71 A DIRECT MEASUREMENT OF FOLIC ACID ABSORPTION IN HEALTHY CHILDREN DETERMINED BY A SINGLE STOOL SAMPLE TEST- A DOUBLE ISOTOPE TECHNIQUE SPECIALLY ADAPTED TO THE USE IN CHILDREN

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The fractional folic acid absorption (FAFol) was determined in 66 patients with various gastrointestinal diseases by a double isotope technique, employing a single stool sample test (SSST), as well as a complete stool collection. The age of the patients ranged from 2.5 mo to 16.8 yrs(mean 6.3). The test dose was administered orally and consisted of 50 mikrog. of 3H folic acid (app. 20 mikroCi), carmine powder, and 2 mg 51CrCl3 (app.1.25 mikroCi)as the inabsorbable tracer. The wholebody radiation given to a 1-year-old child averaged 4.8 mrad,ie a negligible radiation dose. The stool and napkin contents were collected and homogenized by the addition of chromium sulfuric acid. The content of 51Cr was measured in a broad-based well counter and the quantity of 3H folic acid by liquid scintillation, after duplicate destillation. Estimated by SSST, the FAFol, which employs the stool with the highest content of 51Cr corresponding to the most carmine-colored stool, correlated closely with the FAFol based on complete stool collection (r=0.96,N=39,p 0.0001).The reproducibility of FAFol determined by SSST was assessed from double assays in 18 patients.For a mean of 81%, the SD was 4.6% which corresponded to a CV of 5.7%. The mean FAFol in 45 healthy children aged 9 mo to 16.8 yrs (mean 6.4) was 83% (range 66-95%). The FAFol levels showed no correlation with age. This study is the first attempt of direct measurement of folic acid absorption in healthy children.

72 A LONGITUDINAL STUDY OF THE IMPACT OF GLUTEN ON THE HAEMATOLOGICAL STATUS, DIETARY INTAKES OF HAEMOPOIETIC NUTRIENTS AND VITAMIN B12 AND FOLIC ACID ABSORPTION IN CHILDREN WITH COELIAC DISEASE.

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The haematological status as well as the fractional absorption of folic acid -and B12 (FAFol and FAB12) were studied longitudinally in 20 coeliac children aged 1.2-16.6 yrs(mean 7.5) during periods of gluten free and gluten containing diets. The absorption methods were specially adapted to the use in children, and age specific reference limits established. Moreover, dietary intakes of folate and B12 were registered. The hemoglobin concentrations did not show any significant differences in relation to shifts in diet. Few had light anemia while the concentrations of the other patients remained within normal range. Ther iron status, as well as the dietary intakes of iron were insufficient regardless of the type diet. S-B12 concentrations demonstrated a wide range of values above the lower normal limit,and the level in one patient only was within the "intermidiate range"of 150-200 pmol/l. A significant increase in S-B12 concentrations occur-red during an average of 14 mo of gluten free diet. The folate status (ERC-folate) and FAFol showed significant variations related to dietary changes. However, few patients became folate depleted.FAFol and FAB12 demonstrated rapidly occurring and significant decreases and increases in relation to gluten challenge and gluten free diet, respectively.
The study is the first of its kind in children.

73 NUTRITIONAL INTAKE, IGF-1 LEVEL AND GROWTH FAILURE IN CHOLESTATIC RATS

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Patients with chronic liver disease have low insulin-like growth factor 1 (IGF-1) levels, but it is not known whether this is secondary to primary hepatic dysfunction and/or to malnutrition. In order to distinguish between these possibilities, serum and liver IGF-1 concentrations and liver IGF-1 mRNA content were compared in three groups of Sprague-Dawley rats: fifteen rats underwent bile duct obstruction (OP); 10 rats were sham-operated and pair-fed with OP rats (PF) to control for nutritional status; and 12 rats were sham-operated controls fed ad libitum (CON). Serum and liver were extracted and assayed by RIA using an antibody that recognizes rat IGF-1 (gift of L.Underwood). Liver IGF-1 mRNA content was measured by dot blot hybridization using a cDNA probe, quantitated by videodensitometry and expressed as a percent of internal control RNA values (adult rat pool). In addition, IGF-1 peptide and mRNA were compared with food intake, nitrogen balance, total weight gain, tail length increase and leg muscle weight. All the parameters were found significantly lower (p(0.001) in OP and PF animals than in CON animals. In the 10 paired OP and PF animals serum and hepatic IGF-1 and liver IGF-1 mRNA Values were not significantly different, despite lower nitrogen balance, tail length gain, and leg muscle weight in the OP animals. For all animals, there was a significant correlation (p(0.001) between serum IGF-1 levels and food intake (r=0.84), liver IGF-1 levels (r=0.64), and liver IGF-1 mRNA (r=0.89). These studies suggest that in chronic bile duct obstruction, the low serum and hepatic IGF-1 levels are primarily due to decreased food intake and appear unrelated to cholestatic liver disease itself. Decreased IGF-1 synthesis is the most probable cause of these low levels. However, factors other than suboptimal nutrition and decreased IGF-1 levels must also contribute to cholestasis-induced growth failure in this animal model.

