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EFFECT OF AGE ON THE PREVALENCE OF ANEMIA IN INFANTS. Calvo E., Islam J., Grazzo N., CERNI. Buenos Aires, Argentina.

The requirement for iron in infancy is proportional to the growth velocity. The recommended dietary allowance (RDA; NAS/NRC) for iron is 15mg/day from age 6 to 36 months, even though growth velocity decreases during this period. Conversely, if an infant develops an iron deficiency anemia during the first year of life, iron therapy is necessary to regain a normal hemoglobin. We have demonstrated a significant inverse relationship between the prevalence of anemia and infant's age in the anemia prevalence studies performed in Buenos Aires and Misiones ( $x^2 = 17.4$ ;  $p < 0.001$ ). The infants studied ranged from ages 9 to 24 months. Even though iron intake increased in older infants, it was below the RDA for most infants decreasing the likelihood of hemoglobin levels recovering is normal. We studied infants aged 9 to 24 months and their sibling aged 25 to 36 months, resulting in 42 infant pairs with the same familial and environmental background. In these infant pairs the prevalence of anemia was 68.8% (<24 months) and 29.2% (>24 months) respectively. The difference in hemoglobin concentration was highly significant (paired t test 4.68,  $p < 0.001$ ). Decreased iron stores as assayed by serum ferritin <12 ug/l were more prevalent in the young group: 64.3% and 19.0% respectively with a highly significant difference in iron stores (paired t test 5.36,  $p < 0.001$ ). We conclude that these data are consistent with a relative improvement in the anemia with increasing iron intake.

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EFFECT OF DIETARY FIBER ON ABSORPTION OF AMOXICILLIN (AMX). Espinoza, J.; Iutz, M.; Arancibia, A.; Araya, M.; Brunser, O. INIA, U.de Chile, Esc. Química y Farmacia, U.de Valparaíso, Fac. Ciencias Químicas y Farmacológicas, U. de Chile, Chile.

The amount and quality of structured fiber in the diet modifies the absorption of nutrients. However, little is known about its effect on the absorption of drugs. The effect on bioavailability and pharmacokinetics of AMX of two isocaloric and isonitrogenous diets, one providing 7.8g x/day (Diet I) and the other 36g x/day (Diet II) of structured fiber, was evaluated. Ten volunteers, aged 18-32 years, apparently healthy and of the low socio-economic stratum, received one of the two diets, randomly selected, for 3 days and then ingested 1 capsule AMX (500 mg) after breakfast. The other diet was then administered for additional 3 days and the procedure and measurements were repeated. Plasma and urinary AMX concentration were measured for 9 and 24 hours respectively, following a microbiological technique. A one compartment model was used for pharmacokinetic analysis. AMX was absorbed more slowly when ingested with Diet I than Diet II:  $k_{11} 1.04 \pm 0.37$  and  $1.75 \pm 0.75$  ( $p < 0.05$ );  $t_{1/2}$  was  $0.72 \pm 0.19$  hours and  $0.47 \pm 0.21$  hours ( $p < 0.01$ ); and  $t_{1/2}$  was  $0.34 \pm 0.13$  hours and  $0.29 \pm 0.11$  hours ( $p < 0.05$ ), respectively. Bioavailability was higher when the drug was ingested with Diet I: area under the curve was  $12.17 \pm 3.04$  vs  $9.65 \pm 2.64$  ug/ml/hour with Diet II ( $p < 0.05$ ). Urinary recovery was  $41.1 \pm 6.5\%$  and  $38.4 \pm 14.6\%$  with diets I and II respectively ( $p < 0.001$ ). A higher content of fiber in the diet increased AMX absorption rate and decreased the amount of drug absorbed. Further investigation is needed to clarify the effect of fiber on doses and frequency of administration. It may be necessary to modify the recommended dosage for individuals who ingest large amounts of dietary fiber.

