSTED BY NONLINEAR REGRESSION

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Objective: The aims of this study was to evaluate the effect of growth hormone (GH) treatment on ponderal growth in intrauterine growth retarded (IUGR) rats. **Methods:** Wistar rats were assigned to the groups: Control (C), IUGR and IUGR+GH. IUGR was induced by partial obstruction of uterine vessels at 14th day of pregnancy. GH was injected from 21 (weaning) to 60 days of age (Genotropin[®] 3.0 mg/kg/day). Animals received stock diet ad libitum. Body weight was registered weekly, from birth to 84 days of age. Data of weight of males and females were adjusted by regression curves. Control group was taken as parameter. Both curves were adjusted to the general equation: Log (weight) = (1/age)*treatment. **Results:** In males R^2 adj = 0.9616; $F = 2339$ ($p < 2.2e-16$); Intercep. = 6.65 ($p < 2e-16$); $I(1/\text{age}) = -75.175$ ($p < 2e-16$); Size IUGR = -0.15245 ($p < 0.00$); Size IUGR+GH = -0.021 (n/s); $I(1/\text{age})^* \text{IUGR} = 1.73$ (n/s); $I(1/\text{age})^* \text{IUGR} + \text{GH} = -4.98$ ($p < 0.00$). In females: R^2 adj = 0.9519; $F = 1636$ ($p < 2.2e-16$); Intercep. = 6.1 ($p < 2e-16$); $I(1/\text{age}) = -58.54$ ($p < 2e-16$); Size IUGR = -0.100 ($p < 0.00$); Size IUGR+GH = 0.06 (n/s); $I(1/\text{age})^* \text{IUGR} = 1.36$ (n/s); $I(1/\text{age})^* \text{RPC} + \text{GH} = -3.94$ ($p < 0.01$). **Results:** These results showed that final weights of IUGR+GH animals became closer to control values, while that of IUGR are significantly lower. Weight gain rates were similar between Sham and IUGR, but lower in IUGR+GH. **Conclusion:** It is concluded that catch up growth in IUGR+GH implies an adequacy in rate of weight gain to an increase of tempo of growth.

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COMPARISON OF TWO METHODS FOR REDUCING INSENSIBLE WATER LOSS IN VERY LOW BIRTH WEIGHT INFANTS.

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Introduction: Insensible water loss (IWL) is higher with lower birth weight and gestational age. A standard technique for reducing water losses is to place the newborn infant inside a "nest", with head bonnet and covered with a plastic sheet. **Hypothesis:** A high relative humidity (HRH) in the incubator (80%) is more effective for reducing IWL compared with low relative humidity (LRH) during the first 72 hours. **Objective:** To determine if IWL is significantly reduced in an incubator with HRH. **Methods:** Design: Randomized controlled clinical trial. VLBW (less than 1500 g and 32 weeks of gestational age) cared in a NATAL CARE[®] were assigned to be assisted with low or high RH. Daily body weight, fluid intake, urinary output and serum sodium were recorded during the first 72 hours. **Results:** 20 patients in LRH and 21 in HRH were included in the study. No clinical differences or morbidity were found between them. Maximum body weight loss was 8.9 % in HRH group and 14.5 % in the LRH group ($p < 0.001$); days to re-gain birth weight was 10.3 in HRH group and 16 for LRH ($p < 0.001$), mean fluid intake was 87 and 104.4 mL/kg/day respectively ($p < 0.001$). Serum sodium in the group with HRH was 134.1 mEq/L and 138.6 mEq/L in the LRH group ($p < 0.0001$), 7 cases of hypernatremia were found in the LRH group and none in the other. **Conclusions:** The result of this study indirectly confirms that VLBW infants cared in an incubator with HRH have lower IWL without any risk in the first days after birth.

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FREQUENCY AND ONSET OF INFECTION CAUSED BY HELICOBACTER PYLORI IN CHILDREN OF SOUTHERN CHILE.

