23 HUMAN EPIDERMAL GROWTH FACTOR IN DIGESTIVE JUICES AND STOOL OF CHILDREN

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Epidermal growth factor (EGF) is one of the most important growth promoting factors for various cells. Human(h) EGF has been found in several biological fluids, but little is known about physiological levels and developmental changes of hEGF in digestive juices during childhood. In this study, we measured hEGF levels in saliva, gastric juice, duodenal juice and stool by specific homologous radioimmunoassay. The mean value of hEGF in saliva was the highest at the neonatal period and decreased with age (newborns: 4.44 ng/ml, infants: 4.11, school-children: 3.95, adults: 2.38). The mean value of hEGF in gastric juice of 18 healthy children aged 2 months to 10 years was 3.09 ng/ml, and it had a negative correlation with age and gastric acid concentration. HEGF was also found in duodenal juice)n=12, 2M-6Y: 0.89 ng/ml). Meconium contained the mean value of 2.22 ng of hEGF per gram wet weight, and content of hEGF in stool decreased in subsequent neonatal days (day 3 : 0.88, day 7 : 0.44, day 9 -15 : 0.35), despite breast milk which is rich in hEGF, intake. The finding of the high value of hEGF in digestive juices observed in neonatal period and infancy suggests that hEGF is an important growth promoting factor of immature mucosal cells of digestive tract.

24 RESULTS OF MASS ENDOSCOPIC SCREENING OF CHILDREN

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From 1974 44391 oesophageogastroduodenoscopies were performed on 35,097 babies and children under 15. 3% of this group had gastroduodenal ulcers (998 were duodenal). These children more often had multiple ulcers of the duodenal bulb rather than single ulcers. In 85% of cases the ulcers were chronic. We have classified different forms and types of duodenal ulcer development that makes it possible to predict the rate of relapse, as well as risk and the character of complications.

We used 91F-P3 and 91F-P10 Olympus endoscope to make 731 jejunoscopy tests checking 50-100 cm. of jejunum.

We screened 1015 children by colonoscopy with retrograde ileoscopy in 91% cases. The combined jejuno and ileoscopy enabled us to set endoscopic criteria for investigation of chronic diarrhea and polyps of small intestine.

25 HLA CLASS I AND II ANTIGENS IN COELIAC DISEASE: A STUDY IN AN AUSTRIAN PEDIATRIC POPULATION

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The association of coeliac disease (CD) with certain histocompatibility antigens is well documented, but these vary regionally in frequency. Also, differences in annual incidence of CD have been noted in several European nations.
We observed in our clinic an increased incidence of 1:204 live births in 1979, versus an average of 1:438. To determine the phenotype frequencies in our area, and to compare the HLA pattern of 1979 with other years, HLA A,B,C, and DR antigen typing was performed on 125 CD patients, representing 76% of the cases born 1978 to 1984. 997 healthy adults from the general population of the same area served as controls for class I and 667 cases for class II antigen determinations. The HLA distribution pattern of the control group agrees with the literature, as does that of the study group, which revealed relative risks (RR) of 6.12 for DR 3, 3.68 for B 8, and 2.67 for DR 7. The frequency of these three phenotypes was similar in all birth years of the study group, while A 2 occured significantly more often in 1979, with an RR of 2.22. Six study patients born 1979 (19%) were negative for B 8, DR 3, and DR 7, but the difference to other years was not significant. However, all 6 were HLA A 2 positive.
It can be speculated that the HLA A 2 antigen might modulate receptivity for or resistance to viral infections. Taking into considerations Kagnoff's hypothesis, this could explain the increased incidence in 1979.

26 EFFECT OF CLOSTRIDIUM DIFFICILE TOXINS ON THE CAECAL EPITHELIAL BARRIER.

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The most striking effect of Clostridium difficile infection is its degrading of the intestinal barrier. The aim of this study was to characterize the effect of C. difficile toxins on the epithelial layer including cellular and paracellular constituents. Accordingly, the caecum of C3H/He mice was challenged under 3 experimental conditions with C. difficile strain VP1 10463 : 1) by in vivo inoculation of axenic mice, 2) by adding the toxins to ligated caeca in vivo, and 3) by adding them to the mucosal side of isolated caeca in Ussing chambers. Under all 3 conditionals, the epithelial barrier was tested in caeca mounted in these chambers. The transepithelial potential difference (PD), electrical conductance (G), and intact and degraded Horseradish peroxidase (HRP) fluxes were used as indexes of permeability. Results : 1) In axenic mice, C. difficile caused severe infection, produced toxins A and B, reduced PD, and enhanced G and intact HRP fluxes without changing degraded HRP fluxes; 2) 4 hours after the toxins were added to ligated caeca in vivo, PD was relatively unaltered, but G intact and degraded HRP fluxes increased, and 3) when toxins were added to caeca during 2 hours in the Ussing chambers, the only modification observed was an increase in degraded-HRP fluxes.

