584 STARCH INTOLERANCE AND TRANSIENT AMYLASE DEFICIENCY AS A CAUSE OF CHRONIC DIARRHEA IN INFANCY, Emanuel Lebenthal, Ping C Lee, Tom M Rossi, SUNYAB, Children's Hospital of Buffalo, Gastroenterology Division, Buffalo, New York

Pancreatic amylase (PA) normally appears in duodenal fluids after 4 mos. of age and reaches near adult levels at 8 to 12 mos. Six infants, 8 to 16 mos. old were found to have very low or absent PA. All had chronic diarrhea, bloating and protuberant abdomens. Four patients exhibit growth failure. All had normal peptidases and lipase in their duodenal fluid, negative sweat tests and normal intestinal disaccharidases and glucoamylase. Starch tolerance tests (2gm/kg) were flat in 5 patients tested at the time of diagnosis and 4 developed diarrhea following the test. Feeding of amylose and amylopectin to 3 patients for 1 mo. failed to induce a change in duodenal PA activity and all 3 developed loose stools. To find out if the lack of PA activity is related to an inactive or absent enzyme, PA from human duodenal fluid was purified and antisera against the enzymes were raised in rabbits. The antisera were specific against amylase. It did not cross react with trypsinogen or lipase and showed single precipitant band when tested against control duodenal fluids. Duodenal fluid from amylase deficient patients did not compete with control duodenal fluids in immuno-precipitation assay using these antisera. This suggests the absence of immuno-cross-reacting material to anti-amylase in the duodenal fluid from amylase deficient patients. All patients had their amylase level returned to near normal at the age of 16 to 30 months and showed cross reacting material to antiamylase in their duodenal fluids.

585 RECURRENT SEVERE ABDOMINAL PAIN (RSAP) IN CHILDREN WITH LACTOSE INTOLERANCE. Neal S. LeLeiko, Velencia L. Soutter, Hedvig Bodansky, Harriet J. Blumencranz, Naum I. Becker, Elizabeth Luder (Spon. by H. L. Hodes). Mount Sinai School of Medicine, Mount Sinai Medical Center Department of Pediatrics, New York, New York.

Eight children ages 9 to 18 years were evaluated during a one year period because of RSAP without any discernable etiology. All eight had suffered significant disruption of their normal activities for periods ranging from three months to two years. 5/8 (63%) were hospitalized, 8/8 (100%) had KUB's and UGI x-rays, 6/8 (75%) had barium enemas, 4/8 (50%) had upper gastrointestinal endoscopy, 2/8 (25%) had sigmoidoscopy, 4/8 (50%) had Meckel's scan and 2/8 (25%) had small bowel biopsies.

Lactose breath tests were positive in all 8. Six (75%) had complete and unequivocal clinical response to a rigid lactose free diet. One (12.5%) had significant improvement but continued to have some symptoms and one (12.5%) had no response to a lactose free diet.

Upon re-study the patient without response was found to have severe duodenitis. Three "responders" had history and findings strongly suggestive of an "allergic diathesis" including one with transient eosinophilia and one with eosinophilic infiltration of her small bowel mucosa. We conclude that: 1) patients suffering from lactose intolerance may have RSAP; 2) such patients are at risk to have many unnecessary invasive procedures performed; 3) lactose breath testing is a simple and fruitful test for patients with RSAP; 4) RSAP from lactose intolerance may be a symptom of another primary process; 5) rigid lactose free diets may be necessary to achieve remission of RSAP.

586 BREAST-FEEDING AND HOSPITALIZATIONS DURING INFANCY. Cynthia B. Aten, John M. Leventhal (Spon. by Howard A. Pearson). Yale Univ. Sch. of Med., Yale-New Haven Hosp., Dept. of Ped. and Child Study Center, New Haven, Conn.

Claims that breast-feeding provides protection against hospitalizations due to infections during infancy have been based on studies with methodologic flaws: few cases in cohort studies and controls poorly matched for SES, time of year, and pediatrician in case-control studies. To determine whether breast-feeding is indeed protective, we performed a case-control study with carefully matched controls.

From a list of all children < 3 months of age hospitalized for an infectious illness at Yale-New Haven Hospital from 7/1/79 to 6/30/80, cases were selected according to the following criteria: born at YNHH, no postnatal problems that might affect mode of feeding (e.g. prematurity), and discharged post-partum with the mother. For each case, a control was selected from a list of all infants born at the same hospital. Controls were matched for date of birth (to control for seasonal illnesses), sex, race, SES, and site of pediatric care (to control for the physician's likelihood of admitting a sick infant).

Ninety-six matched pairs were analyzed. Breast-feeding, as noted in the hospital chart before discharge from the well-baby nursery, was not protective ($p > .1$; odds ratio = 1.42). In the 45 patient pairs from private practices, breast-feeding was borderline protective ($p > .05$; odds ratio = 2.25).

These results indicate that breast-feeding during infancy may not be protective against hospitalizations due to infections.