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Introduction: The sero prevalence of infection by *Helicobacter pylori* (HP) in Chile is 70%. It appears at early ages and persists in a chronic way unless it is eliminated by antibiotics. Most of the infected patients remain asymptomatic, 20% of them may develop a peptic ulcer, gastric adenocarcinoma or MALT lymphoma. To detect the infection early and establish the moment of the onset is very important in application elimination or prevention. **Objective:** This study determined the frequency of this infection in paediatrics patients. **Methods:** Through up digestive endoscopies performing a gastric biopsy in this sample the presence of HP was detected by culture and PCR. The universe of our patient was 118 children. **Results:** The global prevalence of HP was 36.4%, 3.6% corresponding to infants and 5.7%, pre-school children, increasing to higher levels of 11.2% and 34.8% in school children and adolescents, respectively. **Conclusion:** The HP infection affects boys and girls similarly, its onset starts in the first, year of life and its high impact is between 10 to 13 years.

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EFFECTS OF PRENATAL STEROIDS IN THE DEVELOPMENT OF NECROTIZING ENTEROCOLITIS IN WISTAR RAT NEONATES.

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Introduction: Preterm patients often develop necrotizing enterocolitis (NEC). Prenatal treatment with steroids proved to be effective for fetal lung maturation and is thought to have a protective effect on the immature bowel. **Objectives:** To study the effects of prenatal treatment with steroids in the onset, clinical course and histologic pattern of NEC in an animal model. **Methods:** Pregnant rats received treatment with hydrocortisone (5 mg/kg) IP 24 and 48 hrs prior to the expected date of delivery (group 1, treated). Control pregnant rats were injected with the same volume of normal saline, at the same timing (group 0, sham). After term delivery by cesarean section, both groups were kept in identical conditions in a neonatal incubator at 35°C, away from their mothers to prevent any exposure to breast milk. Each animal was weighed daily. Pups were fed every three hours with neonatal formula via an orogastric tube. To further increase the susceptibility to NEC, pups were exposed to hypoxia followed by hypothermia three times a day for 72 hrs (H-H) or until development of clinical signs of NEC. At that point, each animal was anesthetized and euthanized. The intestine was resected pre-mortem and immediately fixed for histologic analysis. Those animals which died before 72 hours were excluded to prevent false positive results in the histopathological exam. **Results:** The clinical signs of NEC observed in both groups include oral intolerance, gastric residue, respiratory distress, abdominal distention, abdominal wall erythema and hematochezia. 60% (n = 9) of the animals in group 0 (n = 16) presented with at least one clinical sign, vs 40% (n = 6) of pups in group 1 (n = 15). The onset of clinical signs and their evolution in group 1 showed a much benign course than in group 0. Mortality rate up to 72 hrs post birth was 40 % for pups in group 0 vs 20% for group 1. Histologic analysis indicated that 80% of the animals from group 0 showed signs of NEC, of which 47% reached grade 3–4 (maximum score of damage), whereas only a 40% of the animals in group 1 presented with signs of NEC, all of which were of grade 0–1 (minimum histological damage). **Conclusion:** Prenatal treatment with steroids was effective for amelioration of the onset and clinical presentation of experimental NEC in Wistar rat pups.

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SECULAR TRENDS OF BIRTH WEIGHT IN ARGENTINA (1992–2002): A POPULATION BASED STUDY.

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Introduction: Birth weight is considered an important measure of the health status of a population. **Objectives:** 1) to assess secular trends in birth weight (BW), low birth weight (LBW, <2500 g), very low birth weight (VLBW, <1500 g) and ≥ 3000 g of liveborn infants in Argentina; 2) calculate risks of LBW, VLBW and ≥ 3000 g; 3) influence of underreported birth weight. **Methods:** in this nation population study a total of 7.113.931 liveborn infants in Argentina from 1992 to 2002 were included. Birth weight was assessed from the National Ministry of Public Health. Annuals mean birth weights and 'residual distribution' (DR, estimates the percent of birth that are small and preterm) following the Wilcoxon-Russell approach were calculated, and also LBW, VLBW and ≥ 3000 g proportions. **Results:** a decrease of 32 g in mean birth weight ($p = 0.577$) and 24 g between 2000 and 2002 ($p < 0.001$) was observed. DR reached 4%. The significant increase in LBW (12%, $p = 0.034$) and VLBW (26%, $p = 0.002$) proportions was paralleled by a reduction of 3.6% in birth weight ≥ 3000 g ($p = 0.011$, average 75.2%). Risks of being LBW and VLBW in the study period were 1,13 (95% CI 1,12 – 1,15) and 1,30 (1,25 – 1,35) respectively; for birth weight ≥ 3000 g the odds ratio was 0,86 (95% CI 0,85 – 0,87). No significant correlations between underreported birth weight (average 5.1%) and proportions of LBW ($r = 0.10$, $p = 0.877$) or VLBW ($r = 0.01$, $p = 0.991$) was observed. **Conclusion:** no positive secular trend in infant BW, an increase at all levels of LBW and a decrease of BW ≥ 3000 g was observed.

