

LOWERED INCIDENCE OF RELAPSE IN IDIOPATHIC NEPHROTIC SYNDROME (INS) AFTER ONE YEAR OF INTERMITTENT PREDNISONE THERAPY. R. Winston Lutz, Bahmin Shahin, Zoe Papadopoulou, Leticia Tina, Pedro Jose, Paul Sandler, Charles E. Hollerman, Philip L. Calcagno. Georgetown Univ. School of Medicine, Washington, D. C.

During a 10 year period (1962-1972) 78 patients (1-13 years, 2:1 male/female) with INS were treated with prednisone at a dose of 60 mg/M<sup>2</sup>/day for 21 days followed by intermittent therapy (M, T, W) for 1 year. Of the 61 responders, 64% had no relapse, 23% had 1 and 13% had >2 relapses. Biopsy was performed on 43 patients of which 65% were minimal change (nil.)

Initial therapy and response to prednisone are similar to data of the International Study (80% responders), however, with intermittent therapy the rate of those responding or relapsing frequently is significantly improved in comparison to that reported in the International Study. No clinically significant steroid toxicity was encountered. This study shows a reduced relapse rate in children responding to steroid therapy when an intermittent dosage is maintained for one year.

TREATMENT OF HIGH RENIN REFRACTORY HYPERTENSION IN CHILDREN WITH MINOXIDIL (A NEW HYPERTENSIVE DRUG NOT PREVIOUSLY USED IN CHILDREN). Sudesh Makker (Intr. by Walter Heymann). Case Western Reserve Univ., Sch. of Med., Univ. Hosps., Dept. of Ped., Cleveland, Ohio.

Hypertension developed in a 10 yr. old girl following a renal transplant with blood pressure (BP) between 160/120 and 200/160, and elevated peripheral vein renin (15.2 to 35.5 ng/ml/hr, normal 0.53 ± 0.4). Before transplantation her kidneys had been removed and no stenosis was evident at the site of the anastomosis by angiography. While hypertensive, she developed cardiomegaly and deterioration of renal function [serum creatinine (Cr) from 0.8 to 2.1 mg%]. BP was uncontrollable with daily dosages of Methyl dopa 2.5 gm, Hydralazine 300 mg, Guanethidine 200 mg, Propranolol 100 mg, Furosemide 120 mg, and only transient relief was achieved by Diazoxide (300 to 600 mg/day). A transplant nephrectomy was contemplated. Minoxidil given 2.5 mg/6 hrs orally reduced her BP to normal (130/80) within 12 hrs. Other antihypertensives except Propranolol and Furosemide were discontinued. With normalization of BP the heart size decreased and the renal function improved (Cr 0.9 mg%). Five months later on Minoxidil (10 mg/6 hrs) her BP is 130/90, her transplant function is excellent (Cr 0.8 mg%), but the renins remain elevated (13.9 to 24.5). A side effect of generalized hirsutism has occurred. It is felt that high renin refractory systemic hypertension can be controlled by Minoxidil and offers an alternative to transplant nephrectomy.

RENAL TRANSPLANTATION IN CHILDREN. Mohammad H. Malekzadeh, Barbara M. Korsch and Richard N. Fine. Department of Pediatrics, University of Southern California School of Medicine and Dialysis and Transplant Program, Childrens Hospital of Los Angeles.

During the past 7 years (Feb. 1967 - Feb. 1974) 96 children received 121 renal allografts from 87 cadaveric, 31 live related and 3 live unrelated donors. Seventy four of the 96 children (76%) are currently surviving with functioning allografts (58 first and 16 second), 12 have died (13%) and 10 are undergoing dialysis (11%) while awaiting a subsequent graft. The primary renal disease was end-stage in 32%, specific glomerulopathies (GN) in 28%, including 11 patients with membrano-proliferative GN; obstructive uropathy in 22%, including 2 patients with an ileal loop and 18% with miscellaneous diseases including 4 patients with cystinosis. Forty seven of the 121 allografts failed, 74% were immunologic failures. No evidence of recurrence of the original disease was present in any of the grafts lost. Medical complications including hepatic dysfunction, cytomegalovirus and unusual bacterial and fungal infections, hypertension, cataracts, orthopedic problems, growth retardation and psychosocial problems leading to noncompliance were frequently encountered. Systematic psychosocial followup documents that despite complications almost all patients who survive at least 1 year with a functioning allograft return to preillness level of adaptation.

