EUROPEAN SOCIETY FOR PAEDIATRIC GASTROENTEROLOGY AND NUTRITION (ESPGAN) AND NORTH AMERICAN SOCIETY FOR PAEDIATRIC GASTROENTEROLOGY (NASPGN)

Abstracts presented at the Third Joint Meeting
 Amsterdam, The Netherlands
 May 23-26, 1990

1

DELINEATION OF AN INSULIN-SENSITIVE-PERIOD DURING RAT SMALL INTESTINAL GROWTH

Jean-Paul BUTS, François VAN HOOFF

Lab Ped Gastroenter, Univ of Louvain, Brussels
 In suckling pups treated with exogenous insulin
 (IN:12.5 mU.g.b.wt), twice daily, from day 8 to 12,
 sucrase-isomaltase (SI) measured in BBM was
 precociously induced while maltase, aminopeptidase and
 neutral lactase were markedly enhanced (+30 to +131%,
 $p < 0.01$ vs controls). N-acetyl- β -glucosaminidase
 (lysosomes), sulfatase C (microsomes) and lactate
 dehydrogenase (cytosol) were also sensitive to IN with
 decreases in villus and crypt cells ranging from -37
 to -63% ($p < 0.05$ vs controls). Whatever the dose of
 IN given, the production of plasma corticosterone
 remained similar to saline controls. In weaned rats
 (d. 23 to 32), IN (12.5 mU) failed to influence the
 activity of BBM, lysosomal, microsomal and cytosolic
 enzymes. The synthesis rate of mature S-I, measured by
 the incorporation of ^{14}C -leucine into S-I precursor
 was equivalent in IN-treated rats (0.039 ± 0.006) and
 controls (0.034 ± 0.005 ratio cpm ^{14}C -SI/cpm ^{14}C BBM
 prot.).

In conclusion: (1) the immature enterocyte of the rat
 is responsive to IN throughout the nursing period
 while at weaning, the mature enterocyte lost IN
 responsiveness (2) the effect of IN on the enterocyte
 is not mediated by endogenous corticosterone release.

2

REPRODUCIBILITY OF OESOPHAGEAL pH MONITORING DATA.

Yvan Vandenplas, Harry Goyvaerts, Rudy Helven.
 Academisch Ziekenhuis Kinderen VUB, Brussels, Belgium.

Oesophageal pH monitoring has been shown to be a valuable method
 to detect (acid) reflux. It was extended to 24 hours to "allow
 observing GOR patterns during one complete human circadian cycle"
 (Johnson; J Clin Gastroenterol 1986;8(suppl):52). Although pH data
 are influenced by numerous technical and patient related factors,
 the question of reproducibility has not been thoroughly studied.
 An oesophageal pH monitoring was performed in 30 infants and chil-
 dren using a Memolog 2a-600 during 24 hr. All events, including
 feeding and activities, were carefully reported by the nursery
 staff and/or the parents. After 24 hr, data were read-out, and the
 investigation was repeated using the same equipment after recal-
 ibration, and the "activity-report" of the previous day was precise-
 ly repeated. Pearson-correlation coefficients ranged from 0.88 to
 0.98 for the parameters studied: percent of the investigation time
 with a pH < 4 , the number of reflux episodes with a pH < 4 , those
 lasting longer than 5 min, and the duration of the longest episode.
 The % of the investigation time < 4 and the number of long lasting
 episodes are the most reproducible parameters. The limits of
 agreement, who represent the 95% confidence interval of the
 recorded differences of all pairs (day 1-day 2), revealed clinical-
 ly irrelevant differences. The correlation coefficients between
 normal data (n:11) were higher ($p:0.95$ to 0.98), if compared to
 the coefficients between abnormal data (n:19) ($p:0.88$ - 0.97).
 Regarding "normal/abnormal", all data were confirmed by the 2nd
 monitoring. Despite the multifarious patient-related factors
 influencing pH data, reproducibility of 24 hr pH monit data is
 very satisfactory for routine clinical application.

3

IMPROVEMENT OF NUTRITIONAL AND LIPOPROTEIN STATUS IN CYSTIC FIBROSIS (CF) PATIENTS AFTER IV ANTIBIOTHERAPY (IV AB) ON AN EQUICALORIC BASIS.

D.C. Belli, D. Pomella, J.M. Dayer, P. Roux, P.C. Sizonenko, S. Suter,
 Clinique Universitaire de Pédiatrie, Geneva, Switzerland.

