578 EFFECT OF INCREASED VITAMIN A INTAKE ON SERUM VITAMIN A LEVELS IN PREMATURE INFANTS.

B Kirkpatrick, M Ormazabal, R Brandt and K Kerkering (Spon by H. Maurer) Medical College of Virginia, Departments of Pediatrics and Biochemistry, Richmond, Virginia.

Previous studies have shown that Vitamin A levels are low in the growing premature infant. An attempt was made to raise Vitamin A levels by increasing oral intake in one of two groups of premature infants. Each group was matched for birth wt., gestational age, onset and volume (cc/Kg/day) of feedings and caloric intake (k cal/Kg/day). Group I infants were fed an experimental formula prepared by Ross Laboratories of 500 IU Vit. A/dl while Group II received PM 60/40 (Ross) formula which contained 325 IU of Vitamin A/dl.

Week	Group I			Group II			P
	ug/dl ±	SEM	(n)	ug/dl ±	SEM	(n)	
1	22.5	2.8	(10)	19.9	2.9	(8)	NS
2	26.4	3.7	(10)	19.0	2.7	(9)	NS
3	19.0	5.0	(4)	18.0	2.3	(9)	NS
4	22.2	6.7	(4)	13.8	2.0	(4)	NS

Serum protein levels were similar for each group during each time period. Despite an 85% increase in intake of Vitamin A, levels were similar for each feeding group. Factors other than Vitamin A must be responsible for the low level of this vitamin in the growing premature infant.

579 GROWTH OF PREMATURE INFANTS FED WHEY DOMINANT FORMULA WITH MEDIAN CHAIN TRIGLYCERIDES (MCT) AND POLYCOSE.

B Kirkpatrick, M Ormazabal, D Mueller and K Kerkering (Spon by H. Maurer) Medical College of Virginia, Department of Pediatrics, Richmond, Virginia.

Previous work has shown that premature infants may not optimally utilize lactose and long chain triglycerides (LCT), both of which are found in standard infant formulas. To enhance growth, one group of well premature infants was fed an experimental formula prepared by Ross Laboratories (Group I). The experimental formula contained 7.26 g/dl CHO (50% lactose, 50% polycose) and 3.65 g/dl fat (50% MCT, 50% LCT). Group II infants were fed PM 60/40 (Ross) containing 6.88 gm/dl CHO (100% lactose) and 3.65 gm/dl fat (coconut and corn oil). Both formulas contained modified cows milk protein (60% whey,40% casein).

	(n)	BW (gm)	Intake/day cal/Kg (3rd week)	Growth (3rd Week) HC cm/wk	Wt gain gm/d
Group I	(10)	1447.0	116.0	1.10	32.7
Group II	(10)	1432.5	121.2	1.17	30.9
P		NS	NS	NS	NS

Volumes fed (cc/Kg/day) were similar in each group.

At 7, 14, 21 and 28 days, growth, as measured by weight gain and head circumference (HC), was similar in each group. Growth in the first 28 days of life was not enhanced by feeding formula with MCT and polycose in these study patients.

580 SOMATOMEDIN-C LEVELS IN CHILDREN WITH CHRONIC INFLAMMATORY BOWEL DISEASE (IBD).

Barbara S. Kirschner (Spon. by Lawrence M. Gartner). University of Chicago, Pritzker Sch. of Med., Dept. of Pediatrics, Chicago.

This study was designed to determine whether somatomedin-C (SM-C) levels were different in growth-impaired and normally-growing children with IBD and whether SM-C levels in growth-retarded children change as growth velocity improves. Diminished caloric intake is a common feature of IBD and experimental reduction of nutrient intake in rats lowers circulating SM levels. Low SM values have also been reported in children with protein-calorie malnutrition, anorexia nervosa and chronic renal failure.

Plasma SM-C was measured by radioimmunoassay in 31 children with IBD. Thirteen of these pts had impaired growth velocity (GV) by Tanner standards and were compared with 19 pts with normal GV. Seven of the growth-retarded pts had SM-C levels repeated during a period of normal growth. Medical therapy was standard including alternate-day prednisone in 11 pts. No pt. received prednisone within 24 hrs of measuring SM-C.

Somatomedin-C levels were 1.06 ± 0.14 units/ml (mean ± SEM) in the growth-impaired group and 3.29 ± 0.52 in the normally growing group ($p<0.01$). SM-C levels in the 7 growth-retarded pts who were studied sequentially increased from 1.26 ± 0.26 to 2.3 ± 0.29 during periods of improved growth velocity ($p<0.02$). There was no depression of SM-C in pts receiving alternate-day prednisone. These differences cannot be explained by differences in age, bone age, or pubertal stage.

This study suggests that growth retardation in IBD is accompanied by reduced SM-C levels, which increase as growth improves.

