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GROWTH DELAY IN SCHOOL AGE CHILDREN OF LOW SOCIOECONOMIC LEVEL: ITS IMPACT ON COGNITIVE FUNCTIONING.

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A high proportion of the school population suffers from a deficit in stature, generally as a consequence of early nutritional, deficit though genetic factors and other environmental influences such as a history of repeated infections should also be considered as possible causes. A study was planned with the objetive of providing background to the etiology of this growth delay in children from 7 to 10 years old who belong to low socioeconomic level, and the consequent impact on their cognitive funcitoning. Four study groups were selected:eutrophic (T/E $\geq$ 98%;P/T $\geq$ 95%) and stunted (T/E $\leq$ 95%; P/T $\geq$ 95%) school age children with and without malnutrition and/or history of repeated infections.The children were given health, genetic and neurologic examinations, and a complete psychological battery was applied (IQ,language,attention,reading skills, and maths).Both parents stature was registered and the quality of home stimulation was evaluated. Preliminary results indicate that eutrophic children, with and without morbid history have a general cognitive performance similar (EUT/with $\bar{X}$ 102$\pm$8;EUT/wo $\bar{X}$103$\pm$7) to be stunted (ST/with $\bar{X}$ 102$\pm$13;ST/wo $\bar{X}$ 101$\pm$ 11).However when testing specific skills like math, eutrophic children have a better performance than the stunted group (EUT/with $\bar{X}$ 63$\pm$13;EUT/wh $\bar{X}$ 64 $\pm$10, ST/with $\bar{X}$ 59$\pm$13, ST/wo $\bar{X}$ 59 $\pm$10). This results seem to indicate that even if IQ is not affected as consequence of malnutrition or repeated infections, more specific funtions like maths are damaged.

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NEWBORN SCREENING FOR PKU IN SÃO PAULO - BRASIL -.

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In Brazil,newborn screening for PKU started in 1976,using filter paper impregnated with blood samples drop colected from the newborns' heels.First done in São Paulo,the program progressively extended to other Brazilian cities.

Blood samples (PHE)levels were determined by spectrofluorometry. Whenever the PHE levels were found to be higher than 4mg/dl,the child was recalled for a repeat test.PKU(phenylketonuria) and hyperphenylalaninemia(PHE>10mg/dl) cases were followed-up by a multidisciplinar team. From June 1976 up to July 1992,2,876,548 newborns were screened:169 (1:17,020) had PKU;10 had hyperphenylalaninemia (PHE=10-14,9mg/dl)about 0,1% had transitory hyperphenylalaninemia (PHE=4-10mg/dl);there was one case of dihydrobiopterin deficiency and one case of PKU with congenital hypothyroidism(the only case in the literature so far,published in Pediatr.Res.1986,15:176). Due to the obtained results, newborn screening for PKU and congenital hypothyroidism(CH) became obligatory by law in the State of São Paulo in 1983,expanded to all the Southern states of Brazil and finally ended up in a Federal Law in October 1990.

Illiteracy of the patients' relatives keeps part of them from showing for repeat tests.Often dietary directions have to be given by means of drawings.On the whole,about 1/3 of the cases with increased Phe blood levels fail to come to APAE-São Paulo for final diagnosis and -if necessary- further follow-up.

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ANTHROPOMETRY, HEMOGLOBIN AND METAL INTER-RELATIONSHIP IN SÃO PAULO SCHOOL CHILDREN.

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To evaluate the nutritional status of low socio economic school children and its relation with hemoglobin (HB),iron,copper and zinc plasma levels,294 children (2-14 years)divided into two groups $\leq$ 84 months (group A) and $>$84 months (Group B),were studied.Nutritional status was analysed by weight for height (W/H)index and metal was evaluated by atomic absorption specthrophotometry.Mean $\pm$SD levels of HB were 12.1$\pm$1.1g/dl,with 13% of anemia.Iron levels were 79.0$\pm$31.3 mg/dl with 15% of low iron values.Zinc values were 104.6$\pm$32.3ug/dl with 11% hypozinkemia;copper values were 117.6$\pm$36.8 with 19% of hypocupremia.The majority of the dificiencies appeared in group A,except for copper($p<0.001$).HB values were directly proportional to zinc and iron, and inversely proportional to copper values ($p<0.005$).W/H $<$ 90% was found in 8,4% of A and 12% of B,predominantly stunted.In groupB,HB,zinc and iron values were lower and copper ones were higher than in B,presenting no relation to nutritional status, thus reflecting competitive absorption sites.