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CHAOS IN THE FAMILY ENVIRONMENT AND VIOLENT BEHAVIOUR TOWARDS CHILDREN.

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Introduction: Domestic violence is a global problem that affects social, psychological and physical health in all members of the family. In Chile, estimations are that 39.7% of children have suffered physical violence (light to severe) and 21.4% psychological violence. Further more, 75.2% of women have experienced some form of violence from their partners (53.8% physical abuse and 21.4% psychological ill treatment). Its occurrence has been associated to low socio economic level and to high frequency of everyday stressful events. **Aim:** To examine the possible correlation between chaotic family environments (untidy, noise, unconcern, crowding, lack of organization and routines) and the presence of domestic violence (physical violence towards the children who lived in the house). **Methods:** A questionnaire was applied to 104 homes in the South-East of Santiago, Chile. It was replied by the main caretaker (94 mothers, 9 grandmothers and 1 aunt) and conducted by psychologist, 75% in home visits and the rest at INTA. **Results:** The most frequent answers that makes evident chaos were "lots of commotion in our home", "no matter how hard we try, we always seem to be running late" and "we almost always seem to be rushed". The most frequent physical violence reported was "in the past I have hit (slapped, knocked, spanked with the hand) my child without thinking". The incidence of hitting with or throwing objects was low. The general family chaos level was categorized as moderate (5.62 $\pm$ 2.80) and the level of violence among the adult family members was low (2.49 $\pm$ 2.46). However, a positive correlation was found (0.308) between chaos and parental violence towards the children. **Discussion:** The caretakers frequently lack social support networks and stay the major part of the day on their own at home with the children. Family chaos and the stress they have to endure affect disproportionately their relationship with the minors, being mainly the women that practice physical violence against the children.

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LYMPHOCYTE EXPRESSION OF CASPASE3 IN CHILDREN WITH DM1 AND THEIR ASSOCIATION WITH THE +49A/G VARIANT IN THE CYTOTOXIC T LYMPHOCYTE-ASSOCIATED ANTIGEN-4 (CTLA4).

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Introduction: CTLA4 act as negative regulators of T cells. Apoptosis is one of the control mechanisms of the immune response, caspase3 (casp3) is the major executioner of lymphocyte apoptosis. **Aim:** To characterize a genotype of CTLA4 in children with DM1 and to correlate it with casp3 expression in peripheral mononuclear cells (PMCs) simulating "in vitro" the glucose effect on the casp3 expression. **Methods:** To determined the genotype frequencies for the polymorphisms +49A/G and -318C/T of CTLA4 in 260 children with DM1 and 255 controls. "in vitro" study included 8 DM1 of recent diagnosis (first 15 days) and 5 controls. Casp3 mRNA expression by RT-PCR and their activity by colorimetric assay was analyzed. **Results:** No differences in the genotype frequencies were observed when comparing DM1 (+49A/G: A/A:45, A/G:42, G/G:13%; -318C/T: C/C:83, C/T:16, T/T:0.009%) v/s controls (+49A/G: A/A:43, A/G:42, G/G:15%; -318C/T: C/C:84, C/T:15, T/T:0.016%) $p = 0.768$ and 0.709, respectively. A diminutions of the mRNA/ β -Actin expression was observed in DM1 in the presence of glucose: 0.55 in Basal and 0.243 to 14mM and one slight diminution in the casp3 activity: 1 in Basal one and 0.9 to 14mM in the carriers of G allele and an increase of the mRNA/ β -Actin expression: 0.4 in Basal and 0.83 to 14mM in non carriers. Non significant changes in relation to the glucose stimulus were observed in the control subject. **Conclusion:** The PMCs of DM1 of recent diagnosis, carriers of the +49A/G variant in CTLA4, present a diminution in the expression and the activity of the major executioner of lymphocyte apoptosis in comparison to the non carriers.

