

Latin American Society for Pediatric Research (LASPR) Selected Abstracts from the LIII Annual Meeting

Cochabamba, Bolivia

October 18–21, 2015

Giuseppe Grandy (Bolivia), President

Susana Sanchez (Paraguay), President Elect

Marta Sanabria (Paraguay), General Secretary

Sponsorship Statement

The publication of the selected meeting abstracts was funded by the Latin American Society for Pediatric Research to promote development across disciplines and to improve pediatric care in the region (<http://www.slaip.org>).

doi:10.1038/pr.2015.250

1

NEBULIZED HYPERTONIC SALINE SOLUTION AS A TREATMENT FOR ACUTE BRONCHIOLITIS IN INFANTS

Martínez Morales E, Sosa Bustamante G, Lazcano Bautista S

Unidad Médica de Alta Especialidad Gineco-Pediatría No. 48, IMSS, México.

Objective: To assess the therapeutic efficacy of nebulized 3% hypertonic saline solution (HSS) in infants with acute bronchiolitis.

Methods: Double-blind, randomized clinical trial. Sample size calculation based on the study by Tal et al.; 25 subjects per group required. We recruited a convenience sample of patients younger than 24 months with primary diagnosis of bronchiolitis, respiratory distress (RD) moderate and severe according to RD Hospital Sant Joan de Deu score (HSJD). Patients were randomly assigned to one of two groups: Group I received 3% hypertonic saline solution (HSS), and group II 0.9% normal saline solution (NS) 3 ml, both added with salbutamol and nebulized. Study was developed in accordance with the ethical principles of the General Health Law of Mexico and the regulations of the IMSS; informed consent was granted.

Results: A total of 64 patients were enrolled: 33 in group I and 33 in group II. There was no significant difference in age ($p = 0.45$), gender ($p = 0.28$). At baseline, there was no significant difference between groups regarding RD ($p = 0.62$), however, on the second assessment RD significantly decreased in the intervention group (Group I) ($p < 0.001$).

Conclusions: The 3% HSS combined with salbutamol is an effective and safe therapy in the treatment of bronchiolitis, improving RD score.

2

FOOD PATTERNS AND MOTOR SKILL DEVELOPMENT IN INFANTS

Weisstaub G, Curi K, Salazar G, Anziani A

Laboratorio de Isotopos Estables y Metabolismo Energético, INTA, Santiago, Chile

Background: Motor development at early ages (a possible predictor of later physical activity ability) and food have been associated with the presence of increased adiposity and obesity in childhood. Our aim was to identify food characteristics and evaluate the association between adiposity and motor development at one year of age.

Methods: Longitudinal study in Chilean male and female infants born at term, birth weight > 2500g, without disease affecting growth and/or development. Children whose mothers had a history of smoking, hypertension, drug addiction or severe depression were excluded. We evaluated: a) nutritional status by BMI-z (WHO, 2007); (b) 24-hour dietary recall; (c) amount of breast milk ingested at 3 months and body composition at 12 months with deuterated water measured in saliva samples (IRSM-mass spectrometry) and, (d) engine development by direct observation. The results were compared by Mann Whitney test and chi square. The Ethics Committee of INTA approved the study and mothers signed informed consent.

Results: Of the 29 infants, 14 had a motor development score below the median (< 6). Fat mass in that group was 23.9%, significantly higher than in the group with motor development score > 6 (21.0%). 69% of infants were exclusively breastfed at 3 months (median intake: 903 ml/day). By one year, 76% of infants still consumed breast milk and 62% cow milk. The main foods in the diet were vegetables, cereals (rice, noodles, semolina flour, and oats), flavors (sugars and grains), potatoes and fruit; 21% consumed sugary juices and 34% ate processed food. The consumption of energy, fat, protein and carbohydrate was significantly higher in the group of infants who did not consume breast milk. Eating patterns were not associated with nutritional status or adiposity.

Conclusions: In this sample, infants with lower scores of motor development had higher amount of body fat mass. Macronutrient consumption was significantly higher in the group of infants no longer breastfeeding.