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FECAL ORGANIC ANION IN INFANTILE DIARRHEA. Carrazza, F.R.; Carrazza, M.Z.N. and Nichols, B.L. USDA/ARS Children's Nutrition Research Center, Houston, TX, USA and Dept. Pediatrics, University of São Paulo, Brazil.

Organic anion ( $OA^-$ ) has been identified as the largest component in stools from infants with malabsorptive diarrhea. The presently available techniques to measure  $OA^-$  have given unreliable results. The object of this study was to compare the data from four different methods of  $OA^-$  measurement, to evaluate the losses of  $OA^-$  in feces from 12 infants 2 to 11 months old during recovery from carbohydrate intolerance. Daily fecal 24-hour collections were carried out during 3 to 4 days. Daily samples were analysed for osmolality, electrolytes, and total  $OA^-$  measured by: 1) Titration (T): from pH 2.7 to fecal pH; 2) Gas-chromatography (GC): the sum of short, medium and long chain fatty acids, plus lactate, pyruvate and the Krebs cycle  $OA^-$ ; 3) Undetermined anions (UA): as the sum of (Na+K+Ca+Mg) - (Cl+1.8P); and 4) as (Na+K-Cl). Mean total  $OA^-$  measured as UA was  $121 \pm 58$  mEq/kg, not statistically different from both total  $OA^-$  estimated by GC ( $107 \pm 39$  mEq/kg) and/or T ( $147 \pm 52$  mEq/kg). (Na+K-Cl) represented only a small fraction of total  $OA^-$ :  $53 \pm 30$  mEq/kg and osmolality was  $366 \pm 76$  mOsm/kg. A significant correlation was obtained between UA and T,  $r = .91$ ,  $p < .001$ , but less directly related to GC:  $r = .67$ ,  $p < .01$ . Osmolality demonstrated good correlation with UA, T and GC:  $r = .88$ ,  $r = .88$ , and  $r = .87$ , respectively. We conclude that (Na+K-Cl) underestimates the total  $OA^-$  in stool and UA represents the best approach for the estimation of the fecal  $OA^-$  component in infantile diarrhea. T is a reliable option for UA, since UA is a time-consuming procedure.

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FAMILIAL AGGREGATION OF SODIUM TRANSPORT SYSTEMS (STS) IN RED CELL MEMBRANES AND ESSENTIAL HYPERTENSIVE (EH) PATIENTS WITH THEIR OFFSPRINGS. Sinsolo, R.; Gimenez, M.; Granfeld, B.; Brill, I.; Pucci, A.; Di Gracia, T.; Barontini, M.; BCCU, L. Hospital de Niños R. Gutiérrez and Hospital Italiano, Buenos Aires, Argentina.

The STS in red cell membranes more frequently altered in EH patients are Na: Na countertransport (CIT) and Na: K cotransport (Co). Genetical and environmental factors are involved in the pathogenesis of essential hypertension. Hypertensive adults and their offsprings were studied in order to investigate a familial aggregation. CIT, Co, Na:K Pump (P) and passive permeability (PP) were studied in 17 EH adults (X: 40 years) and their offsprings (n= 24), 10 hypertensive and 14 normotensive (X: 9.4 years, 12 girls and 12 boys). 16/17 parents and 22/24 offsprings presented alterations in one of the STS. A significant correlation was found between parents and offsprings: Co r: 0.59 ( $p < 0.005$ ), CIT r: 0.70 ( $p < 0.005$ ), P r: 0.60 ( $p < 0.005$ ), PP r: 0.84 ( $p < 0.001$ ). The present results indicate that CIT, Co, P and PP display statistically significant familial correlation.

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ACTIVE AND TOTAL URINARY KALLIKREIN (aKK - tKK) IN PATIENTS POST HEMOLYTIC UREMIC SYNDROME (HUS). Granfeld, B.; Sinsolo, R.; Gimenez, M.; Mandilharzu, P. Hospital de Niños R. Gutiérrez and Hospital Italiano, Buenos Aires, Argentina.

