Mononuclear Cell Chemotaxis in Experimental Interstitial Nephritis
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LONG TERM HEMODIALYSIS (HD) IN CHILDREN AND ADOLESCENTS. Valerie Johnson, Robert A. Weiss and Ira Greifer, Albert Einstein College of Medicine, Dept. of Pediatrics, Bronx, N.Y.

Despite agreement among pediatric nephrologists that renal transplantation is the therapy of choice, successful transplantation is often impossible due to cytotoxic antibodies. Ten pts (mean age at onset HD 10.8 yrs) have been on maintenance HD for more than 4 yrs (mean duration 5.3 yrs). 8 pts. have undergone successful transplantation with grafts functioning less than 6 months. Vascular access, even in children of 8 kg, has been by fistula exclusively. Neon fistula survival in 9 pts has been 9.7 months although a tenth patient has stepped up to 19 access procedures over 6 yrs. Manifestations of osteodystrophy such as epiphyseal slipping, genu valgum and brown tumors have been observed in 8/10, often due to poor compliance with the medication regimen. Life expectancy with HD begins 10-14 days following injection with heterologous tubular basement membrane antigen. Sera were obtained from the renal vein in order to avoid the difficulties of systemic inactivation. Measuring peritoneal mononuclear cells. Sera and homogenates were used to evaluate effects on ROD metabolism. The alternative pathway of complement has been implicated in the pathogenesis of osteodystrophy. Normal 7 0.6 9.7 3.9 9 50 1.4 CRI 10 5.7 8.6 5.3 160 370 5.4 OH. 10 5 9.0 9 3.5 9 148 4 1.6 Transplant 10 2.4 9 4 3.6 76 155 3.3

DIABETIC HYPERCALCURIA (IHC) AND GROSS HEMATURIA (GH) IN CHILDREN. Alok Kalia and Luther B. Travis, University of Texas Med. Br., Dept. of Pediatrics, Galveston, TX.

Although onset of GH prior to calciuria formation has been reported, the association of GH and IHC without clinical or radiological evidence of nephrolithiasis has not been described. Six children have been identified who presented with asymptomatic and recurrent GH in whom no calculus could be demonstrated radiographically. Investigations did not reveal any renal or urinary tract pathology which could account for the hematuria, IHC was documented in five; the sixth later passed a calcium oxalate calculus. Five had a family history of renal calculi. Three continued to have recurrent gross and microscopic hematuria with the initial renal calculus developing after 6 months, 5 years and 10 months, respectively. When corrected for skeletal age, despite biochemical control of uremia and nutritional counseling. An additional complication has been hemochromatosis (serum ferritin dominantly mononuclear, the stimulus for monocyte and macrophage recruitment and suggests the CA is specific for mononuclear cells. Sera and homogenates were used to evaluate effects on ROD metabolism. The alternative pathway of complement has been implicated in the pathogenesis of osteodystrophy. Normal 7 0.6 9.7 3.9 9 50 1.4 CRI 10 5.7 8.6 5.3 160 370 5.4 OH. 10 5 9.0 9 3.5 9 148 4 1.6 Transplant 10 2.4 9 4 3.6 76 155 3.3

MORPHOGENETIC CHANGES IN EXPERIMENTAL INTERSTITIAL NEPHRITIS. Thomas L. Kennedy and Martha Marcus, University of Connecticut Health Center, Department of Pediatrics, Farmington, Connecticut and Michael E. Norman, The Children's Hospital Medical Center, Departments of Ped. Neph. and Path. Medicine, Hartford, Connecticut.

Because the inflammatory infiltrate in antitubular basement membrane nephritis in guinea pigs (Stebby nephritis) is predominantly mononuclear, the stimulus for monocyte and macrophage recruitment was studied. The tubulointerstitial inflammation begins 10-14 days following injection with heterologous tubular basement membrane antigen. Sera were obtained from the renal vein in order to avoid the difficulties of systemic inactivation or dilution encountered when trying to identify chemotactic activity (CA) from peripheral blood. These samples, as well as renal homogenates and PAH injected intratubular, were used for CA using peritoneal mononuclear cells. Sera and homogenates were obtained from nephritic and control animals at several times in the course of the disease. CA is detected in samples obtained from day 7-15 and is maximal at day 10. The CA is heat stable and is most prominent in the renal venous serum suggesting an origin from the interstitium. A number of soluble factors present in serum for guinea pig polymorphonuclear leukocytes produces no cell recruitment and suggests the CA is specific for mononuclear cells. The identification of factors contributing to renal calcification in diabetics (IHC) with IHC and renal osteodystrophy may prove to be responsible for CA. However, measurable complement activation reflected in depressed complement proteins (C3, C4, B and C5). ELEVATION OF NEPHROGENOUS CYCLIC ADENOSINE MONOPHOSPHATE (Neph CAMP) AS EVIDENCE OF EARLY RENAL OSTEOLESSON. Alan M. Krensky, Warren B. Gruppo, William E. Harmon, Julie R. Ingefield, John A. Kirkpatrick, Harvard Medical School, Children's Hospital Medical Center, Departments of Ped. and Path. Medicine, Boston, Massachusetts.