3

CEREBRAL EDEMA PREVALENCE IN DIABETIC KETOACIDOSIS PATIENTS RECEIVING INTRAVENOUS REHYDRATION

Nocita MV, Balboa R, Navarro R, González Pannia P, Mannucci C

Servicio de Nutrición, Hospital General de Niños Pedro de Elizalde, Buenos Aires, Argentina.

Background: Cerebral edema (CE) is an uncommon but devastating complication of diabetic ketoacidosis (DKA) in children. In Argentina its prevalence is 1.8%. Evidence suggests that an ischemic and/or vasogenic process (as osmolality changes due to intravenous fluid infusion rate) play a role in the genesis of DKA related cerebral edema, but details of the time course of these processes are not clear. At our hospital, we use a protocol with rapid intravenous rehydration.

Objectives: To estimate the prevalence of CE in DKA at our hospital, and to identify risk factors for this complication.

Method: Nested case/control study including patients aged 1 to 18 years, admitted for DKA from 01-jan-2005 to 31-dec-2014.

Results: Clinically apparent CE occurred in 10 of 693 patients hospitalized for DKA during the study period (1.44%; 95%CI: 0,78 – 2,6). Each case was matched with 10 controls; there were a significant difference between cases and controls regarding baseline serum urea nitrogen concentration $\geq 40\text{mg/dl}$ ($p=0,0014$, OR=10,2), $p\text{CO}_2 \leq 20\text{mmhg}$ ($p=0,04$, OR= 4,7), baseline serum sodium concentration $\leq 135\text{mEq/l}$ ($p=0,007$, OR=49) and baseline serum sodium concentration corrected by glycaemia $\leq 135\text{mEq/L}$ ($p=0,005$, OR=6,12)

Conclusion: The prevalence of CE in DKA in this study was similar than the previously reported for the whole country. Children with DKA who had higher serum urea nitrogen concentrations, more severe hypocapnia and more severe hyponatremia at presentation were at increased risk for CE.

4

DIFFERENCES IN BRAIN METABOLITES IN CHILDREN WITH ATTENTION DEFICIT AND HYPERACTIVITY DISORDER (ADHD) VERSUS CONTROL GROUP, USING MAGNETIC RESONANCE SPECTROSCOPY.

Osuna Osuna PM, Sánchez Sánchez LM, Cervantes Flores R, De La Portilla Villanueva MA

Instituto Mexicano del Seguro Social, Unidad Médica de Alta especialidad #25, Monterrey, México

Objective: To assess differences in brain metabolites measured by spectroscopy MRI in children with ADHD compared to healthy children.

Methods: Cross-sectional study including children diagnosed with ADHD and healthy controls (not ADHD related), who agreed to participate in the study by informed consent. Resonance spectroscopy (RMS) was performed to determine brain metabolites: N-acetylaspartate (NAA), choline (Cho), creatine (Cr), glutamate and glutamine combination (Glx); three brain areas were studied: right prefrontal cortex (DPFC), left striatum (CIS) and right anterior cingulate cortex (CCAD). T Student test was used to compare quantitative variables.

Results: We included 20 children, 10 with ADHD and 10 controls without neuropsychiatric disorders. The mean age was 9.1 ± 2.13 and 10.4 ± 1.89 , respectively ($p=0.821$). The mean of N-acetyl aspartate (NAA) right prefrontal cortex was 15.54 ± 4.8 and 6.31 ± 2.36 in ADHD and controls respectively ($p=0.001$). The mean glutamate-glutamine (Glx) in right prefrontal cortex, left striatum and right anterior cingulate cortex were found decreased in children with ADHD compared to controls, respectively ($p=0.005$) ($p=0.018$) ($p=0.031$); the mean ratio of glutamate-glutamine/creatinine (Glx/Cr) in the three areas were found decreased in ADHD related to controls, respectively ($p=0.024$) ($p=0.030$) ($p=0.045$).

Conclusions: Glx and Glx/Cr was significantly decreased in the right prefrontal cortex, left striatum and right anterior cingulate cortex in children with ADHD compared to healthy children. Measurement of brain metabolites by RMS could be useful for a more objective diagnosis in children with ADHD.

