0031-3998/07/6104-0510
PEDIATRIC RESEARCH
Vol. 61, No. 4, 2007
*Printed in U.S.A.*


# XLIV MEETING OF THE LATIN AMERICAN SOCIETY FOR PEDIATRIC RESEARCH (SLAIP)

Bariloche, Argentina
October 30–November 2, 2006

Carlos Fustiñana, MD, President
Carlos Castillo-Duran, MD, General Secretariat

## TL2

### CHRONIC EXPOSURE TO CU IN WOMEN: HORMONAL CYCLE DEPENDING RESPONSES.

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**Introduction**. Previous studies showed that Cu indicators responses to controlled loads to this metal are significantly different in women and men. **Objetives.** To determine the differential responses of biochemical indicators of chronic exposure to Cu in healthy individuals categorized by sex and hormonal cycle (women). **Methods**. A cohort of 106 healthy individuals, 33 men, 39 women on Day 7 and 34 on day 21 of their cycle ingested 8 mg/Cu/d (as copper sulphate), orally, under direct supervision, for 6mo. On days 0, 30, 60, 120 and 180 we measured serum copper, iron, zinc, ceruloplasmin (nephelometry), liver enzymes activities (GOT, GPT, GGT), SOD activity (eryhrocytes) and SHBG (Stradiol Hormone Binding Globulin). **Results**.

| Variable | P (ANOVA, repeated measures) | | |
|---|---|---|---|
| | Group | Time | Interaction |
| Progesterone | <0.001 | <0.002 | <0.008 |
| Estradiol | <0.001 | <0.02 | <0.001 |
| SHBG | <0.001 | <0.001 | <0.009 |
| GGT | <0.002 | <0.001 | <0.001 |
| GPT | <0.02 | <0.002 | NS |
| GOT | <0.02 | <0.001 | NS |
| Serum Cu | <0.001 | <0.001 | <0.007 |
| Serum ceruloplasmin | <0.05 | <0.001 | <0.007 |
| eSOD | NS | <0.001 | <0.001 |
| Serum Fe | <0.002 | <0.02 | <0.001 |
| Serum Zn | <0.001 | <0.02 | <0.001 |

**Conclusions**. Results show that responses in the different groups were significantly different and that indicators measured are influenced by the female hormonal cycle.

## TL7

### NEONATAL WEIGHT GAIN VELOCITY (WGV) IN VERY LOW BIRTH WEIGHT INFANTS (<1500G) FROM A SOUTH AMERCAN NOENATAL NETWORK (NEOCOSUR) CLASSIFIED ACCORDING TO SURVIVAL PERFORMANCE

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**Introduction**: The WGV in the neonatal period determinates future neurological and growth development. The rate of survival in the NICU is quality indicator, as previously established. We hypothesize that in those centers with better survival performance it will better WGV. **Methods**: By means of a retrospective descriptive study based on a database created prospectively; 2,702 newborns (BW <1500 g) who survived the neonatal period where studied. We classified the centers of the network in quartiles according to the survival performance: observed mortality/expected mortality. By means of the univariate and logistic regression methods we investigated the relation between survival performance and WGV, and also explored the weight of other variables (perinatal, medical and nutritional) in establishing differences in the behaviour of WGV. **Results:** There was a direct relation between the WGV and the survival performance of the centers (6.5 OR IC 95% 4.77-8.88) for the centers with better survival over the centers with worse survival. As positive factors on the WGV were identified: better survival quartil, greater EG, the early use of amino acids, the beginning of early enteral feeding and the use of complete enteral early. Factors that affected the WGV negatively were: the quartile of smaller survival, the postnatal steroid use, the ventilatory support at birth, the late onset sepsis and the necrotizing enterocolitis. **Conclusions**: An important variability in the WGV between the centers classified by survival performance was demonstrated; with the center with better performance growing twice than that thosde centers with worse performance (14.4 versus 6.06 g/kg/day). We demonstrate that the determining factors of a better survival performance also affect positively the WGV.

## TL6

### NEWBORNS WITH SEVERE RESPIRATORY FAILURE UNRESPONSIVE TO CONVENTIONAL THERAPY: EVOLUTION AND COST-EFFECTIVENESS OF INHALED NITRIC OXIDE IN ARGENTINA.

