EVALUATION OF INTERMEDIATE hGH RESPONSES: 24 HOUR PATTERN OF hGH & RESPONSE TO hGH TREATMENT. Richard Wu*, Jordan W. Finkelstein, Robert M. Boyar*, Leon Hellman*.Albert Einstein Col. of Med., Montefiore Hosp. & Med. Ctr., Depts. of Pediatrics and Oncology, The Bronx, New York

Intermediate values of hGH (2-7ng/ml) may occur in response to stimulatory tests. Patients with hGH responses less than 2ng/ml are probably hGH deficient while those with responses greater than 7ng/ml are probably not hGH deficient. 16 patients, in whom all other causes of growth failure have been excluded, were given insulin 0.1 units/kg IV, arginine 0.5gm/kg IV, or glucagon 1mg IM in order to evaluate their hGH responses. In 4 subjects who were found to have intermediate hGH responses, the concentration of hGH in plasma was measured every 20 minutes for 24 hours. In these subjects the maximum concentration of hGH during the 24 hour study was 13.3 12.9, 12.2 and 27.2ng/ml. These 4 subjects were treated with hGH 2 IU 3 times a week for 3-5 months. Growth in 3 of 4 subjects was 3.4cm, 4.1cm and 3.0cm/yr. The fourth subject grew 9.2cm/yr despite a maximum hGH of 13.3ng/ml during the 24 hour study. Our results indicate that the 24 hour study method of evaluating hGH responses is not more helpful than stimulatory tests in the diagnosis of hGH deficiency. Since the 24 hour study is more difficult to do, the usual stimulation tests are preferable and a trial of hGH treatment may be necessary.

IMPROVED FAT AND CA ABSORPTION IN L.B.W. INFANTS FED A MEDIUM CHAIN TRIGLYCERIDE CONTAINING FORMULA. Billy F. Andrews and Vichien Lorch (Intr. by Jacqueline A. Noonan)Univ. of Louisville Sch. of Med. Louisville Gen. Hosp. Dept. of Ped., Louis.

Premature infants are reported to have decreased fat absorption. Because of energy requirements and limitation of gastric capacity, new formulae are sought which will provide absorbable and utilizable fats. In the current study fat absorption in L.B.W. infants fed formulae containing combinations of soy oil, corn oil, coconut oil and medium chain triglycerides was studied.

Thirty infants 1250 to 1850 grams were divided randomly into three groups and fed one of three formulae for 21 days. Formula A contained fat as 30% soy, 30% corn and 40% medium chain triglycerides; Formula B, 40% soy, 40% corn and 20% coconut; and Formula C, 100% corn. Three day stool collection were marked by use of Red carmine and collected from 5 to 8 and 12 to 15 days of life. Infants on Formula A had the best mean absorption for both periods of 84.6 and 86.7%; B 73.5 and 81.0% and in C the least absorption of 66.6 and 72.4%. Mean blood cholesterol levels in each group were under 100 mg at 21 days of age. Calcium absorption was best in Formula A. No statistical difference for weight, length and head circumference growth was noted and there were no untoward clinical symptoms.

Direct absorption of medium chain triglycerides into the portal system may be responsible for the increased fat absorption and could prove advantageous to low birth weight infants.

AUTONOMOUS AND SECONDARY CYSTS OF THE OVARY WITH SEXUAL PRECOCITY. *Reuben B. Young, Leo J. Dunn, Arnold M. Salzberg, Ajay S. Bhatnagar, William J. Frable and Donald J. Hall, Depts Ped., OB, Surg. and Path., Med. Col. of Va., Richmond, Va. (Intr. by William E. Laupus)*

Numerous cysts of the ovary in childhood have been reported but only rarely have these cysts been considered as a causative factor in sexual precocity(SP). A 16 mo. infant with SP was found to have a 4 X 5 cm cyst containing 1.6 ug/ml of 17-B estradiol(E_2). This was felt to represent a functioning autonomous cyst(FAC) and was removed. Pre-op plasma E_2-9.42 ng/ml and the E_2 level in urine was 2.9 ug/24 hr with a post-op value of 0.28 ug/24 hr. Prior to surgery serum LH-0.24 mIU/ml and FSH-0.26 mIU/ml. There is no recurrence of SP 8 mo. after surgery. Another infant with McCune-Albright's syndrome (MAS) had SP and localized skin pigmentation at 7 mo. of age. Her mother had been on large doses of I.M. hydroxyprogesterone during the first half of pregnancy. A bone survey initially revealed no area of fibrous dysplasia. Pre-op serum LH-3.9 mIU/ml and FSH-2.2 mIU/ml. At operation a 2 cm lutein cyst (previously undescribed in MAS) was removed. SP recurred within six weeks after surgery. Subsequent bone survey at 11 mo. of age revealed 3 minimal areas of fibrous dysplasia. Conclusion: Oophorectomy is indicated only in patients with SP, ovarian cyst, elevated estradiol in plasma, relatively low plasma LH and FSH and apparent obliteration of ovarian stroma.