587 ILEAL INVOLVEMENT IN THE INTRACTABLE DIARRHEA SYNDROME OF INFANCY. John D. Lloyd-Still and James J. Conway. Northwestern Univ., Children's Mem. Hosp. Dept. Ped. and Radiol., Chicago. (Spon. by Henry Nadler)

The intractable diarrhea syndrome of infancy is a multifactorial enterocolitis associated with nutritional failure (AJDC 125: 358, 1973). Impaired upper intestinal function may persist for months despite clinical recovery (Ped. 66:730, 1980). Ileal function was assessed by the Schilling test with and without intrinsic factor (Co^{57} and Co^{58}) in 13 patients. All required i.v. hyperalimentation and/or elemental diet. Mean duration of hospitalization was 4.5 mos. Renal function was normal and none were on antibiotics. Hypoalbuminemia and impaired xylose absorption were present in 12/13. Intestinal biopsies ranged from normal to total villus atrophy. Fecal flora in the upper intestine was only present in 1/12. Results showed impaired vitamin B^{12} absorption in 9/13 (mean ± 1 SD % excreted Co^{57} = 2.32 ± 1.93, Co^{58} 2.63 ± 2.17, normal > 10%). Response to Cholestyramine was inconsistent. Follow up studies in 4 patients showed persistent abnormalities, but serum vitamin B^{12} levels remained normal. Schilling tests in 36 other patients showed abnormalities in Crohn's disease (8/18), immunodeficiency syndromes (2/6), post-resection (2/6) and other malabsorption syndromes (0/6).

Conclusions: 1) Ileal involvement is present in the majority of infants with intractable diarrhea. 2) Recovery of ileal function is delayed.

588 BEHAVIOR AND DEVELOPMENT OF IRON DEFICIENT ANEMIC INFANTS, B.Lozoff, G.Brittenham, J.Urrutia, F.Viteri, (Spon. by M. Klaus), Case Western Reserve U. School of Med., Dept. of Peds., Cleveland; INCAP, Guatemala.

To assess effects of iron deficiency on behavior and development, 75 healthy 6-24 month old urban Guatemalan babies with and without mild iron deficiency anemia were compared with the Bayley Scales in a double-blind study. Initial mental and physical development scores (MDI, PDI) of anemic infants were significantly lower, especially in older babies (19-24 month olds).

GROUP	(N,all)	MDI**	PDI*	(N,older)	MDI**	PDI	
Anemic	(32)	88.5	86.5	(14)	75.7	85.7	* p<.05
Non-Anemic	(43)	99.1	93.4	(17)	90.8	93.2	** p<.025

On the Infant Behavior Record anemic infants were more fearful, tense and less socially responsive, active, persistent and reactive. On the Mental Scale older anemic infants failed language comprehension and expression and eye-hand coordination items significantly more than the non-anemic group. There were no significant differences between anemic and non-anemic groups in birth histories, socioeconomic level or nutritional status to explain the lower scores. Short-term oral iron therapy did not change infant behavior, and developmental test score deficits persisted. In the absence of treatment effects, the findings cannot unequivocably be attributed to iron lack. Yet iron deficiency anemia was the only characteristic found to distinquish infant groups. The results of this study suggest that mild iron deficiency anemia may be an unrecognized risk factor for developmental impairment in millions of infants.

589 PHYSICIANS FAILURE TO ALTER FAILURE TO THRIVE (FTT). A. Harold Lubin and Ruth O. Shrock, The Ohio State University College of Medicine, Columbus, Ohio.

Non-organic failure to thrive often results in expensive, but ineffective hospital stay, which occurs without adequate prior outpatient work-up. To improve the management of these pts., we performed a 1 year retrospective review of children over 12 mos. admitted and discharged with 1° dx. of FTT. 10 of 21 cases were non-organic FTT. All pts. had at least 1 prior physician contact and adequate immunization status. 5 children had received prior dietary instruction. Our results indicate that even when hospitalized, these children did not receive adequate nutritional assessment: 1) Dietary hx. by physician either lacking or inadequate; hx. by a hospital dietitian often contributed the only clues to the pt.'s problem. 2) Anthropometric data for all pts. included only ht., wt., & growth charting; often missing was head circ., MAC, TSF, or data on parental and family stature. 3) P.E. specified nutritional status indicators only 50% of the time. 4) Biochemical evaluation revealed an average/pt. of 14 diagnostic tests, of which all WNL except FE/TIBC(2) and HCT/Hb(3). The course of the hospital stay included daily wts. (90% of cases), calorie counts (100%) and nutrition consults (50%). Outcomes were:

Hosp. stay	Wt. gain/day	% pts. poor feed.	% pts. fam. problems	% cases follow-up
10± 8 days	17.0g/day±55	50%	50%	60%

We conclude that 50% of admissions could have been prevented initially by additional counseling and reassurance. 50% of pts. required significant social intervention for which hospitalization and subsequent follow-up did little.