● 581 ANTIGEN CLEARANCE FROM NEWBORN CIRCULATION BY TRANSPLACENTAL ANTIBODIES: IMPORTANT DEFENSE MECHANISM AGAINST PATHOLOGIC ANTIGEN UPTAKE.

R.E. Kleinman, P. Harmatz and W.A. Walker, Harvard Medical School, Mass. Gen. Hosp., Dept. of Pediatrics, Boston, Massachusetts.

The present experiments examine the effect of antibody derived by placental transfer on the uptake of enteric antigen in the newborn rabbit pup. Female New Zealand White rabbits were immunized with bovine serum albumin (BSA). Litters from immunized and non-immunized rabbits were examined either at birth, 24hrs., 48hrs., or 72 hrs. After obtaining serum all pups were gavaged with 100 mg of I^{125}-BSA. Pups born to immunized mothers had circulating antibody before feeding while pups of unimmunized mothers had no detectable antibody to BSA. The fed animals were sacrificed 1, 2,3, or 4 hrs. later and sera were examined for the presence of BSA by electroimmunodiffusion. None of the 43 immunized pups had any BSA in their sera, whereas all 20 unimmunized pups had 6-15 ug/ml of BSA. All animals had $>2x10^4$cpm/ml of serum. Four immunized animals had radioactivity which appeared to be associated with circulating immune complexes. Radioactive material in the remaining immunized animals was <1000 m.w. Passive transplacental immunization appears to eliminate the absorbed BSA from the serum of newborn rabbits. In a few immunized animals circulating immune complexes appear after feeding. These findings suggest that transplacental antibodies may be important as a second line of defense by the clearance of excessive quantities of milk proteins taken up from the intestine of newborns fed formula.

582 FEEDING PRACTICE AND NEONATAL JAUNDICE.

Murray Kuhr, Nigel Paneth. Columbia Univ. College of Physicians & Surgeons, NY, Good Samaritan Hosp. Dept. of Pediatrics, Suffern, NY (Spon. by Kwang-sun Lee)

Although Breast-feeding (BF) predisposes to late onset neonatal jaundice, its relationship to physiologic jaundice is controversial. In 135 consecutive full-term Coombs ⊖ babies, the prevalence of jaundice (serum Bili ≥10 mg% in the 1st 4 days) was 38.4% in the BF, and 10.3% in the artificially fed (AF) ($P<.001$). While ABO set-up raised the risk of jaundice, parity, sex, delivery mode, and ethnic background did not.

A subset of BF babies had their 4th day volume of intake measured by summing pre-cibal/post-cibal weight differentials. The validity of this intake estimate was assessed in AF babies by comparing it to the nurse's visual estimate of intake volume. The correlation between the two measures was .91 ($P<.001$). BF babies with intakes of <80cc/kg on the 4th day had a frequency of jaundice of 47%, as compared with 26% in BF babies with intakes >80cc/kg(NS). The milk intake of BF babies on the 4th day of life correlated inversely ($r=-.31$, $P<.05$) with the volume of glucose water supplementation in the first three days.

Deficient nutrition, possibly encouraged by excess ingestion of glucose water, may play a role in the higher rate of physiologic jaundice seen among breast-fed babies in our study.

583 CONTINUOUS (C) VS. INTERMITTENT (I) NASOGASTRIC (N/G) FEEDING IN VERY LOW BIRTH WEIGHT (VLBW) INFANTS.

Venkatesan Krishnan, Malini Satish. (Spon. by M. G. Robinson) Medical College of Ohio, The Toledo Hospital, Dept. of Ped., Toledo, Ohio.

All infants with birth weight below 1250 gm. admitted to the intensive care nursery between 1-1-80 and 9-1-80 were studied. 12 infants had been on C N/G feeds until steady weight gain, on oral feeds alone, was achieved. 17 infants had been on I N/G feeds during their stay in the unit. There were no significant differences in birth weight distribution, gestational ages, tolerance of feeds, 1 & 5 minute Apgar Scores, or in the incidence of respiratory distress syndrome, bronchopulmonary dysplasia, patent ductus arteriosus, abdominal distension with ileus, small for gestational age, between the groups.

# OF	CONTINUOUS			INTERMITTENT FEEDS			P
DAYS TO:	RANGE	MEAN	S.D.	RANGE	MEAN	S.D.	VALUE
Regain B.W.	10-22	15.67	3.114	8-32	17.47	6.44	*NS
Achieve 90 cal/K/day oral feeds.	9-29	15.8	6.113	8-75	25.6	16.57	** <.05
Achieve steady wt. gain.	16-53	23.5	10.16	15-75	32.2	14.0	** <.05

* - Student 't' test. ** - Mann Whitney U test.

Continuous N/G feeds, as the initial method of feeding appears to be advantageous over intermittent N/G feeds in VLBW (<1250 gm.) infants.