These results indicate that the C. difficile toxins gradually cause intestinal lesions. After an apparent resistance, they stimulate the endocytotic process, increase paracellular permeability and finally cause loss of cell viability.

27 INCIDENCE, ETIOLOGY, CLINICAL SIGNIFICANCE AND RISK FACTORS OF ACUTE DIARRHOEA: A PROSPECTIVE COMMUNITY-BASED STUDY.

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To determine the incidence, clinical significance and etiology of acute diarrhoea in early childhood in today's Finland and to search for possible risk factors, a cohort of 336 children were followed from birth to the age of 24-32 (mean 28) months of age. More than half (55%) of the children had no diarrhoea, 26% had one episode and 19% had two or more episodes or diarrhoea. Bacterial pathogens (EPEC, Salmonellae, Yersiniae) were identified in only 3.6% of the cases. Rotavirus was by far the most common (26.2%) single pathogen, adenoviruses were detected in 7.6% of the cases, and most cases (62.5%) remained etiologically unsolved. No child had more than one episode of rotavirus diarrhoea, suggesting that clinical disease was only associated with primary infections. Clinical severity of disease was assessed with a 0-20 point score: rotavirus diarrhoea was significantly ($p<0.0005$) more severe (mean 11.0 points) than diarrhoea due to other causes (mean 5.5 points). These results suggest that a successful rotavirus vaccination might avert 26% of all cases but up to 73% of severe cases of acute diarrhoea (score 9 or greater) before the age of $2\frac{1}{2}$ years.
Occurrence of acute diarrhoea was not significantly associated with the educational status of mothers. Duration of breast-feeding had only marginal effect limited to cases of diarrhoea before the age of 6 months. Children taken care at home had significantly fewer episodes of diarrhoea than those at day care centers. Children who had clinical allergy as well as those who had frequent respiratory infections also had more episodes of acute diarrhoea.

28 SALIVARY CAFFEINE CLEARANCE IN HEALTHY CHILDREN AND THOSE WITH LIVER DISEASE.

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Delayed salivary caffeine clearance (SCC) has been proposed as a novel test of functional hepatocyte mass and may be of potential clinical value. To assess its role in paediatric liver disease (LD) we have estimated SCC in 25 healthy school children (3.5 - 15yrs) and in 62 children with chronic liver disease(13 repeated within 6 - 18 mnths). Salivary caffeine content was measured by HPLC at 1,4,6,and 24hr after oral caffeine of 3mg/Kg. Half life hr ($t\frac{1}{2}$),apparent volume of distribution l/Kg (Vd) and clearance ml/min/Kg (CL) were calculated . In controls Vd had a wide variation with a mean ± SD of 0.83 ± 0.42 ,$t\frac{1}{2}$ was 3.5 ± 2.1 and CL was 4.4 ± 3.5, with a tendency for the Vd and CL to be higher in younger children. $t\frac{1}{2}$ was lower($p<0.05$) in males(11) compared to females(12) with no significant difference in CL. 19 cirrhotic children with serum albumin <35 g/l had greater ($p<0.02$) $t\frac{1}{2}$ than 52 children with less severe LD and 25 controls (28.2 ± 44.5, 9.1 ± 7.9 , 3.5 ± 2.1 respectively) and lower CL (1.1 ± 1.6 , 2.1 ± 1.4 , 4.4 ± 3.5 respectively). SCC parameters did not correlate with serum albumin, AST,TGT,ALKP,PT or bilirubin. Delayed SCC appears to be related to advanced cirrhosis, of 10 children with $t\frac{1}{2}$>28 hrs 3 have died, 3 underwent liver transplantation, 3 have advanced liver disease and 1 with Wilson's disease has improved upon treatment. We conclude that SCC provides new information about liver function which appears to be of prognostic value.