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IRON ABSORPTION AND RESPONSE TO ORAL IRON THERAPY IN IRON DEFICIENCY ANEMIA ASSOCIATED TO ASYMPTOMATIC GIARDIASIS.

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Symptomatic giardiasis may impair intestinal iron absorption. Aiming to evaluate iron absorption in children with asymptomatic giardiasis,2 groups were established:anemia (HB$<$ 11g/dL) and giardiasis (n=19);and anemia without giardiasis (n=19),which were selected from 240 well-nourished children presenting probable clinical signs of anemia and negative results of occult blood and for other parasites in three parasitological examinations in the feces.Patients ranged from 1 to 6 years and all were well-nourished.The presence of G.lamblia trophozoides was investigated in duodenal fluid.Iron absorption was evaluated by increase in the serum iron levels 2 hours after the administration of 1mg/Kg ferrous sulfate (iron absorption test-IAT).The response to iron therapy (5mg/Kg/day of ferrous sulfate) was determined by higher levels of hemoglobin within a 30-day period.Nodifferences were observed between the 2 groups regarding hemoglobin,serum iron,transferrin,ferritin and 1-hour blood D-xylose levels.Taking the IAT into account, children with giardiasis reached values of 159$\pm$73ug/dL,whereas the control group presented values of 155$\pm$76ug/dL (p=0,39).The rise of hemoglobin consisted of 1,5$\pm$0,7g/dL for giardia carries and 1,8$\pm$1,0g/dL within the control group (p=0,24) All things considered, the asymptomatic giardiasis does note give rise to iron malabsorption.

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HYDROELECTRIC BALANCE (HEB) IN RAPID HYDRATION (RH).

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A rapid hydration methods for correcting acute dehydration (AD), we studied 11 patients with AD because of acute diarrhea.Mean age was 5.3 months,range:1-17m.Mean weight deficit for age at admission was 18%,range:0-36%.Intravenous rehydration was indicated for the following reasons:shock (5 patients) and oral rehydration failure (6 pacients).RH was peformed with IV-WHO solution at the rate of 25ml/Kg/h.Patients in shock received prior to RH,9%.ClNa solution,50ml/Kg. Patients were fed with formula and the concurrent losses were balanced with SRO-WHO or IV electrolitic fluid.HEB was calculated for the whole hydration period and for the initial 2,6,12 and 24hs. Full hydration status was achieved after a mean period of 6.2 hours,SD:3.2. Mean and range of % of dehydration was 9% R:4-16%.$\bar{X}$ and SD of balances (in ml or mEq) are as follows:Whole period of rehydration:Vol: 20$\pm$10ml;Na:2.3+1mEq and K:0.3+0.1mEq;0 - 2hs.:Vol:18+8ml;Na:2+0.6mEq and K:0.3+0.2mEq;2 - 6hs.:Vol:10+7ml.;Na:1.1+0.7mEq and K:0.2+0.2mEq; 6 - 12hs.:Vol:3.8+5.5ml;Na:0.3+0.35.Eq and K:0.06+0.16mEq;12 - 24hs.: Vol:1.1+3ml;Na:0.01+0.1mEq and K:0.04+0.3mEq. There were no clinical complications.All patients corrected their lab values within the first 24 hours. Results confirm that the method employed was effective and with no complications. Na and water balances were highly positive during hydation period, tending to achieve the neutral situation.High K flux in IV infusion was well tolerated.

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DIURESIS AND SERUM POTASIUM LEVELS IN VLBWI.

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Nonoliguric Hyperkalemia (HK) is frequently observed in VLBWI. We prospectively studied 85 VLBWI (BW$<$1500 g) in order to determine the frequency of HK (serum potasium $>$6.4 mmol/L) and its relationship with BW,diuresis and urea production. Potasium level was measured in the 1st, 3rd and 7th day of life.The BW ($\bar{x}$SD) was 1161 g $\pm$ 249 and gestational age was 29 weeks $\pm$ 1.9. a significantly high incidence of HK in neonates $<$ 1000gr. was observed (7/32 vs.1/52,p $<$.01).No relation was found between diuresis and HK. Both groups with and without HK showed oliguria in the first day.

DIURESIS (ml/Kg/h)	1st.DAY	3rd.DAY	7th.DAY	p
With HK	*2.4$\pm$1.9	3.4$\pm$1.0	3.7$\pm$1.8	$<$0.001
Without HK	*2.8$\pm$1.2	4.0$\pm$2.0	4.3$\pm$1.7	$<$0.01

The urea production was similar in both groups though very high (12 mmol/Kg/d).This catabolic effect could explain the high rate of potasium production without renal failure which associated to the first day oliguria could be the necesary condition for the development of HK in this group of patients.