Abstracts

5

AN INDIVIDUAL PATIENT DATA META-ANALYSIS ON THE EFFECT OF RACECADOTRIL IN ACUTE WATERY DIARRHEA OF CHILDREN, BASED ON 1612 PATIENTS ON 12 RANDOMIZED STUDIES

Lehert P

School of Medicine, University of Melbourne, Australia

Background: Racecadotril (RC) is an antidiarrheal drug with intestinal antisecretory mechanism of action.

Objective: To assess RC efficacy as adjunct with Oral Rehydration Solution (ORS) against ORS alone or with placebo (PL) in childhood acute gastroenteritis (AGE).

Methods: Individual Patient Data meta-analysis featured by multilevel mixed models testing the significance of the treatment effect adjusted for baseline covariates. Diarrhea Duration (DD), Number of Diarrheic Stools (NDS) and Stool Output (SO) during the treatment period were the co-primary endpoints. The main study selection was constituted by the largest set of studies characterized by a sufficient methodological quality.

Results: 12 randomized clinical trials (n=1612) were identified and for all of them, raw data was available. Baseline dehydration level and Rotavirus and NDS at baseline (NDS0) were found as the most important predictors commonly influencing the outcomes.

The proportion of recovered patients was higher in RC groups compared with PL, Hazard Ratio HR=2.20, (1.98 to 2.45), p<0.001. For inpatient studies, the ratio of mean stool output RC/PL was rR= .60 95%CI .42, .83, p<.001. For outpatient studies, the ratio of the mean number of diarrheic stools RC/PL was rR= .59, 95%CI .46, .76, p<.001.

Through sensitivity analyses, we demonstrated that these results are not dependent of methodological characteristics of the study.

Conclusion: RC has a clinically relevant effect in reducing diarrhea (duration, stools output and stool number), irrespective of baseline conditions (dehydration, rotavirus or age), treatment conditions (inpatient or outpatient studies) or cultural environment.

6

BODY COMPOSITION OF SEVERE MALNOURISHED CHILDREN AFTER NUTRITIONAL RECOVERY

Quinteros L, Grandy G

Centro de Pediatría Albina Patiño and Centro de Nutrición Infantil Albina Patiño, Bolivia

Background: During growth and development a number of changes in body composition happen, primarily in the storage and distribution of muscle, bone and adipose tissue. Child malnutrition produce an increase in the accumulation of fat mass, producing a higher risk of chronic diseases in adulthood and altered fetal programming of the offspring.

Objectives: To determine the characteristics of body composition in malnourished child after nutritional recovery, using anthropometry and skinfolds.

Methods: This is a prospective study, including children 1–24 months of age, admitted for malnutrition (severe-emaciated, severe-edematous and moderate). On admission and before discharge, in all patients weight, height and skinfold thickness were obtained, and muscle area and fat area were calculated.

Results: Of 140 eligible patients 128 were included, 31 moderately malnourished (DNT-MOD), 34 emaciated malnourished (DNT-EM) and 41 edematous malnutrition (DNT-ED).

Weight (p = 0.2) and height (p = 0.3) gain was similar between groups. Length of stay was significantly different among groups: DNT-EM (119 ± 106 days), DNT-ED (51 ± 48 days) and DNT-MOD (74 ± 55 days) (p = 0.01). The increase in muscle mass was also different: DNT-EM (322.98 mm²), DNT-ED (186.54 mm²) and DNT-MOD (205.55 mm²) (p = 0.002). The increase in fat area was also different: DNT-EM (142.11 mm²), DNT-MOD (100.52 mm²) and DNT-ED (90.49 mm²) (p = 0.02).

Conclusions: Despite having a similar weight and height increase, muscle area and fat gain was greater in emaciated malnourished. This could be due to longer hospital stays, which could induce later a double nutritional burden.

7

SOCIAL DETERMINANTS OF THE NUTRITIONAL STATUS OF UNDERNOURISHED CHILDREN AND THEIR FAMILIES

Sanchez D, Grandy G

Centro de Pediatría Albina Patiño, Bolivia

Background: Although health policies aimed at reducing child malnutrition rates in our country, it remains as prevalent cause of morbidity and mortality.

