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AN ANALYSIS OF RELAPSES AFTER CYCLOPHOSPHAMIDE THERAPY IN NEPHROTIC SYNDROME. Karen M. Gaudio and Norman J. Siegel, Yale Univ. Sch. of Medicine, Dept. of Pediatrics, New Haven, Conn.

Although the dose and duration of therapy with cyclophosphamide (cy) are known to influence the incidence of subsequent relapses in children with nephrotic syndrome, other factors which predispose to relapses after cy have not been extensively evaluated. The clinical course of 30 children with steroid-sensitive, frequently-relapsing nephrotic syndrome was analyzed. Each of the pts had a renal biopsy at the time of initiation of cy, and all of the children had a complete remission while on cy (2 mg/Kg/d for 12 wks). After cy, one or more relapses occurred in 14 pts, while 16 pts had a sustained remission. There were no significant differences between the two groups of pts concerning: 1) age at onset (4.5 vs 4.9 yrs), 2) interval between onset and cy (6.35 vs 6.52 yrs), and 3) duration of follow-up after cy (4.0 vs 4.4 yrs).

The most important factor associated with relapses after cy was the histopathologic lesion. Of the 14 pts with relapses, 9 (64%) had focal and segmental glomerulosclerosis (FGS), whereas only 5 (36%) had minimal change lesions (MCL) ($P<0.05$). In contrast, only 3 (19%) of the 16 pts in remission had FGS, while 13 (81%) had a MCL ($P<0.05$).

These data indicate: 1) the histopathologic lesion at the time of cy is an important determinant of subsequent relapses and 2) late onset FGS predisposes to relapses after cy.

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HEMOLYTIC UREMIC SYNDROME(HUS).COMPARISON OF SUPPORTIVE CARE AND ASPIRIN(ASA) AND DIPYRIDAMOLE(D)THERAPY. Bernard G. Gauthier,Morris J. Schoeneman,Ashok C. Shende,Philip Lanzkowsky,Ira Greifer.School of Medicine,Health Sciences Center,SUNY at Stony Brook,Albert Einstein College of Medicine (AECOM),Long Island Jewish-Hillside Medical Center and Hospital of the AECOM,Departments of Pediatrics, New York.

13 patients (pts) with HUS were studied.All were treated in the last 2.5 years.5 were treated with ASA (1 pt.,6mg/kg/day for 28 days),or with ASA (6 to 16 mg/kg/day)and D(2 to 5 mg/kg/day) for 9 to 49 days and 8 received supportive therapy only.There were no significant differences between the 2 groups in age,sex, prevalence of extrarenal manifestations,lowest hematocrit and platelet count,number of transfusions needed,duration of thrombocytopenia or number of pts requiring dialysis.The treated pts were oliguric and required dialysis for a shorter period of time than the untreated pts(days with urinary output<200ml/m^2/day:1.6 ±0.89,range 1-3 compared to 5.63±5.83,range 0-19;days between admission and last dialysis 2.15±2.47,range 0-6 compared to 4.8± 8.76,range 0-26).The differences however were not significant. After periods of follow-up ranging from 3.5 to 18.25 months,all pts had grown normally and had GFR's ranging from 90 to 196ml/min/1.73m^2. None had hematuria.One of the untreated pts had mild proteinuria (7mg/m^2/hr on overnight specimen).

We conclude that ASA and D do not alter the long term prognosis of HUS.The shorter duration of oliguria and of dependence on dialysis in our treated pts,though not statistically significant, suggests a larger study is warranted.

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NEWBORN INFANT RENIN-ANGIOTENSIN-ALDOSTERONE SYSTEM: DELIVERY THROUGH THE FIRST TWO DAYS OF LIFE. Anthony Hadeed, Sharon R. Siegel, (Spon. by Delbert A. Fisher) Fetal-Maternal Research Laboratories, UCLA-Harbor General Hospital, Torrance, CA.

Plasma renin activity (PRA) and aldosterone (Aldo) levels are high in the newborn. The purpose of this study was to determine the effects of labor and delivery on PRA and Aldo in the newborn; and to determine how PRA and Aldo levels change during the early newborn period. 28 fullterm and 6 preterm infants, 32-36 weeks gestation, were studied at ½, 2, 4, 24 and 48 hrs. All were born after an uncomplicated vaginal delivery (VAG-D) with apgar scores >7 at 5 min. PRA and Aldo were measured by RIA. The Mean and SEM (ng/ml/hr) PRA in umbilical vein (UV) plasma was 16.2 ± 5.1 after C-Sec alone, N=6; 44.1 ± 8.9 after C-Sec in labor. N=16 $p<.05$; and 34.7 ± 4.3 after VAG-D, N=28, $p<.05$. The latter two groups did not differ. There were no differences in UV vs VA PRA or Aldo levels. The UV PRA level in preclampsia (52.6 ± 5.0) was higher than in normal VAG-D ($p<.05$). Serial PRA values in full term infants decreased from 34.7 ± 4.3 in UV plasma to 18.3 ± 4.4 at 2 hrs ($p<0.05$), and were statistically similar (30.7 ± 4.4) at 24 hours. Aldo levels also remained unchanged. UV PRA and Aldo levels after VAG-D and during the subsequent 48 hrs of life were similar in the preterm and fullterm infants. Conclusions: a) Labor increases PRA levels in fullterm and preterm infants. b) Preclampsia is associated with high PRA cord blood levels. c) PRA and Aldo levels do not fall during the early newborn period, suggesting continual stimulation after delivery.