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LIPID PROFILE OF OVERWEIGHT AND OBESE CHILDREN AND ADOLESCENTS ATTENDED IN A HEALTH CARE UNIT.

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Introduction: High prevalence of disturbances in levels of serum lipids of overweight and obese children and adolescents is reported in several studies. **Aim:** To determine the prevalence of disturbances in levels of serum lipids of healthy overweight and obese children and adolescents attended in a General Pediatric ambulatory at Health Care Unit in the city of Ribeirão Preto (SP, Brazil). **Methods:** Venous blood samples were collected from 109 patients aged years $e < 19$ years after 12-hour fasting for measurement of serum levels of total cholesterol (TC), LDL-cholesterol, HDL-cholesterol and triglycerides. Nutritional classification was performed based on body mass index curves (NCHS). **Results:** Out of 109 patients, 53.1% (58/109) were male. 72.5% (79/109) were obese and 27.5% were overweight. General means of serum levels of TC, LDL-cholesterol, HDL-cholesterol and tri glycerides were, respectively, 158.5 mg/dL, 94.5 mg/dL, 45.3 mg/dL and 98.0 mg/dL. 54.1% (59/109) showed altered measure of at least one serum lipid level. The percentage of disturbances in serum levels of TC, LDL-cholesterol, HDL-cholesterol and triglycerides were, respectively, 27.5% (30/109), 26.9% (26/109), 27.5% (30/109) and 28.4% (31/109). Girls presented significantly more frequent high triglycerides serum levels (37.2% vs 19.0%; $\chi^2 p = 0.033$), as well as higher LDL-cholesterol serum levels (99.9 vs 89.7 mg/dl; "t" test, $p = 0.009$) than boys. There were no differences in the prevalence of disturbances and the means of levels of serum lipids between overweight individuals and obese individuals. **Conclusion:** As in other studies, high prevalence of disturbances in lipid profile was observed in the studied population; also, as in other studies, higher prevalence of disturbances in levels of serum lipids was observed in girls. However, more studies about this population are necessary in order to elaborate strategies which will decrease both weight gain and the proportion of metabolic disturbances of levels of serum lipids observed.

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EFFECT OF THE REINTRODUCTION OF PHENYLALANINE-FREE FORMULA IN 21 CHILDREN WITH EARLY DIAGNOSED CLASSIC PHENYLKETONURIA IN CHILE.

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Introduction: Since 1992, 134 children with Phenylketonuria (PKU) have been diagnosed in Chile and the Phenylalanine (Phe) free formula is subsidized by the state. **Methods:** out of total PKU patients; 21 PKU were without Phe-free formula from 1998 to 2003, because of administrative problems. The study was developed in 2 stages: Evaluation 1 (1°) after a 2–3 years period without Phe-free formula. Evaluation 2 (2°): period of reintroduction of Phe-free formula. In both evaluations composition of the diet, nutritional status, biochemical and psychometric parameters were analyzed. **Results:** In the 1° and 2° evaluation the intake of: Proteins was 23.2 $\pm$ 8.3 and 42.9 $\pm$ 5.5 g/d, Tyrosine (Tyr) intake was 1522 $\pm$ 977 and 3486 $\pm$ 450 mg/d and Phe intake was 587 $\pm$ 297 and 512 $\pm$ 141 mg/d respectively. Blood analysis in 1° and 2° evaluations were: Albumin 4.1 and 4.8 g/dl (VN: 3.5–5.0 g/dl), Vit B12 290 and 1084 pg/ml (NV: 187–1059 pg/ml) and Tyr 0.8 and 0.6 mg/dl (NV: 0.8 to 1.5 mg/dl). The blood Phe levels decreased from 10.5 $\pm$ 3.7 to 9.2 $\pm$ 3.9 mg/dl. The Manual Intellectual Coefficient (MIQ) increased from 85.4 to 90.4 points (plus 5 points). The Total IQ increased 3.4 points (IQ 90.5). The Woodcock-Muñoz test measures specific areas, for example: memory of names, varied from 90.65 to 98.82 (VN: 100), finishing of figures varied from 8.0 to 9.94 (NV 8–12 pts), assembling varied from 7.0 to 8.4 (NV = 8–12pt) and perceptual organization varied from 7.9 to 9.0 (NV = 8–12). **Conclusions:** It is important to emphasize that stopping Phe-free formula in PKU patients produces abnormalities in specific areas, mainly related to memory and attention, and restoring Phe-free formula reverse most of the abnormalities, but not all of 100%.