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**Background**: Nitric oxide (NO) reduces the use of extracorporeal membrane oxygenation (ECMO) and death of patients with severe respiratory failure (SRF); in our country, the outcome of newborns with SRF has not been addressed and NO use is expensive and limited. **Objectives**: To describe the characteristics and evolution of newborns, referred to a tertiary level center, with SRF unresponsive to conventional therapy; and to analyze the cost-effectiveness of NO treatment. **Methods**: descriptive and retrospective study, based in chart's review of patients with diagnosis of SRF secondary to persistent pulmonary hypertension of the newborn (PPHN), admitted to the neonatal intensive care unit at the "J.P.Garrahan" Hospital, between 1/1/02 and 31/12/05; inhaled NO was unavailable during this period. All patients with oxygenation index (OI) ≥ 20 during at least 2 h were included. Newborns with nonviable congenital anomalies and those with congenital heart disease were excluded. The hypothetical use of NO in newborns without congenital diaphragmatic hernia, was considered to analyze cost-effectiveness. NO costs were considered according to time of use (h), and the measurement for effectiveness was risk of death or ECMO use difference, as reported by Finer's methanalysis (2001). The analysis was made from a public's hospital perspective . Measures of frequency were use according to the variable type, Wilcoxon test and Fisher exact test ($p<0.05$ was considered significant). **Results:** 28 newborns were included, 13 (46%) died; 57% were males; birth weight: 3,236g ± 607g, Gest. Age: 39±1.7. More frequent primary diagnosis: 10 MAS(36%), 7 PPHN (25%), 6 CDH (%). Median of OI: 37.5 (30-43). 75% of patients received high frequency ventilation (HFV), 9 (32%) received ≥1 surfactant doses, 17 (60%) Milrinone and 4 (14%) Sildenafil. Complications: 21% barotrauma (n=6) and 32% infection (n=9). Days of hospitalization, median 25.5 (IQ: 10-43), and 37 (IQ: 25-52) in survivors. There was no association between mortality and OI, pulmonary hypertension grade by echocardiography , sex, HFV, Sildenafil, infection, or barotrauma. Between the newborns who died, Milrinona was more often used ($p=0.002$) and surfactant was less used ($p=0.013$). 53% of survivors showed respiratory and or neurologic long term sequelae. Average cost-effectiveness of NO administration in newborns with SRF without CDH was U$$ 24225 (37269-17944) considering 5 days use (X) with a response rate of 70%. **Conclusions**: these newborns with SRF receiving conventional treatment, without NO, showed an elevated mortality and a high rate of sequelaes between survivors. The economic analysis allows to evaluate effective and expensive therapeutics as NO, in our country.

## TL10

### OVERWEIGHT, OBESITY AND BODY COMPOSITION IN SCHOOL AGE CHILDREN FROM BUENOS AIRES CITY, AND ITS RELATIONSHIP WITH LINEAR GROWTH.

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**Introduction**: Obesity in childhood show increasing prevalence in different populations. Feeding and physical activity patterns, among others, are associated to this condition. Stunting can also be associated to obesity. The **objectives** of the study were to assess the prevalence and association between stunting, overweight and body composition in a representative sample of school age children in Buenos Aires City. **Methods:** It was selected a random, multistage sample, representative for children from 1° to 5° attending to public and private schools in Buenos Aires City. The study design was observational, cross-sectional, descriptive and analytical. Socioeconomic conditions, feeding patterns, parental related conditions and physical activity patterns were assessed. Weight, height, waist circumference and body composition (bioimpedance) were measured. BMI (IOTF), z height/age (NCHS) and % fat mass were estimated. Central tendency and dispersion statistics were estimated, and different logistic regression models were tested. **Results**: 893 children were evaluated, been female 47.9%. Prevalence of Stunting was 1.6%, 20.3% showed overweight (BMI >25) and 7.1% obesity (BMI 30), 10.3% waist circumference >PC 90 and mean fat mass was 24.2%. Prevalence of overweight and obesity were similar according to gender, administrative dependency of the schools and socioeconomic level. Overweight and obesity showed a direct association with stunting (x2 32.5; p <0,001). Fat mass showed an indirect association in the group of children with stunting. Accelerated growth between the year and the school age, by logistic regression analysis, showed a risk high (OR 5.0; IC 95% 1.2 – 21.2) to obesity in school age, controlling by birth weight or familial related conditions. **Conclusions:** The prevalence of overweight and obesity observed, shows the relevance of this condition in children. Although BMI shows a direct relation to stature, the observed inverse relation in the group with stunting would allow supposing an association between both conditions. Accelerated growth in early stages of life implies a greater risk for the development of overweight and obesity in later ages, observation that remarks the need of interventions for its prevention early in life.

# TL13

## CHANGES IN THE NUTRIENT INTAKE, BODY COMPOSITION AND BONE MINERAL DENSITY IN ADOLESCENT MOTHERS FROM MEXICO AND ARGENTINA:

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**Aim**: To compare changes in nutrient intake, body composition and bone mineral density as well as time of lactation in adolescent mothers from Mexico and Argentina during the first year postpartum. **Methods**: Prospective, comparative study of 33 and 38 adolescent mothers receiving care at the Public Maternity in Mexico city and La Plata city, respectively. Inclusion criteria: primiparous healthy non smoker adolescent mothers, normal BMI (18-25), healthy newborn (birthweight > 2500 g). The study was approved by the Ethics Committee of each participating Institution. We performed a survey about food intake, measurement of anthropometric parameters and bone mineral density by DEXA, 15 days and 1 year post-partum. **Results:** The food intake survey showed a higher energetic intake among Argentine adolescents (x: 2,719 ± 1,155 Kcal vs x:2,307 ± 814 Kcal) and a statistically significant decrease 1 year after the study period in both groups. There was a higher P and Vitamin D intake in Mexican adolescents (P: 1,083±309 vs. 810 ± 416, p=0.004; vit D: 144 ±90 vs. 73 ± 79, p=0.001). Weaning at 3, 6 and 12 months was 27%, 42% and 57% in Mexican adolescent mothers respectively, and 7.8%, 13% and 16% in Argentinian mothers. There were no statistically significant differences between Argentinian and Mexican adolescent mothers regarding initial weight and height (55.72 ± 7.69 Kg. vs. 55.69±6.52 Kg. and 155.3±5.3 cm vs. 155.6±). At 1 year follow-up, we recorded weight loss among Argentine adolescent mothers (52.33 ± 7.34), p=0.03, a percentage which was higher than that observed in the Mexican group (6.21% vs. 2.02%, p=0.02). BMI in Argentinian adolescents was initially decreased (22.97± 2.09), decreasing after 12 months to 21.36±2.45 (p=0.002). In both groups we observed a statistically significant loss in bone mineral density in lumbar spine (L2-L4) (p=0.003). **Conclusion**: We observed significant differences between both groups of adolescent mothers regarding weight and food intake. The longer lactation in the Argentinian group could account for the reported greater weight loss. Further studies should be performed to confirm these findings.

