77 ENVIRONMENTAL ENTEROPATHY IN CHILE.

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In tropical countries with poor environmental sanitation mild to severe non specific changes in the small intestinal morphology and function have been described. This study was carried out to investigate whether similar changes occur in countries of temperate climate and poor sanitation. Fifteen young healthy volunteers, who belonged to the lowest socioeconomic stratus were studied. They live in periurban slums in Santiago, where high contamination indexes prevail. Evaluation of the nutritional status (physical examination, anthropometry, biochemical), intestinal function (serum carotene and vit.A. blood xylose after 5g oral standard dose, disaccharidases, duodenal biopsy, nitrogen and fat balance), stool parasites and stool culture were performed. Nutritional status was normal in all cases. One subject had serum carotene below 60ug%. One hour blood xylose was below 20mg% in 67% of cases. Serum vitamin A and disaccharidases were normal in all cases. G. Lamblia and/or Ent.Hystolitica were obtained the stools in 7 subjects. Stool cultures was negative in all cases. Light microscopy of the mucosa showed mild unspecific changes. Electron microscopy revealed mild to moderate patchy changes in the brushborder and basal membrane Nitrogen and fat balance were normal in all cases.
Mild nonspecific changes of the small intestinal morphology and function suggest a mild environmental enteropathy of lesser magnitude than those described in tropical countries.

78 RELACTATION: A STUDY OF 100 MOTHERS AND THEIR INFANTS HOSPITALIZED FOR ACUTE DIARRHEA.

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There exists data on the feasibility and need of reinduction of lactation. This is understood as a physiological process through which lactation is started again in women who have early weaned their children. As part of a program for joint mother and sick infant hospitalization, relactation was induced in 100 infants ages 6 months or less, which were hospitalized due to severe acute diarrhea with dehydratation, acidosis or shock. Weaning had been complete in 71 and partial in 29 infants. Relactation was based on the strong motivation of the mother, the family group and the health team, instalation of self demand breast feeding, progressive reduction of cow milk bottle feeding and caloric supplementation for the mother. Absolute relactation (only breast feeding) was obtained in 29 infants with an average duration of lactation of 55 days (range 7-150). Partial relactation (adding up to two bottles daily) was obtained in 23 infants with an average deration of 21 days (range 7-60).

79 IRON NUTRITION IN CHILEAN BREAST FED INFANTS.

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Recent evidence suggests that iron in human milk has a high bioavailability and that breast fed term infants are protected from developing iron deficiency during the first 6 months of life. Iron nutrition was determined in healthy term infants of low socioeconomic condition receiving breast milk as the only milk source for 4, 6 and 9 months (60, 70 and 31 subjects respectively) and compared with infants fed non fortified cow's milk. At 4 months, breast fed infants had a better iron nutrition status presenting significant differences with the control group in serum iron (69* $\pm$ 36 vs 43 $\pm$ 16 ug/dl, $p<.005$), transferrin saturation (18.4 $\pm$ 10.3 vs 11.2 $\pm$ 4.4%, $p<.005$) free erythrocyte protoporphyrin (76 $\pm$ 23 vs 88 $\pm$ 31 ug/dl RBC, $p<.025$) and serum ferritin (44.7≠ $\pm$ 1.1 vs 22.3 $\pm$ 1.1 ug/ml, $p<.005$). These differences no longer existed at 6 and 9 months of age, when both groups had a high incidence of iron deficiency. This study indicates that chilean infants fed breast milk need iron supplementation after 4 months of age.

* mean $\pm$ 1 SD

≠ geometric mean $\pm$ 1 SEM

80 PREMATURES IRON DEFICIENCY PREVENTION: USE OF A FORTIFIED MILK FORMULA (Preliminaries datas).

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A propective study of 60 prematures were done. The hematological effect of feeding powder cow milk with vitamins A-C-D and fortified with ferrous sulphate (Fe 15mg%) was evaluated. The formula was diluted at 10% and 7% carbohydrate were added. The feeding start at 3 months of age and was maintained till 1 year. At 3-6-9-12 months a blood sample was drawn for Hematocrit, Hemoglobin, Serum Iron, TIBC, Saturation % (Sat) Free erythrocyte protoporphyrins (FEP) serum Ferritin (Ferr.). As control group 60 prematures were fed with powder cow milk; prepared and for the same period of time as the others. This group were supplemented with ferrous sulphate, 2.5mg of Fe x Kg x day. At the same age similar laboratory test were done. The results obtained at different ages were analyzed:

		3 month		6 month		9 month		12 month	
		S	F	S	F	S	F	S	F
Hb g/dl	$\bar{X}$	10.2	10.1	11.0	11.5	11.1	12.4	12.2	12.7
Sat %	Md	12.2	13.1	8.7	10.8	9.2	12.6	11.0	16.4
FEP ug% GR	Md	110	127	94	102	95	60	80	66
Ferr. ng/ml	$\bar{X}g$	34	36	16	14	17	16	17	13

S: Supplement of iron; F: Fortified iron

81 USE OF HUMAN MILK IN LBW INFANTS FEEDING.

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Human milk (H.M.) contains an insufficient quantity of protein to fulfill the requirements of the growing small LBW infant These babies consume varying amounts of milk to grow at adequate rates. This is certainly due to the variable energy density in H.M. The analysis of 24 samples of H.M., as it is given to LBW infants, showed that the protein content (N x 6.38) was 1.9 $\pm$0.4g./dl (range: 1.1 to 2.7), fat content 2.7$\pm$1.0g./dl. (range 0.68 to 4.2) and calories 60.8$\pm$10.1 (range 40.7 to 77.0). This variability of H.M. and the problems to run H.M. banks determine the need of standardizing H.M. by supplementation, after its individualization by simple bed-side methods. For this purpose we have developed a method to quantify fat content of H.M. by centrifugation in a Wintrobe tube of 1 ml of H.M. The correlation between thickness in mm. of the fat layer and the Roese-Gottlieb chemical method was 0.97 ($p<0.0001$). The amount of fat in g./dl. in H.M. is given by the regression equation: $y=0.0549 + 0.4948x$, where y= fat g./dl. and x= fat layer in mm.
The simplicity of the method brings about a new feeding approach and research tool for future studies.

82 EVALUATION OF METHODS FOR THE PREPARATION OF INFANT POWDERED FORMULAS.

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Methods for preparation of infant powdered formulas (by using scoops and by weighing milk formula powders before adding water) were evaluated at two hospital formula kitchens. The sample covered a total of 105 bottles, randomly selected in a period of 100 days, which were compared with reference standards developed at our laboratory. The study of the prepared bottles, through direct osmometry, showed a clear bias towards overdilution of the formulas, in relation to what is prescribed, particularly when the preparation is made by scoops. The observed variability was independent of the personnel in charge of the preparation.

	OSMOLARITY (mOsm/l)	CONCENTRATION (%)	PROTEINS (g/dl)	ENERGY (Kcal/dl)
a) PRESCRIBED	371.7	15	1.8	78.6
b) SCOOPS	261.1$\pm$68.6	11.3$\pm$4.8	1.3$\pm$0.3	59.0$\pm$12.0
c) WEIGHING	351.3$\pm$46.1	14.3$\pm$4.1	1.7$\pm$0.2	75.0$\pm$ 8.0

b vs a: p 0.0001 c vs a: p = 0.003 b vs c: p 0.001

These findings confirm the inadequacy of methods for the preparation of powder-based formulas point out another cause for inadequate growth in LBW infants, given the low energy and protein density of formulas as administered to infants at hospitals.