To determine at which point in chronic renal insufficiency (CRI) the physiologic conditions for altered bone metabolism appear, radiographs, serum chemistry, parathyroid hormone (PTH), and neph CAMP were evaluated in 25 children with CRI compared to 7 children with benign renal disease and normal renal function. Normal age at onset of CRF: Phys. Aik P. GROUP mg/dl mg/dl mg/dl mg/dl µl/ml µl/ml ml/100ml

<table>
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<tr>
<th>GROUP</th>
<th>Ca</th>
<th>P</th>
<th>Phos Alk P</th>
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<tr>
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<tr>
<td>Transplant</td>
<td>10</td>
<td>2.4</td>
<td>9</td>
<td>4.6</td>
<td>76</td>
</tr>
</tbody>
</table>

Neph CAMP increases linearly with creatinine (Cr) (r=0.81) and PTH (r=0.89) except for patients on chronic hemodialysis, in whom normal 7 0.6 9.7 3.9 9 50 1.4 CRI 10 5.7 8.6 5.3 160 370 5.4 OH. 10 5 9.0 9 3.5 9 148 4 1.6 Transplant 10 2.4 9 4 3.6 76 155 3.3

<table>
<thead>
<tr>
<th>NORMAL RANGE</th>
<th>-3 to +5</th>
<th>3.5 to 4.5</th>
<th>5.0 to 125</th>
<th>20 to 150</th>
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</table>
| Hepar CAMP increases linearly with creatinine (Cr) (r=0.81) and PTH (r=0.89) except for patients on chronic hemodialysis, in whom metabolically diseased states did not exist, or for patients with serum Cr > 0.8mg/dl. Serum Cr appropriate for age and height was universally associated with neph CAMP < 4.0mol/l/100ml/l, while neph CAMP was elevated in 9/15 patients with Cr > 1.0mg/dl and all patients with Cr > 1.5mg/dl. Both PTH and neph CAMP were elevated in asymptomatic patients with Cr as low as 1.45mg/dl. Hepar CAMP > 4.0mol/l/100ml/l is a reliable, non-invasive measure of early changes consistent with the development of renal osteodystrophy even before routine changes are evident.

SUSTAINED IMPROVEMENT IN GROWTH VELOCITY (GY) & BONE DENSITY RESPONSE TO THE TREATMENT OF IDIOPATHIC HYPERCALCURIA (IHC) USING THE HUMAN VON WILLEBRAND FACTOR (HvWF) AS A GROWTH FACTOR. Alan M. Krensky, Warren B. Gruppo, Julie R. Ingefield, Harvard Medical School, Department of Pediatrics, Children's Medical Center, Boston, Massachusetts.

For children with IHC, an approach was to treat the hypercalciuria as it was not clear whether the bone disease was primary or secondary. The administration of human von Willebrand factor (HvWF) (a known growth promoting factor), at a dose of 25 units/kg daily for 7 days, was found to increase growth velocity by 1.75-4.5 in the pre-Rx year, increasing to +2.31 after the 1st Rx year, and correlated with an increase in serum 250 of 42±8 ngl/ml to 244±20 ngl/ml (r=.37, p<.002). Pre-Rx BH showed 7 pts with OM, 213 OF. Pre-Rx BH did not correlate with CO2, P04, Ca, iPTH or GFR when pre-Rx levels were compared to 1st or later Rx years. In conclusion: 250 often heals abnormal BH, especially to 244±20 ngl/ml (r=.37, p<.002). Pre-Rx BH showed 7 pts with OM, 213 OF. Pre-Rx BH did not correlate with CO2, P04, Ca, iPTH or GFR when pre-Rx levels were compared to 1st or later Rx years. In conclusion: 250 often heals abnormal BH, especially