Objectives: To assess the effect of the social determinants of health on the nutritional status of children and their family.

Methods: Cross-sectional study, including children aged 1 month to 5 years, admitted in a Pediatric Center, divided into two groups: well-nourished and undernourished. Variables assessed included socioeconomic status (Graffar test), nutritional status of the child, mother and brothers by weight, height and BMI.

Results: From 80 eligible patients, 71 entered the study, 34 were malnourished (DNT) and 37 were eutrophic (E). DNT was significantly higher in lower-middle class children (p = 0.01), low income families (p = 0.01), mothers with less years of formal education (p = 0.005). Families with sewerage and access to drinking water had lower malnutrition (p = 0.01). Older brothers of DNT children were obese more frequently (67%).

Conclusions: Nutritional status is influenced by the socioeconomic, environmental sanitation, and maternal education. The families of malnourished children have a double nutritional burden, increasing their risk of chronic, no communicable diseases and, therefore, a likely early death.

8

SALBUTAMOL: NEBULIZER VS. METERED DOSE INHALER (MDI) WITH SPACER

Arandia V, Terán C, Grandy G Centro de Pediatría Albina R. de Patiño, Cochabamba, Bolivia

Objective: To compare the efficacy of salbutamol administered by metered dose inhaler (MDI) with spacer versus nebulization.

Methods: This an open, randomized, controlled trial, including patients hospitalized for wheezing. Patients were randomized to 2 groups: group A received salbutamol by MDI with spacer (100 µg/puff), and group B received nebulized salbutamol (0.25 mg/kg/dose). Treatment was administered on admission and every 20 minutes for an hour, and then continues according to clinical response and medical judgment. Respiratory distress was assessed using Pulmonary Score and side effects (blood pressure, vomiting and tremors) were recorded on admission, and 30 minutes and 24 hours later. Length of stay, number of doses received and treatment cost were compared among groups.

Results: 64 patients were included, 33 in group A and 31 in B. Baseline characteristics of both groups were similar. The number of received doses and improvement in Pulmonary Score was similar among groups. The decrease in respiratory rate and the increase in oxygen saturation was more evident in group A (p = 0.01 and 0.04 respectively). The most common side effects were vomiting, more frequent in group B (p = 0.001). The cost of treatment was significantly lower in group A (p = 0.0001).

Conclusions: Salbutamol delivered by MDI with spacer is as effective as delivered by nebulizers in children with wheezing, with a lower cost and less side effects.

9

PREVALENCE OF LOW BIRTH WEIGHT AND RELATED FACTORS IN CERCADO, BOLIVIA

Rojas Salazar EG, Abu-khdeir MA, Bustamante Meneses D

Instituto de Investigaciones Biomédicas e Investigación Social (IIBISMED), Universidad Mayor de San Simón, Cochabamba, Bolivia

Background: Low birth weight, defined by the World Health Organization (WHO) as birth weight less than 2500 grams, independently of gestational age and cause, is the most important predictor of infant mortality rate.

Objective: To estimate the prevalence of low birth weight and its related factors in the Hospital Materno Infantil German Urquidi, Cercado, Cochabamba, Bolivia.

Methods: This is an observational study. Sample size of 926 newborns was calculated considering a 95% and accuracy d = 0.049%. Selection was randomly made.

Results: Among our population (926), the prevalence of low birth weight was 9.6%. The average maternal age was 24.5 years (SD ± 6.62)(range 12–48), 27.2% were under 20 years old, and 7% were older than 35 years. There were no significantly correlation between the mother age and gestational age (r = 0.0061).

Conclusion: The prevalence of low birth weight in our county was 9.6%; there were no correlation with mother age.

10

EVALUATION OF MATERNAL EXPOSURE TO POTENTIAL VASCULAR DISRUPTING AGENTS DURING THE FIRST TRIMESTER OF PREGNANCY AS POSSIBLE RISK FOR INTTESTINAL ATRESIA

Camarena L, Cardenas J, Perez J, Mellin L, Peña C, Corona J

Centro de Registro e Investigación sobre Anomalías Congénitas (CRIAC), Servicio de Genética, División de Pediatría, Hospital Civil de Guadalajara “Dr. Juan I. Menchaca”, Jalisco, México

Objectives: To determine whether a history of possible exposure to vascular disruptors agents in the first trimester of pregnancy is a risk factor for the occurrence of intestinal atresia (IA).