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COMPARISON OF FENO REDUCTION IN ASTHMATIC CHILDREN TREATED WITH INHALED BUDESONIDE-MDI WITH TWO-VALVED, NON VALVED, OR HOME-MADE SPACERS.

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Introduction: guidelines recommend spacers for the use of MDI in children. In many populations the access to them is difficult due to problems in distribution or costs. Studies have shown that the bronchodilator effect of salbutamol-MDI is similar using commercial or home-made spacers but no studies with inhaled steroids have been reported. FENO is a marker of airway inflammation, and its response to steroids has good prognostic value. **Objective:** compare the variation of FENO in asthmatic children treated with budesonide-MDI using: 1) home-made spacer (bottle), 2) two-valved spacer, and 3) non valved spacer. Population: non treated asthmatic children. **Methods:** children were randomized to groups and FENO was measured at days 0 (basal) and 14 (treatment). Budesonide s dose was defined according asthma severity (GINA). **Results:** 22 children were included in group 1, 22 in group 2, and 24 in group 3 (age 10.3 $\pm$ 3; no sexes, weight, or height differences). There were no differences in basal FENO (Table) nor in the distribution of budesonide s dose (95% <800 mcg). The second measurement of FENO showed a reduction around 50%, without differences between groups. **Conclusions:** no differences in FENO reduction between groups supports the use of different spacers, commercial or home made, avoiding delays in antiasthmatic treatment. FENO: comparison between groups Group 1 (bottle) 2 (two-valved) 3 (non-valved) p basal FENO (ppb) 72 (41–94) 64 (40–107) 69 (35–91) 0.5 final FENO (ppb) 24 (16–38) 34 (21–49) 28 (17–37) 0.4 diminution of FENO (ppb) 39 (24–57) 25 (15–54) 42 (15–59) 0.6 FENO: median (percentiles 25–75).

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CAMPYLOBACTER JEJUNI PFGE GENOTYPING OF STRAINS ISOLATED FROM CHILDREN WITH GUILLAIN-BARRÉ SYNDROME.

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Introduction: Thermotolerant *Campylobacter jejuni* (*Cj*) are one of the major causes of foodborne gastroenteritis, consuming and handling contaminated poultry meat is the most prevalent risk. The diarrheal disease is self limited but 2 to 4% infected patients develop Guillain-Barré syndrome a severe neurological complication. The use of pulsed-field gel electrophoresis (PFGE) is a valuable macrorestriction profiling tool in epidemiological studies, however its use in *Cj* strains associated to GBS is scarce. **Objective:** The aim of this study was to evaluate the genetic profiles of *Cj* strains isolated from Children with GBS. **Methods:** PFGE were conducted in 10 *Cj* strains isolated from GBS patients, 2 were from children (2–14 y) and 3 from young adults. Strains were isolated between 1999 and 2005. Two additional strains isolated from children were included; one was from a gastroenteritis case and the other from an asymptomatic carrier. For the PFGE strains were grown in Columbia agar with 5% horse blood in a microaerophilic atmosphere during 24h. DNA preparation and later digestion with *SmaI* y *KpnI* restriction enzymes were conducted according to Pulse-Net instructions. Genetic profiles were compared with Gel-Pro Analyzer 3.1 software. **Results:** *Cj* from GBS children presented two PFGE restriction patterns (P1 and P2) with *SmaI* y *KpnI* enzymes. The P1 profile was observed in 5 *Cj* strains, the P2 was presented in the two remainders. The P2 genotype was also detected in the *Cj* strain isolated from the asymptomatic children. *Cj* from adult GBS cases showed two genotypes (P3 and P4) both were not related with those from children with GBS. The only strain from a case of gastroenteritis shows a genotype different to all the mentioned above. **Conclusions:** PFGE genotyping allowed us to identify two *Cj* clusters associated to GBS in Chilean children, this finding suggest a common transmission source for children during different years.

