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DUMPING SYNDROME IN CHILDREN. L.Bay, C.Mazza, A.Robinson, A.Marin. Hospital de Pediatría J.F.Garrahan Nutrition and CESMI, Buenos Aires, Argentina.

The Dumping Syndrome (DS) can affect the nutritional status and growth of small children with gastric surgery. The present work aims at establishing the prevalence of DS in children with Nissen fundoplication, to correlate symptoms with the oral glucose tolerance test (GTT) and with the mouth-colon transit time. 14 patients were studied (mean age 5.8 years, range 2 months to 13 years; 5 girls, 9 boys). 9 had symptoms compatible with DS; 5 were asymptomatic. Mouth to colon transit time was measured by breath H<sub>2</sub> excretion after a lactulose load. DS was defined by the presence of symptoms or an abnormal GTT. Out of 8 children submitted to Nissen's procedure, 5 (62%) had DS. An additional 6 patients were studied because of symptoms. Out of 14 patients, 9 had poor weight gain and anorexia, 2 with intermittent diarrheas with bloating and 7 with symptomatic hypoglycemia. Symptoms appeared 15 days to 2 years after surgery. GTT was abnormal in 11 cases. 5 children became hypoglycemic (under 50 mg%) between 60 and 180'. After the glucose load transit time showed no differences.

GTT glycemia mg%  $\bar{x} \pm DS$ .

Time	0	15	30*	60	90	120*	180*
Patients	80±12	154±53	177±65	139±62	86±37	65±18	63±13
Normals	80±5		119±11	117±16	106±18	98±7	76±5

Insulin uU/ml  $\bar{x} \pm SD$

Time	0	15	30	60	90	120*	180*
Patients	7±1	80±56	73±48	63±51	28±31	9±11	6±4
Normals	10±6		47±26	53±25	47±30	25±12	14±6

\* significance.

DS in children with gastric surgical procedures may be more common than clinically suspected. GTT is a sensitive test for diagnosis.

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ENTERAL FEEDING IN INFANTS WITH LOW TRACT RESPIRATORY INFECTIONS. F.Lagrutta, C. Castillo-Duran. INTA, Universidad de Chile, Santiago, Chile.

To evaluate the effect of early nutritional support on infants hospitalized because of low respiratory infections, we studied 60 infants (2 to 12 months) for seven days. On admission they were randomly allocated to 4 groups: A, fed powdered whole cow's milk formula (CM) reconstituted to 7.5% with 5% sucrose and 5% maltodextrin (77 Kcal/dl) via nasogastric tube as a bolus; B, same as group A but given by continuous drip; C, 10% CM plus 5% sucrose and 2% vegetable oil (87 Kcal/dl) via nasogastric tube as a bolus; and D, same as C but given as a continuous drip. Infants of group B, had the shortest hospital stay (7.2 vs 8.7, 8.4 and 7.7 days;  $p < 0.01$ ), and faster improvement of parameters of respiratory failure (2.7 vs 4.1, 3.8 and 3.5 days;  $p < 0.0003$ ). The maximal decrease in cardiac rate was observed in group D (169 to 126 beats/min). No differences were observed in blood glucose levels, ESR, C-reactive protein, and anthropometric measurements.

We conclude that early nutritional support with hypercaloric and high lipid formulas, administered via a nasogastric tube by continuous drip is associated to an early decrease of the severity of infections of the low respiratory tract in infants.

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CARDIOVASCULAR RESPONSES TO CHANGES IN HEAD POSITION IN THE PREGNANT LLAMA: ROLE OF THE CHOLINERGIC SYSTEM. N.L.Holmgren, J.L.Querrero, F.J.Garay, J.F.Carrasco, A.M.Germain, J.T.Parer, A.J.Llanos. Preclinical Dept., Eastern Fac. Med. U. of Chile; Dept. Ob., Gyn., Reprod. Sci. & Cardiovasc. Res. Inst., U. of California, San Francisco, California, U.S.A.

Cardiac output increases during pregnancy and total peripheral resistance decreases resulting in a lower systemic arterial pressure. It is unknown whether pregnancy results in a decrease in mean arterial pressure in long necked animals (llama, giraffe); whether mean arterial pressure (MAP) and heart rate (HR) change in response to variations in the height of the head above the heart and whether the cholinergic system plays a role in this response. MAP and HR were measured in three term pregnant llamas at 4400 meters above sea level through a catheter placed into the descending aorta and connected to Statham P23 Db pressure transducer and Gilson IQV-5 polygraph. Measurements were done 24-36 hours after catheter placement; at rest (more than 60 cm above heart level) and three times during 120 seconds for each position of the head: Up (U = +60 cm above heart level). Down (D = -60 cm below heart level), before and after the administration of an i.v. bolus of atropine (0.2 mg/Kg). At rest without manipulating the neck, MAP was 86.7 ± 14.9 mm Hg and HR was 84 ± 61/min. Results were: ( $\bar{x} \pm S.D.$ , ANOVA for repeated measurements and Newman-Keuls test).

Position	Control		Atropine	
	MAP (mm Hg)	HR (1/min)	MAP (mm Hg)	HR (1/min)
Down	80.1 ± 11.9	91 ± 13	74.1 ± 6.5	131 ± 11*
Up	107.1 ± 22.0#	84 ± 5#	109.1 ± 25.0#	135 ± 13*

\*  $p < 0.05$  vs Control; #  $p < 0.05$  vs Down.