Methods: We conducted a hospital based, case-control study, at the Center for Registry and Research in Congenital Anomalies (CRIAC), from January 2009 to August 2014. We excluded patients who were diagnosed with duodenal atresia because vascular changes are not part of its pathophysiology. Bivariate analysis and multiple logistic regression analysis was performed using as adjustment variables gastroschisis, anemia, contraceptive use, and alcohol consumption.

Results: From 58,642 births, we recorded 63 cases of IA, resulting in a IA prevalence of 10.7 per 10,000 live births. We found that maternal and paternal age < 19 years (OR: 5.80; 95%CI: 1.87–18.02 and OR: 3.0; 95%CI: 1.25–7.14, respectively), first pregnant mother (OR: 4.93; 95%CI: 1.31–18.53), polyhydramnios (OR: 8.23; 95%CI: 2.54–26.70), preterm birth (OR: 15.8; 95%CI: 6.70–35.86), first minute Apgar score < 7 (OR: 9.36; 95%CI: 1.65–53.0), and small for gestational age (OR: 5.65; 95%CI: 1.44–22.14) were associated with IA. We also found that exposure in the first trimester of pregnancy to contraceptives (OR: 3.92; 95%CI: 1.13–13.52), alcohol consumption (OR: 3.19; 95%CI: 1.37–7.42) and the presence of fever (OR: 8.95; 95%CI: 1.93–41.48) were associated with IA.

Conclusions: Our results suggest an increased risk for IA in patients born from mothers that were exposed to contraceptives, alcohol and fever during the first trimester of pregnancy, confirming that vascular disrupting agents have a causal relation with IA.

11

AGREEMENT BETWEEN MATERNAL PERCEPTION AND ACTUAL NUTRITIONAL STATUS OF ITS CHILDREN

Rebollo G, Grandy G

Centro de Pediatría Albina Patiño, Bolivia

Background: Body image would determine eating behaviors. Food habits are incorporated before school-age, being a key influence in childhood eating habits and physical activity patterns.

Objectives: To assess the correlation between maternal perception and the actual nutritional status of children attending a pediatric center.

Methods: Cross sectional study, based on a visual (images) and written assessment (Eckstein test) of randomly selected mothers of children aged 3–12 years, attending a pediatric outpatient clinic, to evaluate maternal perception of their children nutritional status. The children weight and BMI was assessed according to WHO parameters.

Results: Of 548 potentially eligible patients, 100 patients were included, 43% eutrophic, 40% overweight and 17% malnourished. According to the written survey, overweight was underestimated and overestimated malnutrition by the mothers (p = 0.00001). According to the images evaluation both eutrophy and overweight were underestimated, and malnutrition overestimated (p: 0.0002). Concordance between real and perceived image was lower in mothers with less years of formal education. (p = 0.008).

Conclusions: Mothers underestimates overweight, probably leading to overfeeding of these children.

12

EFFICIENCY OF NUTRITIONAL INTERVENTION PROGRAM "PANI" OF BENEFICIARY CHILDREN ATTENDING THE REGIONAL HOSPITAL OF CONCEPCIÓN.

Sanabria M, Núñez N, Aguilar G

Universidad Nacional de Asunción, and Hospital Regional de Concepción, Paraguay

Background: Anti-hunger programs have proven to be effective tools for reducing prevalence of child malnutrition. There are just a few researches about beneficiaries of the Paraguayan national anti-hunger program.

Objective: To evaluate the effect of anti-hunger program "PANI" in anthropometric and biochemical indicators in children 4 months to 5 years old, at risk of malnutrition and malnourished, on entering the program and after six months of intervention.

Method: Quasi - experimental design including 195 children beneficiaries of PANI, attending the Concepcion hospital in 2014. Variables included weight, height, sex, maternal age and education, siblings, breast feeding, plain water and basic sanitation. Anthropometry included score z weight/age, z weight/size and z height/age. Biochemical indicators included Hb, VCM and ferritin. Parametric and non parametric tests were used. It was considered $p < 0.05$.