Malnutrition, pulmonary and digestive disease are interrelated in CF. If the effects of
 nutrition on pulmonary function were closely studied, the adverse is not true, particularly
 concerning AB and nutritional status. To determine the per se effect of AB on nutritional
 and lipoprotein status, 7 patients ($m = 13.3 \pm 1.9$ yrs) were studied prospectively before
 and after a 14-day course of IV AB on an equicaloric (2618 ± 353 vs 2745 ± 392 kcal/d;
 NS) and equilipidic (97 ± 18 vs 109 ± 20 g/d; NS) spontaneous intake basis. **Results:**
 without change in lipid absorption coefficient, IV AB lead to a significant increase of
 weight ($d: 1157 \pm 485$ g; $p < 0.05$) and both mid-arm circumference and triceps skinfold
 were improved. This gain of weight was significantly correlated ($p < 0.01$) to an increase of
 IGF1-somatomedin-C ($d: 0.64 \pm 0.15$ U/l) and of retinol binding protein ($d: 17 \pm 4$ mg/l).
 Serum lipids (mmol/l) and apoproteins (mg%) are tabulated below:

	Cholesterol (C)	Triglycerides (TG)	Phospholipids (Ph)	Apoprotein A1
Before IV AB	2.81 ± 0.41	0.71 ± 0.09	1.55 ± 0.17	69.5 ± 11.7
After IV AB	3.77 ± 0.52	0.94 ± 0.07	2.13 ± 0.22	92.3 ± 13.5
Statistics	$p < 0.01$	NS	$p < 0.005$	$p < 0.05$

The significant increases in C and Ph were noted in both LDL and HDL fractions ($p < 0.01$)
 but not in VLDL. However, Apoprotein B was not significantly modified. On the other
 hand, inflammatory serum parameters (ESR, IgG, elastase-complex) were unchanged
 despite notable improvement of pulmonary function tests. In addition, cytokines (tumor
 necrosis factor (TNF) and interleukin-1 alpha and beta), which could influence the
 lipoprotein metabolism, were measured and found only occasionally elevated. **In**
summary: this prospective study showed that profound changes in nutritional and
 lipoprotein status are induced by IV AB in the absence of modification of caloric or lipidic
 intake or absorption in patients with CF. Cachectin-like activity of TNF at levels below the
 assay detection limit could contribute to this metabolic phenomenon.

4

A HUMAN LACTOBACILLUS STRAIN (LACTOBACILLUS GG) PROMOTES RECOVERY FROM ACUTE DIARRHOEA IN CHILDREN

E. Isolauri, T. Jälonen, M. Juntunen, T. Rautanen, T. Koivula
 University of Tampere, Department of Clinical Sciences, Tampere, Finland

To determine the effect of a human Lactobacillus strain GG (GefilacTM) on the clinical
 outcome and recovery from mucosal damage of acute diarrhoea (82 % rotavirus), 71
 well-nourished children between 4 and 45 months of age were studied. After oral
 rehydration, the patients were randomly assigned to receive either Lactobacillus GG-
 fermented milk product 125 g (10^{10-11} CFU) twice daily (Group 1), Lactobacillus GG-
 freeze dried powder one dose (10^{10-11} CFU) twice daily (Group 2) or a placebo milk
 product (Group 3) with no lactic acid bacteria 125 g twice daily, each for 5 days. In
 addition, normal full diet otherwise free of fermented dairy products was given.
 Intestinal permeability was assessed by urinary recovery ratios of orally-administered
 lactulose (4g) and mannitol (0.8 g). The mean (SD) duration of diarrhoea after
 commencing the therapy was significantly shorter in Group 1, 1.4 (0.8) days, and in
 Group 2, 1.4 (0.8) days, than in Group 3, 2.4 (1.1) days; $F = 8.70$, $p < 0.001$. The
 decrease in the number of diarrhoeal stools became apparent after the first day of
 therapy in Group 1 and Group 2. After rehydration, each dietary group maintained a
 positive weight trend. The urinary lactulose/mannitol recovery ratios (means [95 %
 confidence intervals]) were on admission in Group 1, 0.09 [0.03, 0.24]; Group 2, 0.12
 [0.07, 0.22]; Group 3, 0.08 [0.04, 0.18], and no significant alterations were observed at
 retesting after 2 days of realimentation. The result indicates that early nutritional
 repletion after rehydration causes no mucosal disruption, and is beneficial for the
 recovery from diarrhoea. We suggest that fermented dairy products, with viable lactic
 acid bacteria that are able to colonize the gut, are effective in shortening the course of
 acute diarrhoea.