Pregnant llamas have a lower MAP (86.7 mm Hg) than non pregnant llamas (143 mm Hg data from literature). The fall in HR when raising the head is a reflex mediated by efferent cholinergic pathways, probably vagal and generated in baroreceptors. These cholinergic pathways do not play a role in the increase in MAP. The role of the adrenergic system in MAP increases observed when raising the head remains to be investigated. FONDECYT 89-1080.

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EPIDEMIOLOGICAL STUDY OF CYSTIC FIBROSIS OF THE PANCREAS. C.Macri, A.S. de Gentile, A.C.Manterola, S.Tozzoli. Hospital de Niños Ricardo Gutiérrez, Buenos Aires, Argentina.

414 patients seen at Hospital de Niños Ricardo Gutiérrez between 1968 and 1988 with the diagnosis of Cystic Fibrosis of the Pancreas (CFP) were studied. The purpose was to find risk factors during follow up. The items investigated were age at diagnosis and at admission, sex, year and severity at admission, total number of siblings and of affected siblings and follow up. The mean age at diagnosis, admission and death were 3.28 ± 4.2; 3.76 ± 4.55 years; and 8.55 ± 7.06, respectively. The mortality rate was 8.1 deaths per 100 year/patients. This rate was 10.2 for 1968-74, 9.5 for 1975-81 and 6.0 for 1982-88 ( $p < 0.05$ ). Severity on admission, monitored by the Shwachman score, was decreasing. In the 1968-74 period half of the patients had severe forms of the disease while in 1982-88 only 26.3% were severe ( $p < 0.05$ ). This was inversely correlated with patient survival. Sex wasn't significant for prognosis. Patients who were older on admission had higher mortality rates. Because of the high rate (74.8%) of patients with a severe forms without follow up, we couldn't demonstrate significant differences in patient survival according to age at admission. Patients who had one or more siblings with CFP had lower mortality rates. After 3 years of follow up survival of patients reached 68.5%, after 6 years this was 50% and after 10 years; 34.8%. During 1982-88 3 year survival was (82.4%) more frequent than in 1968-74 (67.5%) and 1974-81 (71.8%). These significant differences disappeared at 6 and 10 years of follow up.

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ROLE OF NATURAL ANTIOXIDANTS ON BIOAVAILABILITY OF IRON FORTIFICATION ADDED TO MILK. F. Pizarro, M. Olivares, P. Cañas. Instituto de Nutrición y Tecnología de los Alimentos (INTA), U. de Chile, Santiago, Chile.

We measured the effect of alfa-tocopherol (VitE), taurine (Tau) and ascorbic acid (AA) on iron bioavailability when added to whole powdered cow's milk fortified with 10mg Fe/L as FeSO<sub>4</sub>. It was compared with an iron fortified infant formula. Three iron absorption studies were done using a double isotope technique. The preparations were labelled extrinsically with <sup>55</sup>Fe and <sup>59</sup>Fe. Subjects were 45 voluntary women (age = 35-45 y old). A reference dose of ferrous ascorbate was given to every subject to allow comparisons among groups. Iron absorption was measured in blood according to Eakins and Brown. Geometric mean of iron absorption from fortified cow's milk was 4.9%; no changes were found when VitE (20mg/L) or Tau (50mm/L) were added (5.4% and 5.5%, respectively). However, the addition of AA increased iron absorption up to 9.4% ( $p < 0.01$ ). This value was not modified when mixtures of AA + VitE and AA + VitE + Tau were tested (10.6% and 9.3%, respectively). Iron absorption from the infant formula was 18.1%. Ascorbic acid improves the absorption of iron added to milk. VitE and Tau do not explain the high iron bioavailability of modified infant formula used as control.

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WEIGHT REDUCTION TREATMENT IN A HOSPITAL POPULATION OF OBESE CHILDREN. G.García Arias, C.Mazza, A.Du Mortier, A.Alvarez, A. O'Donnell. Hospital de Pediatría J.P. Garrahan, Buenos Aires, Argentina.

Therapeutic results in an outpatient population of obese children (n = 257; 145 ♂, age:  $\bar{x}$  10.1y, | 0.9-18y|) are discussed. Overweight was  $\bar{x}$  148.5% (120-200%) over the 50th percentile of weight/height. In patients 6-12y (n = 165), two approaches were compared: group (GT) and individual (IT) treatment. GT consisted of 8 sessions (children and their parents simultaneously but separately) with a reevaluation at 6 mo. IT schedule consisted of weekly interviews for 4 weeks followed by monthly controls. Early desertion rates were: GT 45% and IT 57%; late desertions: GT: 39% and IT: 70%. Time devoted (in hours/physician/patient) were: at 3 mo: GT 10hs and IT 8.6hs; at 6 mo GT 0.19hs and IT 2.5hs. Statistical analysis showed that: early desertion was greater in IT ( $\chi^2$ ,  $p < 0.05$ ) while late desertion was more frequent in GT ( $\chi^2$ ,  $p < 0.05$ ). Time devoted to each patient in GT or IT was similar. Results suggest that although weight loss is not different in GT or IT, the lower early desertion rate in GT allows patients and their families to receive more information and behaviour management which, may have longer lasting effects.