Results: Population age was 22.9 months (61,2% under two years old); 51,8% were male; 94,9% lives in urban areas; 12,8% teenage mothers, with 18,5% less than six years of formal education; 82,6% \leq 3 siblings; 52,3% plain water; 56,9% basic sanitation; 10,3% prevalence of exclusive breast feeding. Prevalence of malnutrition and children at risk of malnutrition decrease significantly after six month of treatment (15,6% vs 4,4% and 72,6% to 27,6%; $p < 0,01$, respectively). On admission anemia was 64, 1%, and 37% after six months. Program adherence was good monitoring (6 visits) in 42, 6%, moderate (\leq 5) in 44, 6%, and neglect in 12,8%.

Conclusion: We found a significant improve in anthropometric and biochemical parameters after six months of treatment in beneficiaries of the anti-hunger program.

13

SUBLINGUAL TACROLIMUS IN PEDIATRIC LIVER TRANSPLANT PATIENTS

Riva N, Galván E, Cáceres Guido P, Dip M, Borgnia M, Viale D, Imventarza O, Latini B, Hernández A, Licciardone N, Buamscha D, Schaiquevich P

Hospital de Pediatría Garrahan, Buenos Aires, Argentina

Background: Toxicity of intravenously administered tacrolimus (FK), and the difficulties of using capsules, lead to difficulties in compliance of immunosuppression regimen during the immediate post-transplant period. It is still controversial whether sublingual (SL) administration allows achieving adequate FK concentrations.

Objectives: Our aim was to evaluate the feasibility of using SL-FK in children undergoing liver transplantation (LT) in the immediate post-transplant period.

Methods: This retrospective and descriptive study work included children with LT secondary to biliary atresia, hospitalized at an intensive care unit. Relationships between FK blood levels (C0) with adverse events, bacterial/viral infections, biochemical parameters and drug interactions were studied. Efficacy was assessed by patient survival and development of acute cellular rejection (ACR).

Results: The characteristics of the 12 enrolled patients (median and range) was: age 0.9 (0.6–4.5) years, follow-up 19 (9–37) days, dose 0.10 (0.02 to 0.21) mg/kg/day, and C0: 5.7 (2–23.2) ng/ml. We registered two ACR (one associated with subtherapeutic FK blood concentrations), 3 adverse events, and 6 viral/7 bacterial infections during follow up period. Two patients died due to surgical complications. Three out of 12 patients received concomitant corticosteroids and/or azathioprine. FK C0 normalized by dose/kg was considerable higher in presence of clarithromycin [38.1 vs 76.8 (ng/ml)/(mg/kg)], prednisolone [41.8 vs 83.8 (ng/ml)/(mg/kg)] and nifedipine [3.8 vs 10.7 (ng/ml)/(mg/kg)], in 3 patients respectively.

Conclusions: This is the first study about SL FK in LT pediatric patients. Clarithromycin, nifedipine and prednisolone could increase FK blood concentrations. Our results and clinical experience demonstrate the feasibility of using this administration route for this population. Further pharmacokinetics studies are needed to increase available scientific evidence on SL FK and to allow improving immunosuppressive drug therapy in pediatric patients with LT.

14

EXCLUSIVE BREASTFEEDING DURATION AND THE AGE OF ONSET OF COMPLEMENTARY FEEDING IN A BIRTH COHORT STUDY OF RIBEIRÃO PRETO (SP, BRAZIL)

Marques G, Cardoso V, Cunha Bettiol H, Barbieri MA, Ferraz I

Departamento de Puericultura e Pediatría, Faculdade de Medicina de Ribeirão Preto, Universidade de São Paulo, Brasil.

Objective: To verify the exclusive breastfeeding (EB) duration and the age of onset of complementary feeding (CF) in diet of children belonging to the birth cohort study; to study the influence of some socioeconomic, demographic and behavioral factors in the EB duration.