# TL14

## EVALUATION OF NUTRITIONAL STATUS OF PARAGUAYAN CHILDREN UNDER FIVE YEARS, USING OF WORLD HEALTH ORGANIZATION (WHO) VERSUS THE NATIONAL CENTER OF HEALTH STATISTICS (NCHS) GROWTH CHARTS.

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**Introduction**: The WHO recommends the use of the new charts growth to evaluate children < 5 y. **Objective:** To compare the nutritional status of Paraguaian children's under 5 by using new charts growth (WHO) versus the standards charts (NCHS). **Methods**: Descriptive and analytic design. We used anthropometrics data of the Integrated Household Survey 2000/01 for children <5 y which was representative at national level from the Survey, Statistics and Census Center. The sample was analyzed with Epi Info 2000 program (NCHS) and WHO Anthro 2005 (WHO). **Results**: 4,016 children's <5 y dates were analyzed, 50.1% boys and 49.9% girls. Mean age was 32.2 mo (0.1-59.9 mo). The average of NCHS vs OMS score z were: z Weight/Age (zW/A) -0.18±1.15 vs -0.02±1.06, z Weight/Height (W/H) 0.30 ±1.05 DS vs 0.58±1.10 DS and z Height/Age (H/A) -0,63±1,26 DS vs -0,77±1,31, all with significant differences (*t*, p<0,00001). By NCHS, the underweight (UW) prevalence was 4.4% (zW/A), risk of UW was 18.1% vs 3.3% y 13% by WHO charts. The rate of wasting (W) (zW/T) was 0.8% and risk of wasting 6.3% by NCHS vs 1.1% y 4.5% by WHO, overweight and obesity by NCHS were 17% and 5.9% vs 25.1% and 8.3% for WHO. Stunting (S) and stunting risk percentage (zH/A) were 12.7% y 24.3% for NCHS vs 26.5% y 16.3% by WHO. The UW percentage by WHO shows an increase at 0-5 mo (0.9% NCHS vs 2.9% WHO) and fell close to 50% at 12-23 mo (5.9% NCHS and 2.9 % WHO), obesity mainly raised at 24 - 35 mo (2.2% NCHS vs 7.3% WHO) and S increases for all age mainly children at 0-5 mo (4.4% NCHS vs 7.6% WHO). **Conclusion**: Using the news WHO growth charts was observed a non significant lower rate of underweight, a light wasting and obesity increased but an important stunting's increase. Instead lower underweight, this and the rate of stunting were higher for <6 mo children. Obesity was higher for 24 – 35 mo children.

# TL15

## ZINC IN THE THERAPY OF THE ATTENTION-DEFICIT/HYPERACTIVITY DISORDER IN CHILDREN.

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**Background**: Attention-deficit/hyperactivity disorder (ADHD), is a heterogeneous neurological/behavioral disorder which usually begins in childhood. In the last decade, there has been an increased research about the role of micronutrients as a potential therapy of the ADHD, including Zinc. **Objective:** To evaluate the effect of zinc supplementation, as an adjunct therapy to amphetamine, on behavior and cognitive performance in pediatrics patients with ADHD. **Methods:** In a controlled, double blind design, from 120 patients with clinical criteria of ADHD (DSM- IV) and psychometric evaluation (WISC-R) 36 patients were selected (29 boys and 7 girls, 7 – 14 years of age). They were randomized to receive amphetamine 0.3 mg/kg/d + placebo (sucrose) (group placebo, GPL) or amphetamine 0.3 mg/kg/d + zinc sulfate 10 mg/d (group Zn, GZN) for six weeks. The teacher and parent ADHD rating scale (Conners test) was applied **Results.** Plasma Zn was normal at time 0 but it decreased after 6 weeks in both groups (GPL: 95.9 ± 21.5 to 77.9 ± 15.5; GZN: 90.3 ± 9.1 to 85.0± 12.0 ug/dL; NS). The Conners test by teachers showed an apparent improvement with Zn: GPL: 18 (9-28) to 16 (2-26); GZN: 19 (6-24) to 11(3-23) (p=0,07); a non-significant improvement in the Conners test by parents was found: GPL: 19 (7-25) to 13 (3-22); GZN: 19(7-25) to 11(2-19). **Conclusions.** A decrease in plasma Zn levels suggests some possible interaction among metylphenidate and zinc. An apparent improvement in the ADHD of children is observed in the Conners test scores with the addition of Zn. To advance in the research about the clinical role of zinc in the cognitive and behavioral performance of children with attention-deficit/hyperactivity disorder, is required.

# TL22

## NUTRITION STATUS OF CHILDREN FROM 6 MONTHS TO 6 YEARS OLD IN ARGENTINA: RESULTS FROM THE FIRST NATIONAL NUTRITION AND HEALTH SURVEY.