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CEFAZOLIN IN CHILDREN WITH RENAL INSUFFICIENCY. *Linda B. Hiner, Alan B. Gruskin, H. Jorge Baluarte and Mary L. Cote. St. Christopher's Hosp. for Children, Dept. of Ped., Temple Univ. Med. School, Philadelphia, PA.*

Cefazolin has not been studied before in children with renal insufficiency. A single dose of 7 mg/kg was administered to 10 children (1½-16 yr) with varying degrees of renal impairment (Grp I), and to 10 children (7-14 yr) undergoing hemodialysis (Grp II). Serum half-life (T/2) in hours was calculated from disappearance curves and creatinine clearance was obtained (ml/min/1.73 m^2). In Grp I one child had a Cl_{Cr} of 57 ml/min and a T/2 of 4.8 hr. Three children with Cl_{Cr} of 15-25 ml/min had a T/2 of 19-23 hr. Four children had a Cl_{Cr} of 8-10 ml/min and had a T/2 of 29-40 hr. Two children with Cl_{Cr} less than 5 ml/min had T/2 values greater than 58 hr. Normal adults have T/2 of 1.8-1.9 hr. Studies have shown adults with Cl_{Cr} of 40-60 ml/min to have T/2 of about 5 hrs. Adults with lower Cl_{Cr} had less prolongation of T/2 than did the children. The drug did not alter the tubular reabsorption of phosphate or the clearance of uric acid. In Grp II the T/2 was 8.25-29.5 hrs. A value of 6.5 hrs. has been reported for adults. The T/2 increased as the efficiency of dialysis, estimated by per cent reduction of BUN and creatinine, fell. T/2 of cefazolin is prolonged in children with renal insufficiency and the degree of prolongation is comparable to adults when the Cl_{Cr} is only moderately reduced. As the Cl_{Cr} falls further, the T/2 increases more among the children. T/2 for children on hemodialysis varies with the efficiency of dialysis. *Supported in part by NIH grants RR-75 and RR-5624.*

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FACTORS LIMITING GLOMERULAR FILTRATION RATE IN THE IMMATURE RAT. I. Ichikawa, and B.M. Brenner (Spon. by J.R. Hoyer), Peter Bent Brigham Hospital and Harvard Medical School, Boston, MA.

In 14 immature (30-45 day) Munich-Wistar rats with surface glomeruli accessible to micropuncture, glomerular capillary (P_{GC}) and Bowman's space (P_T) hydraulic pressures, efferent arteriolar oncotic pressure (Π_E), single nephron (SN)GFR, initial glomerular plasma flow rate (Q_A), afferent (R_A) and efferent (R_E) arteriolar resistances, and glomerular capillary ultrafiltration coefficient (K_f) were determined under euvolemic conditions. Results are compared with those from 14 adult (70-100 day) rats studied under similar conditions. (Mean ± SE, † $P<.01$)

	P_{GC}	P_T	Π_E	SNGFR	Q_A	SNFF	R_A	R_E	K_f
	---- mmHg ----			-- nl/min/gKW --		10^{10} dyn·s·cm^{-5}			nl/(s·mmHg)
Imm.	47±1	16±1	31±1	26±2	79±5	.33±.01	7±1	6±0	>.040±.003
Ad.	48±1	14±0†	34±0†	40±3†	131±11†	.31±.01	2±0†	2±0†	>.093±.005

Thus, mean values for P_{GC}, P_T and SNFF in immature were essentially the same as those in adult. Since the net force for ultrafiltration at the efferent end of the glomerular capillary network (given by $P_{GC}-P_T-\Pi_E$) was essentially zero in immature and adult alike, K_f was not a factor limiting SNGFR in either group. Instead, the lower values for SNGFR per gram kidney weight (KW) in immature than adult are primarily a consequence of lower Q_A/gKW, the latter due, at least in part, to markedly higher R_A and R_E. The causes for these higher resistances, whether structural or humoral, remains to be determined.

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CLONIDINE FOR HYPERTENSION IN CHILDREN AND ADOLESCENTS. Julie R. Ingelfinger and Warren E. Grupe, Harvard Medical School, Children's Hosp. Med. Ctr., Dept. of Pediatrics, Boston, Massachusetts

The antihypertensive agent clonidine (C) appears to lower blood pressure (BP) via central alpha-adrenergic stimulation. In order to determine safety and efficacy of this drug, an open-label study was done in 16 hypertensive children and adolescents (ages 7-18). C (.15 to 1.2mg/day) was used when other agents had failed or were medically undesirable; informed consent was obtained. 8 patients (P) had post-transplant hypertension; 6, chronic nephritides, 1, polycystic-hamartomatous kidneys; and 1, essential hypertension. 10 of 16 P had BP controlled on C plus diuretic; in another 5, all with severe hypertension, C clearly improved BP control, but other agents were still required. No control was obtained in only one P (allograft renal artery disease in whom surgical repair failed). No P had hematologic or chemical abnormalities induced by the drug. Except for somnolence in 8 P, no problems occurred while regularly taking C. However, 1 of the 10 P on C plus diuretic had 2 episodes of hypertension with encephalopathy within 16 hours of drug discontinuation due to vomiting. In 2 additional patients rebound hypertension was suspected but not proven. 2 P on C plus additional agents had episodes of symptomatic hypotension when C was added to their regimen. Thus C appears to be a useful and generally safe agent in children; however, rebound hypertension makes it important to determine patient compliance and awareness of the effect of vomiting episodes before the drug is prescribed.