Methods: Descriptive study inserted in a birth cohort study ($n=7,797$) of Ribeirão Preto (SP, Brazil) in 2010. Complete data were obtained of 3,686 children of this cohort during the second year of life through interviews to get information about the infant (EB duration, age of introduction of CF, attending a school/day care center, and pacifier use), and the mother and the pregnancy (age, education, marital status, guidance on breastfeeding, pregnancy planning, prenatal follow-up, labor relations and childbirth care category – public, private and public/private). Simple and multiple Poisson regression model was performed for data analysis.

Results: The mean of EB duration was 3,8 months (SD:2.2) and the age of onset of CF, 5,5 months (SD:1,5). Analyzed independently, maternal age (between 12 and 18 years old; $p < 0.04$) and pacifier use ($p < 0.01$) were associated with a shorter duration of EB. After the adjustment of variables, only the pacifier use was associated with a shorter duration of EB ($p < 0.01$).

Conclusions: The mean of EB was shorter than the recommended in the studied group. Similarly, the mean of age of introduction of CF was slightly earlier than advised. Pacifier use was associated with a significant shorter duration of EB.

15

OVERWEIGHT AND OBESITY IN CHILDREN AGED 6–14 YEARS ATTENDING A PEDIATRIC OUTPATIENT CLINIC IN COCHABAMBA, BOLIVIA

Escalera C, Rojas L

Caja Nacional de Seguridad, Hospital Obrero N°2, Cochabamba, Bolivia

Background: Childhood obesity is a serious public health problem. It is progressively affecting low- and middle-income countries. It is a priority to identify early cases of childhood overweight and obesity.

Objective: To estimate the prevalence of overweight and obesity in children aged 6–14 years attending our pediatric outpatient clinic.

Methods: Descriptive study. Anthropometry was evaluated (BMI, height and weight.), and Krecce plus test was administered to assess eating habits and physical activity.

Results: Of 631 eligible children, 232 entered the study. According to BMI, 85% were eutrophic ($< p85$) and the prevalence of overweight and obesity was 15%. Overweight was more frequent among children aged 9–11 years (50%). Overweight was more frequent in girls (77%) and obesity in boys (36%). According to Krecce plus test, 9% consume sweets at breakfast. 46% did not consume fruits daily and 43% did not consume vegetables daily. Fast food intake was 89%, and 100% consumed sodas at least once a week. Regarding physical activity, 57% of children spent three or more hours a day in sedentary activities, and 68% spent one or no time in sports.

Conclusions: Despite having a low level of overweight and obesity in relation to other countries in South America, the environment could be considered as obesogenic.

16

ASSOCIATION BETWEEN FITNESS AND HEART RATE RECOVERY IN CHILEAN SCHOOL

Arias MJ, Weisstaub G

Instituto de Nutrición y Tecnología de los Alimentos, Universidad de Chile, Santiago, Chile

Objective: To evaluate the association between physical fitness (PF), measured by the 6-minute walk test (6MWT), and muscle strength and recovery time for heart rate in Chilean school-children aged 6–9 years.

Methods: Cross-sectional study including 478 male and female school children, from the "Growth and Obesity Chilean Cohort Study (GOCS)". Anthropometric measures (weight, height, waist circumference) and PF (6MWT, grip strength and leap forward without impulse) was measured. PF z-score was calculated. During 6MWT, heart rate (HR) was measured with a sensor (Polar®). We define change in heart rate recovery (Δ HRR) as the difference between HR before and one minute after test. Cardio-metabolic risk was calculated (CMR) based on blood glucose, insulin, triglycerides, HDL-cholesterol and waist circumference. ANOVA, Student test, Chi-square and correlation analysis were performed. ($p < 0.05$).

Results: Δ HRR ($p < 0.05$) and CMR ($p < 0.01$) were significantly lower in normal compared to obese children. In obese children, Δ HRR was correlated with grip strength/weight ($r = -0.6$) and PF-z ($r = -0.6$). There were no differences in Δ HRR regarding sex and age. There was no association between Δ HRR and CMR.

Conclusions: We found a relationship between Δ FCRecup and fitness in obese school, reinforcing the need for measuring these variables in children with malnutrition by excess.