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**Introduction**: A national nutritional survey is not yet available in Argentina. Former studies have remarked that stunting, overweight and certain nutrient deficiencies were relevant. The **objectives** of this survey were to characterize nutrition status of children from 6 months to 6 years old, women 10 to 49 years old and pregnant women, at national and jurisdictional level. Present results are focused on children. **Methods**: A random, multistage sample of children from 6 months to 5 years old, living in urban areas, with provincial and regional representativeness (6 regions) was obtained. Anthropometric measures (weight, height and arm circumference), food and nutrient intake (24 hs recall), nutrition status on iron (hemoglobin, ferritin), and vitamin A (serum retinol), data on socioeconomic characteristics of the household and access to health and social programs and services were assessed. Anthropometrics indexes height/age, weight/age and weight/height indices were estimated standardized by the national growth charts (SAP). **Results**: 36,459 subjects (87% of the selected cases) and 27,354 blood samples were obtained (75%). Prevalence of wasting was 1.2%, 4.2% of stunting and 6.6% of obesity. Prevalence of anemia (hemoglobin < 11 g/dL) was 16.5% in children < 6 years old, whereas was 34.2% in children < 2 years. Prevalence of children with risk of deficient nutrient intake was particularly relevant in iron (12%), calcium (45.6% in children of 2 to 5 years), zinc (7.8%), vitamin A (45.9%), vitamin C (45.1%). Dairy and cereals were the food groups that contribute in more than 50% to the daily energy intake. Nevertheless sugar and fat contributed between 20-30% of the daily energy intake. Prevalences observed were higher in children living in households with unsatisfied basic needs (NBI) or under poverty line. On the other hand obesity, at national level, was higher in those living in households with basic needs been covered. **Conclusions:** Present results confirm and bring representative estimates at the national and regional level, reinforcing the relevance of stunting, obesity and nutrient deficiencies, particularly on iron deficiency, as well as inadequate nutrient intake patterns in Argentinean children.

# TL24

## GENERATION OF AN EXPERIMENTAL MODEL OF NECROTIZING ENTEROCOLITIS IN NEONATAL WISTAR RATS.

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**Objective:** The aim of this work was to determine a replicable method of generation of experimental necrotizing enterocolitis (NEC) in Wistar neonate rats. **Materials and Methods**: Term pups born via caesarian section were included. Newborn animals were warmed and randomized to study groups. Animals in the NEC group were kept in a neonatal incubator away from their mother for the whole duration of the experiment to prevent any exposure to rat breast milk. Pups were fed every 3 hours with neonatal formula via an orogastric tube (silastic catheter 2F, Vygon® ). To further increase the susceptibility to NEC, rat pups were exposed to hypoxia followed by hypothermia three times a day for 72 h. (H-H) or until development of clinical signs of NEC. At that point, each animal was anesthetized and euthanized. The intestine was resected premortem and immediately fixed for histological analysis. Those animals dying before 72 h were excluded to prevent false positive results in the histopathological exam. The efficacy of other methods for obtaining NEC was evaluated: 1-H-H stress and breast milk, 2-feeding neonatal formula added with lipopolysaccharide (LPS) without H-H and 3- H-H stress and formula fed in preterm newborns. **Results**: The clinical signs of NEC observed include respiratory distress, abdominal distention, abdominal wall erythema and hematochezia. Among the animals in the NEC group (n=61), 83% (n=51) developed NEC clinical criteria within a maximum of 72 hrs. Of these pups, 100% showed various grades of histological damage compatible with NEC. 47% scored the maximum, showing complete destruction of the mucosa. The mortality rate before 72 h was 40% for term pups. Those animals which underwent the H-H-LPS formula protocol showed more severe clinical signs and histological damage. Conversely, NEC induction with H-H and formula without LPS had a lower histological damage score. NEC induction only with H-H was unsuccessful. The mortality rate in the preterm group was 100% during the first 24 h. **Conclusions**: This experimental model of NEC correlates both clinically and histologically with the disease in humans. Generation of NEC with H-H and formula with LPS yielded the highest efficacy. Having an animal model of NEC allows for future research into preventive or palliative measures for this devastating disease.

# TL25

## HYPOTHERMIA PREVENTS LONG TERM CHANGES IN NEOTRIATAL RAT SINAPSIS, INDUCED BY PERINATAL ASPHIXIA.

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**Introduction**: Several proteins involved in synaptic functions are damaged during hypoxia-ischemia. These alterations might destroy synaptic transmission and then induce neurological deficits. However, it not still known the exact mechanisms involved in the cell damage during perinatal asphyxia (PA). Related with this issue, many therapeutic strategies have been proposed for brain injury, being hypothermia one the most effective treatment. **Methods**: we used a well established model of PA to report alterations in post-synaptic densities (PSD) using ethanolic phosphotungstic acid (E-PTA) combined with two dimensional (2D) and three dimensional (3-D) electron microscopy in rats after 6 months of the induction of PA. The effect of hypothermia (20 min. PA at 15 $^{o}$C) over these changes was also studied. **Results**: The analysis of the time course of injury pattern showed that the increment of PSDs thickness appeared at 10 min. PA and continued to increase up to 20 min PA. Using electron tomography and 3D reconstructions of the PSDs we confirmed 2-D observations and we also observed PSDs with signs of severe ultrastructural modifications after 20 min. of PA. By immunoelectron microscopy we showed that the dense material accumulated in the PSDs was intensively staining for ubiquitin suggesting that at least part of this ubiproteins in the PSDs structure could be damaged protein. On the other hand, when we subjected rats to hypothermia treatment we observed well ultrastructural organization of PSDs without ubi-protein accumulation. **Conclusions**: These data suggest that PSDs were highly modified after PA in the early stages of the PA insult before the cell death was evident in the asphyctic tissue. Since we observed the presence of ubi-proteins we think that the ubiquitin system was saturated and was not sufficient to repair proteins damaged during PA. In addition, decreasing the temperature protected PSDs against hypoxia damage. (ANCPYT 15001; PRODOC/FAPESB 016/2004, FAPESB/CNPq 159/2003, CONICET 5784).