BILE ACID MALABSORPTION IN INFANTILE DIARRHEA. William F. Balistreri, John C.Partin, and William K.Schubert. Children's Hospital Research Foundation, Cincinnati, Ohio.

Bile acid malabsorption (BAM) following ileal resection(IR) may cause watery (cholerheic) diarrhea and/or steatorrhea(S). BAM was evaluated in 15 such patients: a)short bowel syndrome after IR; b)idiopathic intractable diarrhea(ID)(prolonged, severe diarrhea from birth of unknown etiology) requiring hyperalimentation to maintain life; c)miscellaneous steatorrhea(MS) (isolated pancreatic insufficiency or hypobetalipoproteinemia) and d)chronic nonspecific diarrhea(CD) without S. Following an oral test meal containing 10 μCi^{14}C cholic acid(^{14}C) and a nonabsorbable marker PEG stools were collected for calculation of a ^{14}C:PEG excretion ratio.

RESULTS (mean ± SEM) (Note: * = $p < .05$ compared to CD)

	No.	Fecal Fat (% intake)	Fecal Wt. (g./24h)	Fecal ^{14}C (% dose/24h)	Excretion Ratio (^{14}C:PEG) 24h
IR	4	44.3 ± 14.8*	270 ± 87	37.8 ± 12.8*	0.53 ± .21*
ID	2	55.5 ± 2.5*	720 ± 91*	44.5 ± 13.5*	0.50 ± .09*
MS	4	18.8 ± 6.6*	156 ± 31	7.5 ± 2.9	0.09 ± .04
CD	5	4.7 ± 0.7	208 ± 85	4.8 ± 1.0	0.06 ± .01

In 9 patients (MS+CD) with moderate diarrhea the mean loss of ^{14}C (6%) and excretion ratio (.07) are in marked contrast to IR and ID patients. There was no difference between IR and ID groups. Ileal function (Schilling test + IF) was grossly abnormal (<1%) in 2 IR and both ID patients. The cause of BAM in ID may be due to diffuse ileal disease or to a specific bile acid transport defect. (Support: NIH GCRC RR-123)

GASTROENTEROLOGY & ENZYMOLOGY

IMPROVED GROWTH IN DWARFED UREMIC RATS WITH CALORIE SUPPLEMENTATION. Raymond D. Adelman and Malcolm A. Holliday. Univ. Calif. at Davis and San Francisco, Sch. Med., Dept. of Ped.

Malnutrition and growth failure occur in uremia. In an earlier study uremic rats, observed to have poor appetites and poor growth, received calorie supplementation in the form of gavage with corn oil. Significantly improved growth rates in body weight and tail length followed. Such gavage supplementation, however, upset normal nocturnal feeding leading to decreased ingestion of feed and, consequently, of protein and salt. In this study supplementation was by appetite stimulation. Uremic growth-stunted male Sprague-Dawley rats, matched according to weight, age, and BUN, were fed either a diet of 43% protein, 38% dextrose, 15% fat, 3.5% Jones Foster salts with vitamins or an identical diet to which sacharrin was added for appetite stimulation. After 28 days appetite-stimulated rats significantly differed from control rats in weight gain/day (5.73 gm vs 4.01 gm, $P<.05$) and weight gain/100gmBW/day (3.21 gm vs 2.47 gm, $P<.01$). Body composition studies confirmed that supplemented rats had increases in cell mass and total body solids when compared to controls. Growth in dwarfed uremic rats improved when intake was boosted by appetite stimulation. These findings agree with earlier growth results in corn oil gavaged uremic rats.

THE COURSE OF GROWTH RETARDATION IN CHILDREN WITH ULCERATIVE COLITIS. Michael Berger, Donald Gribetz, Burton I. Korelitz. Depts. of Ped. & Med. (Div. of Gastroent.), Mount Sinai Sch. of Med. (CUNY), New York, N.Y.

38 children with adequate height data were culled from a larger series of children with onset of ulcerative colitis(u.c.) before age 16. Data were analyzed to determine growth patterns as influenced by the disease itself, corticosteroid therapy and surgery. 8 patients were retarded in height at the onset of symptoms. In 5 the terminal ileum was not involved.

21 patients were treated only medically. 6 received azulfidine or rectal steroids - "low dose steroid" (<12 mg/m^2/day cortisol). They showed no growth retardation. 15 received "high-dose steroid" therapy (>12 mg/m^2/day cortisol). Of these, 11 had growth retardation lasting 6 months or longer although 2 showed accelerated growth at a reduced dose; 4 had retardation lasting less than 6 months. 17 patients were treated by subtotal or total colectomy (all had received some prior steroid therapy). 14 showed significant growth increases postoperatively; one showed no height increase.

It is concluded that growth retardation, a well known complication of u.c. in childhood, may manifest itself for years prior to the onset of bowel symptoms similar to ileitis. Although it is difficult to separate the effects of the disease from those of steroid, it is apparent that "high-dose steroid" therapy significantly depresses growth. Colectomy will reverse the growth retarding effect of the u.c. if not delayed too long. Growth retardation, if not reversed by medical therapy, may be an indication for surgery.