Patients post HUS develop high blood pressure in long term follow up. In a previous paper it was shown that hypertensive (H) patients post HUS did not increase their aKK after a diuretic stimuli as the normotensive (N) did. aKK and tKK were evaluated in these patients to examine if the different response is due to a lack of secretion or a failure in the activation. Both KK were evaluated in 24 patients post HUS (10H and 14N) before and after 10 days of administration of 1mg/kg/day of hydrochlorothiazide + amiloride, with S 2266 substrate. Results are expressed in nkat/day or /mj creatininuria. Per day: N: aKK pre  $3.4 \pm 0.7$  - post  $11.2 \pm 1.6$  ( $p < 0.001$ ), tKK pre  $11.2 \pm 2.1$  - post  $34.4 \pm 5.5$  ( $p < 0.001$ ). H: aKK pre  $3.2 \pm 0.5$  - post  $5.5 \pm 0.8$  ( $p < 0.01$ ), tKK pre  $10.6 \pm 1.5$  - post  $16.9 \pm 2.7$  ( $p < 0.01$ ). Per mj Cr: N: aKK pre  $6.4 \pm 1.8$  - post  $19.4 \pm 3.5$  ( $p < 0.005$ ), tKK pre  $20.5 \pm 5.5$  - post  $60 \pm 11.5$  ( $p < 0.001$ ); H: aKK pre  $8.7 \pm 1.7$  - post  $15 \pm 3$  ( $p < 0.005$ ), tKK pre  $31.1 \pm 6.1$  - post  $43.8 \pm 7$  ( $p$  NS). There was no difference of aKK or tKK per day or per mj Cr. between both groups before stimulation. After the stimuli aKK and tKK/day were significantly lower in H ( $p < 0.005$  and  $p < 0.01$ ). aKK/mj Cr increased after the stimuli in both groups, but while N increased their tKK/mj Cr ( $p < 0.001$ ), H did not. These data indicate that hypertensive children post HUS do not increase their tKK probably due to a lack of secretion in relation to an alteration in the distal tubular mass.

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SODIUM TRANSPORT SYSTEMS IN THE RED CELL MEMBRANES AND PLASMA LIPIDS IN THE HYPERTENSIVE AND NORMOTENSIVE OFFSPRING OF PATIENTS WITH ESSENTIAL HYPERTENSION. Gimenez, M.; Granfeld, B.; Sinsolo, R.; Ombamburu, J.; BCCU, L. Hospital de Niños R. Gutiérrez and Hospital Italiano, Buenos Aires, Argentina.

Alterations of cation transport across red cell (RC) membranes have been recently described. We investigated the relationship of plasma lipids to the sodium transport system (STS). Na: Na Countertransport (CIT), Na:K Cotransport (Co), Na: K pump (P), passive permeability (PP), cholesterol (C), HDL C, and triglycerides (TG) were studied in 42 offspring of patients with essential hypertension (EH) of which 24 were normotensive (N) (X  $\pm$  S.D = 10 years  $\pm$  0.8, 11 F, 13 M) and 18 were hypertensive (H) (10 years  $\pm$  0.9, 9 F, 9 M) and in a N control group (n = 11). Compared to the Control Group, CO was significantly decreased in both N ( $p < 0.05$ ) and H ( $p < 0.005$ ). When children were grouped according to lipid levels of normal C ( $166$  mg/dl  $\pm$  18) and elevated C ( $213$  mg/dl  $\pm$  26) ( $p < 0.001$ ), their CIT respectively were  $255$  uM/lc/h  $\pm$  110 and  $417$  uM/lc/h  $\pm$  193 ( $p < 0.005$ ). For children with normal HDL C ( $50.5$  mg/dl  $\pm$  6.7) and decreased HDL C ( $32$  mg/dl  $\pm$  5.2) ( $p < 0.001$ ), their CIT respectively were  $290$  uM/lc/h  $\pm$  165 and  $429$  uM/lc/h  $\pm$  128 ( $p < 0.025$ ). These findings suggest a possible interaction between lipids and STS which should be considered when the STS is evaluated.