## TL32

### ZINC NUTRITIONAL STATUS, BODY COMPOSITION AND PHYSICAL ACTIVITY IN OVERWEIGHT PRESCHOOL CHILDREN.

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**Background**. Zn deficiency and overweight can be observed together in some communities belonging to developing countries. Zn deficiency may enhance fat deposition and decrease lean mass, both in animals and in malnourished children, influencing physical activity, but it has not been evaluated in obese children. **Objective**: To study the association between plasma Zn and measurements of body composition and physical activity in obese Chilean pre-school children. **Subjects and methods**: We studied 73 overweight children (W/H > 1.0 z-score) with ages 18 to 36 mo, belonging to low socioeconomic groups. Plasma Zn, weight, waist circumference, height, total body water (using deuterium isotopic dilution technique and mass spectrometry) and daily activity, registering 48 h with an accelerometer, were evaluated. **Results**: The BMI showed to 41.1% of children >3 z-score; 61% were males. Zn intake was 4.8 ± 2.6 mg/day (girls: 3.7; boys: 5.8 mg/day; p= 0.04). Mean plasma Zn was 91.8 ± 11.4 ug/dL (6 children had Zn < 80 ug/dL, 7 boys and 1 girl). No correlation was found between W/H or waist circumference and plasma Zn; but those children with greater W/H (tercile 3) presented lower plasma Zn than those of 1st + 2nd terciles (88.3 ± 11.4 vs 92.9 ± 11.5 ug/dL; Kruskal Wallis, p=0.05). This difference was more evident in females (89.0 ± 10.9 vs 97.1 ± 9.5; n=29; p= 0.02), than males (n=44). Total body water was 56.3 ± 5.0% of body weight in males and 52.8 ± 4.3% in females (p=0.02), with no significant association with plasma Zn. Moderate + intense physical activity was greater in males than in females (6.3 ± 3.1 vs 3.4 ± 2.3% of wake time, Kruskal Wallis p= 0.0001), and it was non significant different between those children with plasma Zn < 85 or > 85 ug/dL (32.9 ± 20.6 vs 36.1 ± 21.6 minutes/day). **Conclusions:** Zinc nutritional status is associated with body composition in overweight preschool children, mainly in girls. Plasma Zn is not associated with the magnitude of physical activity.

Funded by FONDECYT, grant 1040884.

## TL35

### VITAMIN A DEFICIENCY AMONG BRAZILIAN SCHOOLCHILDREN.

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**Introduction**: Vitamin A deficiency (VAD) is a world public health problem in children, and it is observed in more than 100 countries, attempting about 130 million of children less than 5 years old, however, there are not many registers about prevalence of VAD in schoolchildren. Aim: To determine the prevalence of VAD in schoolchildren carried out in a general pediatric clinic in the city of Ribeirão Preto (SP). **Methods**: A transversal study was conducted on 103 children aged 5 years and 6 months to 10 years and 11 months attended at a basic health unit in Ribeirão Preto city, without fever (axillary temperature ≥37°C) and/or diarrhea (≥3 episodes of loose stools or any number of loose stools containing visible blood in a 24-h period). For each children, two blood samples were collected: the first (A0), immediately before the oral administration with 1000 micrograms of transretinyl palmitate; the second (A5) collect was performed 5 hours after this administration. The status of vitamin A from each children was performed by the RDR (*"relative dose response"*) test. The RDR formula is: (A5 – A0)/A5 x 100. Results ≥20% are indicative of low hepatic reserves of vitamin A. The laboratory analysis of retinol were performed by HPLC (*"high performance liquid chromatography"*). Ocular inspection for signs of xerophfthalmia was performed on all children. **Results**: In the 103 studied children (54M:49F), the prevalence of the VAD was 20,4% (21/103). There was no difference in the prevalence of VAD between sexs. None of the children presented xerophfthalmia. **Conclusion:** The VAD, in subclinic form, is a problem among the schoolchildren in Ribeirão Preto, and it is necessary efforts from health programs to promote the VAD prevention and its early diagnosis.