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MODULATION OF FLVCR EXPORTER IN RESPONSE TO HEME IRON.

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Introduction: Iron is an essential element for life. In the diet, iron is found as a heme-iron or inorganic iron. The FLVCR (Feline Leukemia Virus subgroup C Cellular Receptor 1) exporter transport heme-Fe in erythrocytes. FLVCR is expressed in a wide range of tissues and mainly in Caco-2 cell line, suggesting that it is involved in heme efflux in enterocytes. **Objective:** To determine the FLVCR transporter expression in intestinal epithelium-like Caco-2 cell incubated with different heme-Fe stimuli. **Methods:** Caco-2 cells were incubated with heme-Fe (0–80 μ M) for 12 hr or with 50 μ M heme-Fe for different period time (0–72 hr). We purified total RNA and we determined the relative expression of flvcr by Real Time PCR and we correlated it with the intracellular heme content and activity and expression of heme oxygenase enzyme. **Results:** Caco-2 cells incubated for different period of time with 50 μ M heme-Fe induced a decrease of FLVCR expression (One way ANOVA; F: 4.88; $p < 0.02$). However, an increase in extracellular heme-Fe concentration produce a biphasic response, first we observed a decrease and then an increased in FLVCR expression (One way ANOVA; F: 8.85; $p < 0.001$). **Conclusion:** The expression of FLVCR exporter is correlated with intracellular heme-Fe concentration.

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STRATEGIES OF GROWTH RECOVERY OF THE CRANIAL COMPONENTS IN INTRAUTERINE RETARDED RATS TREATED WITH GROWTH HORMONE

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Objectives: The aims of this study was to evaluate the effect of growth hormone (GH) treatment on functional and morphological recovery of facial and neural cranial components in intrauterine growth retarded (IUGR) rats. **Methods:** Wistar rats were divided in three groups: (i) Sham-operated (Sh), (ii) IUGR and (iii) IUGR+GH. The IUGR was induced by partial ligation of uterine vessels at day 14th of pregnancy. GH was applied subcutaneously, from 21 to 60 days of age. At the experiment whole, the animals received stock diet ad libitum. At 1, 21, 42, 63, and 84 days of age, the animals were radiographed and on each radiograph was measured length, width and height of neurocranium (NL, NW, NH) and splanchnocranium (SL, SW, SH). The 84 days of age data by sex were independently processed by Principal Component Analysis (PCA). For all ages data by sex, were calculated neural (VN) = $3\sqrt{LN*NW*NH}$ and facial (VF) = $3\sqrt{SL*SW*SH}$ volume, which were adjusted by regression curves. **Results:** the first axis of PCA explained 50% (males) and 47.8% (females) of variability and exhibited an isometric correlation. The second axis expressed 24.8% (males) and 30.6% (females) of variability (shape variance). Both sexes of IUGR animals showed allometrics effects, not thus in IUGR+GH ones. Results in regression-adjusted curves were; Neural volume: reached maximum size 3.04 ($p < 2e-16$) and growth rate -0.72 ($p < 2e-16$); Facial Volume: reached maximum size 2.82 ($p < 2e-16$) and growth rate -1.186 ($p < 2e-16$). In both sexes reached maximum size of Neural volume were $C = RPC+GH$ (0.00n/s) $> RPC$ (-0.02 , $p < 0.01$), and growth rate were $C = RPC$ (0.00 n/s) $< RPC+GH$ (-0.03 , $p < 0.04$). For both sexes in whole groups of animals, facial volume were similar (0.00n/s) although its showed differences between groups in growth rate being $C > RPC+GH$ (-0.08 , $p < 0.01$) and $RPC+GH = RPC$ (0.00 n/s). **Conclusion:** Facial and neural components showed different strategies from recovery mainly in relation to modifications of the rate of growth and the effect of GH suggesting an adaptative modulator effect.