RENAL FAILURE COMPLICATING THE NEPHROTIC SYNDROME OF CHILDHOOD (I<sup>131</sup> - HIPPURATE SCANNING AS A DIAGNOSTIC ADJUNCT) Howard E. Maltz, Robert Hattner, Malcolm A. Holliday, Department of Pediatrics, University of California San Francisco, California

Three children presented in renal failure (RF) during a relapse of the nephrotic syndrome (NS). The etiology of NS in each case was felt to be minimal change glomerular disease. The episodes of RF were anteceded by infectious diseases which presented with fever and anorexia in all cases; recurrent emesis in 2. Clinical signs of circulatory hypovolemia were present in 2 cases and renal function did not improve coincident with expansion of vascular volume. The duration of renal failure as defined by BUN >100mg% was 18, 9 and 3 days. The etiology of ATN is presumed to be ischemic renal damage consequent to hypovolemia early in the course of the relapse. Renal uptake of I<sup>131</sup> - Hippurate during this period of RF was prompt while excretion was delayed - findings that were consistent with acute tubular necrosis (ATN) and excluded cortical necrosis or end stage kidney disease. One child required a 48 hour peritoneal dialysis. Serum albumin concentration on presentation were 2.7, 2.8 and 1.9 gms%. Renal function returned to normal in 23, 12 and 5 days. In each case there was further reduction in serum albumin concentration as recovery from RF proceeded and urinary volume and protein excretion increased. The NS remitted in each case with the use of oral prednisone. Present serum creatinine and BUN levels are normal.

RENAL RESPONSE TO HYPOTONIC VOLUME EXPANSION IN THE FETAL LAMB. E. S. Moore, M. B. Galvez, J. B. Paton, C. W. deLannoy and M. Ocampo. Michael Reese Medical Center, Dept. of Ped., Chicago, Illinois.

The effect of rapid extracellular fluid expansion with saline was studied in 9 fetal lambs with intact umbilical circulation between 100-120 days gestation. After control measurements of UV, U<sub>NaV</sub>, GFR, % T<sub>Na</sub>, CH<sub>2</sub>O, serum total protein (T.P.), Hct and [Na<sup>+</sup>], 0.45 N NaCl was infused rapidly into the fetus until the increase in UV was stable. After expansion, serum [Na<sup>+</sup>] did not change but the T.P. and Hct fell significantly. There was a 13 fold increase in UV from 0.24 ml/min to 3.31 ml/min. The control GFR increased from a mean of 3.21 ml/min to 7.42 ml/min. The initial % T<sub>Na</sub> decreased from 97.2 to 85.9 and U<sub>NaV</sub> increased from 13.6 mmoles/min to 368.2 mmoles/min. CH<sub>2</sub>O increased from 5.1 to 15.4 ml/min. These data indicate that the control % T<sub>Na</sub> in the fetal lamb is relatively low and might reflect the larger basal ECF volume during this period. This low % T<sub>Na</sub> produces an increase in distal delivery of filtrate and a relatively high control CH<sub>2</sub>O and dilute urine. Rapid hypotonic ECF expansion results in a significant decrease in % T<sub>Na</sub> and a significant increase in GFR, UV, CH<sub>2</sub>O, and U<sub>NaV</sub>. These data show that the fetal proximal renal tubule is sensitive to ECF expansion and that distal T<sub>Na</sub> is efficient as CH<sub>2</sub>O significantly increased as UV and U<sub>NaV</sub> increased.

THE EFFECT OF MATERNAL DIETARY Na<sup>+</sup> AND ECF ON FETAL PLASMA RENIN ACTIVITY (PRA). E. S. Moore, J. B. Paton, C. W. deLannoy, M. Ocampo and E. C. Lyons. Michael Reese Medical Center, Dept. of Ped., Chicago, Illinois.

The effect of changes in maternal ECF and dietary Na<sup>+</sup> intake on fetal PRA and urine Na<sup>+</sup> was measured in 43 near-term fetal lambs. Fetal and maternal blood and urine Na<sup>+</sup>, K<sup>+</sup>, Osm and PRA was measured in 12 fetuses after a maternal intake of "normal" sheep chow. Similar studies were made in 12 fetuses after a maternal low Na<sup>+</sup> diet and in 19 fetuses after a maternal diet supplemented with 10 gm Na<sup>+</sup> plus daily 1M DOCA.

	Normal Diet	Low Na <sup>+</sup>		DOCA+Na <sup>+</sup>		
	R <sup>±</sup>	U <sub>Na</sub>	R	U <sub>Na</sub>	R	U <sub>Na</sub>
Fetus	2.09	43.5	3.26	26.5	2.17	44.6
Maternal	1.62	77.2	3.85	54.0	2.28	85.3

±R=Renin - ngm/ml/hr; U<sub>Na</sub>=mEq/L

These data demonstrate that control fetal PRA is higher than that in the ewe. Maternal low Na<sup>+</sup> intake resulted in a significant increase in PRA and a decrease in U<sub>Na</sub> in the fetus as well as the ewe. Simultaneous measurement of uterine vein renin revealed no maternal - fetus gradient. Ewes on a low Na<sup>+</sup> diet for 3 days subsequently expanded for 3 days with DOCA and added salt, resulted in a decrease in fetal as well as maternal PRA. These data indicate that fetal renin activity is fetal in origin and is in part responsive to maternal changes in ECF and dietary Na<sup>+</sup>. This response might serve to protect the fetus from exaggerated changes in maternal body composition.