## TL36

### ACCURACY OF CHEST RADIOGRAPHS IN PREDICTING BACTERIAL PNEUMONIA IN YOUNG CHILDREN USING STANDARIZED MODELS.

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**Background:** Radiographs are useful for managing children with pneumonia. Standardized interpretation methods allow evaluation by different observers. We **aim** to compare the validity of two methods of interpreting chest radiographs (Khamapirad and World Health Organization –WHO-) on identifying young children with bacterial pneumonia. **Methods**: Chest radiographs from children < 5 years old hospitalized for pneumonia, with microbiological evidence of bacterial or viral infection were included. All radiographs were evaluated by 3 observers blinded to other data (pediatrician [P], pulmonologist [N], radiologist [R]) according to Khamapirad (range: -3 to 7) and WHO (range: 0 to 2) scores. A Khamapirad score ≥2 and a WHO score ≤ 1 were selected as the thresholds suggesting bacterial pneumonia. The relationship between these radiographic scores and microbiologic evidence of bacterial pneumonia was evaluated using chi square. Sensitivity (Se), specificity (Sp), positive (PPV) and negative (NPV) predictive values of high radiographic scores for predicting bacterial pneumonia were calculated. Intraobserver agreement (Khamapirad score ≥ 2 vs. WHO score ≤ 1) and interobserver agreement (P vs. N vs. R) were calculated (kappa). **Results:** 108 chest radiographs were evaluated (87 viral and 21 bacterial). Khamapirad score ≥ 2, evaluated by P, was associated with bacterial pneumonia (p < 0.0008; OR=6.31; IC95%=1.8-24.4), achieving a Se= 80 %, Sp= 59 %, PPV= 32 % NPV= 92 %. WHO score ≤ 1 was also associated with bacterial pneumonia (p < 0.001; OR=6.4; IC95%=1.6-29.7), achieving a Se=85 %, Sp=51 %, PPV= 30 %, NPV= 93 %. Similar results were obtained by N and R. Intraobserver agreement for bacterial pneumonia (Khamapirad vs WHO) was P=0.82, N=0.82 and R= 0.85. Interobserver agreement was slightly better using WHO score (P vs. N=0.82, P vs. R=0.69, N vs. R=0.85) than Khamapirad score (P vs. N=0.48, P vs. R=0.69, N vs. R=0.82). **Conclusion**: Both methods showed similar accuracy in order to identify bacterial pneumonia. WHO score is simpler and showed a better interobserver agreement.

## TL38

### THE CONTRIBUTION OF BIRTH DEFECTS TO PRETERM BIRTH.

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**Introduction:** Studies of prematurity often exclude infants with congenital anomalies (CA); therefore, little information is available on the relationship between both. The **aim** of the present study was to determine if fetuses with CA have a higher risk of spontaneous preterm delivery (SPD). **Methods**: A retrospective cohort analysis of computerized hospital records of spontaneously delivered liveborn term (n=21093) and preterm (gestational age < 37 weeks; n= 2937, 12.2%) infants, out of 30,995 liveborns, between 1996-2000, was performed. Sociodemographic, maternal reproductive and perinatal data were compared between preterm infants with and without CA. Stratified and logistic regression analyses were used to explore associations between CA and SPD. **Results**: Mothers of preterm infants with vs. without CA were younger and the rates of primiparity, age older than 35 years, and educational level ≥12 years higher, while those of adolescence and prenatal care were lower, all differences being statistically significant. The overall CA rate among term and SPD infants was 2.0% (n= 406) and 4.5% (n=132), respectively (p<0.001). As expected, all perinatal outcomes (birth weight, length, head circumference, Apgar scores, and neonatal survival) were significantly poorer in SPD infants with than without CA. After adjusting for confounders, fetuses with CA revealed a higher risk for SPD than those without CA (aOR= 2.16, 95% CI 1.92-2.4) with a statistically significant excess for abdominal wall defects (OR = 6.0), syndromes (OR = 3.53) and multiple anomalies (OR = 3.1). Adjusted population-attributable risk was 2.8%. **Conclusions**: The risk of SPD is twice as high for fetuses with than without CA. This information should be useful when planning public health policies, since additional resources will be required when managing preterm infants with CA.

## TL52

### RECORDED MONITORY OF PULSE OXYMETRY IN CHILDREN WITH ADENOTONSILLAR HIPERTROFY: ITS UTILITY IN THE DIAGNOSIS AND HANDLING OF THE OBSTRUCTIVE SLEEP APNEA SYNDROME.

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**Introduction:** the obstructive sleep apnea syndrome (OSAS) is a severe consequence of adenotonsillar hypertrophy (ATA). The gold standard method for diagnosis is the nocturnal polisomnography with oximetry (PSG). The PSG requires an expensive equipment and great consumption of time and work of a highly specialized technician and physician, which difficult its accomplishment. In adults the recording of the monitory of oximetry is used frequently as an approach method to diagnosis. In children few works have been published, with contradictory results. **Objectives**: to evaluate the diagnostic value of the analysis of the recording of the monitory of the nocturnal oximetry in relation to the PSG; and to evaluate how the results of the oximetry affected the therapeutic handling of a population of children with ATA and suspicion of OSAS. Population: 46 children with clinical suspicion of OSAS secondary to ATA send to the CIRES between 1/05/05 and 1/05/06 for PSG accomplishment. The children with another associated diagnosis were excluded (miopathy, craneofacial malformation, etc.). **Methods**: 1) we visually analyze (with a personal algoritm) the monitory of oximetry recorded in parallel with the PSG and we estimate its diagnostic value (the analisys of both studies were made in aleatory form by two blinded physicians. 2) we analyze the changes induced by the oximetry resulte over the children medical handling. Results: half of the children (23) presented OSAS in the PSG. All the pathological oximetry agreed with OSAS-PSG; only one boy with OSAS-PSG presented a normal oximetría (specificity diagnosis value of the oximetry: 100%, sensitivity 95%). In 1/3, severe hypoxaemia was detected (desaturations < 85%) that induced to the advancement of the date anticipated for the adenotonsillectomya. **Conclusions**:: the analysis of the recorded of oximetry monitoring during sleep is a very useful element for the diagnosis and handling of these patients.