74 T CELL RECEPTOR EXPRESSION BY HUMAN INTRAEPITHELIAL LYMPHOCYTES; DIFFERENCES BETWEEN COELIAC DISEASE AND NORMAL JEJUNAL BIOPSIES IN NON-COELIAC ENTEROPATHY.

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It has been suggested that most murine intraepithelial lymphocytes (IEL) express the γ/δ form of the T cell receptor (TCR γ/δ) rather than the α/β expressed by the majority of the peripheral T cells. TCR γ/δ is expressed predominantly by CD3+, CD4-, CD8- T cells. We have used immunocytochemistry to study TCR γ/δ expression by human IEL with a monoclonal antibody (TCRδ1) to the TCRδ chain. We studied normal jejunum, coeliac disease in which IEL density and CD4-, CD8- population is increased and tropical sprue, cows mild protein intolerance, post-enteritis syndrome and autoimmune enteropathy. Approximately 11% of IEL in normal jejunum expressed TCRδ1 compared to 33% in coeliac disease and 5% in tropical sprue, 14.6% in cows milk protein intolerance, 34.7% in postenteritis syndrome and 6.3% in autoimmune enteropathy. In the single case of postenteritis syndrome studied, the IEL density was not increased and the CD7+, CD3- IEL population was present which is absent in coeliac disease and despite the high % of TCT γ/δ would not be mistaken for coeliac disease. This study shows firstly that the TCR γ/δ is not the predominant form of T cell receptor in human IEL and secondly that TCR γ/δ expression, taken with other characteristics of the IEL population may be useful in discriminating between coeliac disease and other enteropathies.

75 LENGTHENING OF VERY SHORT BOWEL BY LONGITUDINAL DIVISION

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We report the cases of two children with a congenital very short bowel (18 and 20 cm) which has been surgically lengthened. In both cases, the short jejunum was distended because of a proximal atresia associated with laparoschisis in case n° 1, and in functional obstruction above a jejunocolic anastomosis (case n°2). Lengthening of the jejuna loop was performed following Bianchi's technique of longitudinal partition, modified with immediate end to end isoperistaltic anastomosis. The post operative course was uneventful with a satisfactory radiographic control. Further evolutin was: in case n° 1, under Parenteral Nutrition (PN), progressive oral refeeding from day 40 on, by constant rate enteral nutrition; PN defiitively stopped at 8 months, and totally fractionned feeding at 3½ years. In case n° 2, under PN, oral fractionned feeding onset at day 40, with enteral decontamination; at 8 months PN providing only 1/5 of caloric needs. The growth of both patients is normal. Adaptation of bowel is attested and development of villous hypertrophy in case n° 1. A third child has just had the same surgical procedure at 1 year of age for a very short bowel after a neonatal volvulus.
In conclusion, bowel lengthening restores an efficient intestinal peristaltis without reduction of the absorptive surface. This surgical procedure is very useful to promote faster adaptation of very short distended bowels.

76 INFLUENCE OF INTRAVENOUS FATTY ACID SUPPLEMENTATION ON NASAL TRANSEPITHELIAL POTENTIAL DIFFERENCE IN CYSTIC FIBROSIS PATIENTS.

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Defective regulation of arachidonic acid has been hypothesized to be a basic defect in Cystic Fibrosis(CF). In order to demonstrate the role of intravenous fatty acid supplementation on Cl^- transport in CF patients, we studied the influence of intralipid 20% (Kabivitrum) infusion 12 hours 10 ml/Kg, on measurement of electrical potential difference (PD) across nasal epithelia.
Ten patients, 4 males, 6 females, aged from 9 months to 24 years (m=11,7 years) with CF confirmed by clinical history and sweat test criteria, were studied juste before (IL-) and just after intralipid infusion (IL+).
PD was measured by pH-GPD PROXIMA® between nasal electrod and subcutaneous reference electrode. Results were compared to a normal healthy control group ranging from 5 months to 26 years(M=7,5 years)
Results :

CF Patients	IL-	IL+	Controls (n = 16)
Mean	26,95	13,25	7,66
Std. Deviation	5,03	7,70	2,58

$p < 0,001$

Conclusion : From this preliminary study, influence of intravenous lipid infusion on ionic transport across the epithelium of respiratory tract appear to be demonstrated for the first time in CF Patients, illustrating the experimental data concerning essential fatty acid on Cl and Na transport.