## TL62

### MORBIDITY OF NEWBORNS WITH DIFFERENT GESTATIONAL AGES IN A PRIVATE INSTITUTION IN BUENOS AIRES.

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**Introduction:** Newborns (NB) between 35 to 38 weeks of gestational age, would present with more complications than those with 39 of weeks gestational age. This observation would be a negative condition for the unit mother-child and would increase the cost of medical attention. **Objective**: To compare the morbidity of newborns according to different gestational ages. **Methods**: Observational, retrospective and transversal study. All newborns of 35 or more weeks born from 01/01/06 to 31/07/06 in the IADT were included. Multiple gestations or major congenital malformations were excluded. 3 groups were defined according to gestational age estimated by physical examination: A) 35 a 36,6 weeks (n=19 -3 %-), B) 37 a 38,6 weeks (n=232 -36,9 %-) y C) ≥ 39 weeks (n=378 -60,1 %-). Morbidity was defined by one or more of the following conditions: respiratory difficulty for more than 2 hours after birth, hypoglycemia, requirement of intravenous infusion, jaundice and use of antibiotics. Besides, type of delivery was analized. Total sum of expenses, direct and indirect operating cost of each patient was registered. Asociation between gestational age and morbidity (including each condition and the the totality) controlled by the type of delivery, was evaluated by logistic regression. **Results:** The prevalence of morbidity was 84,2% in group A, 35,3% in group B and 25,9% in group C (A vs C OR: 15,2; IC 95%: 4,3-53,34 y B vs C OR: 1,56; IC 95%: 1,09-2,24 ). In comparison, jaundice, requirement of venoclysis and use of antibiotics were more frequent in group A than in group C. The use of venoclysis and the use of antibiotics were more frequent in group B than in group C. The average cost per patient was $6922,44 for group A, 1980,31 for group B and 748,36 for group C. **Conclusions**: Newborns < 39 weeks of gestational age showed higher morbidity as gestational age was lower. Jaundice, requirement of venoclysis, use of antibiotics and average cost by patient were significantly increased. Respiratory difficulty tended to be higher within group B) 37-38 weeks compared with 39 or more weeks, despite it is not expected.

# TL67

## PRETERM AT 34, 35 AND 36 WEEKS OF GESTATION: ¿IS IT A PUBLIC HEALTH PROBLEM?

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**Background**: When a pregnancy reaches 34 weeks of gestation, we assume that premature risk decreases. Objective: to analyze the evolution of newborns (NB)between 34 and 36 weeks (wks) of gestational age(GA) Material and Methods: Retrospective cohort study, NB between 34 and 37 wks who were born from 1/1/02 to 1/1/05 were included. NB with perinatal pathology or congenital malformations were excluded. Gestational age was based on best obstetric estimate from last menstrual period and earlier prenatal ultrasound findings. We analyzed morbidity and treatment needs for every GA. Statistical analysis: we used Fisher test or Kruskal Wallis test. Relative risk and CI 95% were calculated for each group. Results: During the period studied 3900 NB were born, 220 (6%) corresponded to the GA evaluated; 203 NB were included: 32 of 34 wks (16%), 49 of 35 wks (24%) and 122 of 36 wks (60%).103 NB were born by cesarean section (52%), 38 (19%) were twins and 107 (53%) were male. The median of weight was 2,560g (IQ 2,360 – 2,900). No NB were low birth weight neither high birth weight. Only 6 mothers were given tocolysis (3%) and 11 (5%) prenatal steroids; 24 patients (26%) had premature membrane rupture. 53% (108 /203) entered the NICU for 1-26 days (x: 8± 6d), while the rest remained in nursery. Transient taquipnea was diagnosed in 48 newborns (24%); RDS in 6 (3%); suspected sepsis in 18 (9%); apnoeas in 7 (3%); NEC in 4 (2%); hypocalcaemia in 16 (8%); hypoglycaemia in 12 (6%); and 5 (2%) had hyponatremia. In relation to treatment, 26 NB (12%) received antibiotics, 51 (25%) oxygen, 13 (6%) CPAP and 8 (4%) mechanical ventilation. 56 (27%) were fed by orogastric tube and 9 (4%) received parenteral nutrition. No NB died. At 34 wks there was more respiratory morbidity -RR 2,59 (IC95% 1,67- 4,02), more need for orogastric tube feeding – RR 3,72 (IC95% 2,55 -5,42), more metabolic complications –RR 4.37(IC95% 1.97- 9.69) and double days of hospitalization. Conclusions: The NB between 34 and 36 wks GA are a high hospitalization rate population. The risks increase with lower GA and decrease significantly after 34 wks. To decrease the morbidity rate and unnecessary need for hospitalization in NB near term, it would be beneficial to allow the normal course of pregnancy and onset of labour and/or implement measures that decrease the probability of respiratory distress.

# TL68

## LÍNEA DE BASE DEL ESTADO NUTRICIONAL DE NIÑOS(AS) MENORES DE 5 AÑOS DE EDAD Y MUJERES EMBARAZADAS EN DISTRITIOS BENEFICIARIOS DEL PROGRAMA NACIONAL DE ASISTENCIA ALIMENTARIA NUTRICIONAL (PROAN)

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Introducción: El PROAN dependiente del Ministerio de Salud Pública y Bienestar Social (MSP y BS), constituye un conjunto de actividades de apoyo nutricional de recuperación y prevención para niños (as) menores de 5 años y embarazadas con bajo peso. En la 1ª etapa de implementación 2005, abarca a 31 distritos. Objetivo: Establecer la línea de base del estado nutricional de niños (as) menores de 5 años de edad y mujeres embarazadas en distritos beneficiarios del PROAN previo a la implementación del mismo. Metodología: Diseño descriptivo y analítico. Se elaboró cuestionario validado por la DGEEC. Muestra: 4.500 viviendas en los 31 distritos priorizados Para la evaluación nutricional de los niños (as)se consideró los estándares de la NCHS, en puntaje z del Programa EPINUT de EPI 2000 z Peso/Edad z P/E, z Peso/Talla z P/T y z Talla/Edad z T/E. Para la evaluación nutricional de embarazadas (N=563) se utilizó los gráficos de Mardones-Rosso adoptadas por el MSP y BS. Programas: SPSS 10.0, Excel 2003, Access 2003, Statistica 4.5, EPI 2000. Resultados: Fueron procesados 5268 datos de niños/as < de 5 años (49 % niños). Mediana de edad fue 29,9 m (0,1-59,9 m). Promedios de puntaje z fueron: zP/E -0,43±1,10 DE, z P/T 0,08 ±1,00 DE y zT/E -0,75±1,24DE. Por NCHS la prevalencia de desnutrición global (DG, zP/E) fue de 6,4%, riesgo de DG 24,7%. La desnutrición aguda (DA, zP/T) fue de 1,4% y riesgo de DA de 10,3%. Malnutrición por exceso 11,2 % Sobrepeso y 3,4 % de obesidad. La desnutrición crónica (DC, zT/E) y el riesgo de DC fueron de 14,5% y 25,4%. Se observó una mayor prevalencia de DC en lactantes de 12 a 23 meses (22,3 %), niños(as) con bajo peso al nacer (20,2%) (p<0,001). La prevalencia de malnutrición por déficit en embarazadas (N=563) fue del 27 % y por exceso 18,5 % sobrepeso y 21 % obesidad. Adolescentes embarazadas con bajo peso 44,5 % vs Adultas embarazadas 21 % (p<0,001). Conclusión: La prevalencia de malnutrición por déficit en la población infantil fue mayor a los promedios nacionales previos. Las adolescentes embarazadas presentaron un alto riesgo nutricional.

# TL76

## CLINICAL CHARACTERISTICS OF PATIENTS WHO DEVELOP BRONCHOPULMONARY DISPLASIA IN A MATERNITY HOSPITAL OF BUENOS AIRES CITY.

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**Introduction:** 25 to 30% of our inborn VLBW infants develop bronchopulmonary displasia (BPD, oxygen requirements > 28 days). Controversies still exist about the weight of each of the clinical variables and neonatal morbidities described in the medical literature. **Objectives:** 1- To evaluate the clinical characteristics of patients developing BPD compared with a control group without BPD at 40 weeks of postmenstrual age. 2-Evaluate the growth from birth to 40 weeks of postmenstrual age in infants born with very low weight (VLWB) with and without BPD. **Subjects and Methods:** Case-control study. Inclusion criteria: in-born infants < 30 weeks of gestacional age, birth weight <1500 g and surviving up to 40 weeks of corrected age. Exclusion criteria: major congenital malformations, intrauterine infections or being transferred to other hospital. **Results:** From January 2000 to November 2005, 178 children were eligible, being 52 patients excluded. From the remaining 126 patients, 67 (53.1%) developed BPD. In this group, gestational age (27 vs. 29 weeks), birth weight (940 vs. 1160g) and male sex (41.3 vs. 64.1%) were associated to BPD, but not multiple birth (13.7 vs. 8.96%).The group that developed BPD showed greater incidence of RDS (91 vs. 60.3%), days on mechanical ventilation (31 vs. 2), surfactant treatment (80.6 vs. 63.8%), patent ductus arteriosus (73.1vs.46.5%), late onset sepsis (47.7 vs. 17.2%) showing significant differences. Likewise, IUGR (<pc10 at birth) was greater in the BPD group (16.4 vs. 3.4%). IVH > grade II, cPVL, NEC and ROP grade 3 or more were similar in both groups. In the BPD group, age at which 120/kcal/d were achieved (21 vs. 15), weight at 40 weeks (2.85 vs. 3.1 kg) and postnatal growth failure at 40 weeks postmenstrual age (62.1 vs. 35.1%) were significant. A multivariate analysis was constructed to predict a model of BPD resulting significant the following variables: male gender (OR: 3.25; 1.082-9.75), RDS (OR: 5.34; 1.37-20.76) and mechanical ventilation (OR: 42.32; 12.93-139.61). The model presented a good Hosmer-Lemeshow adjustment. It also showed good capacity of classification, with a cut point ≥ 0.25, 80% were correctly classified and a discrimination area under ROC curve of 0.908. Another explicative model for growth failure at 40 weeks of postmenstrual age was constructed: the univariate analysis showed a relationship between BPD and growth failure (OR 3.02, CI 95% 1.43 - 6.38). When BPD was adjusted with the rest of the covariates of the model, BPD is no longer significant (OR 0.74, CI 95% 0.20 - 2.77). **Conclusion:** in our population the predictive variables for BPD were mechanical ventilation, RDS and male gender. Also we observed minor weight the 40 weeks and greater percentage of low weight in the group that developed BPD.