211 BODY COMPOSITION AND BLOOD PRESSURE IN BLACK PHILADELPHIA ADOLESCENTS, Valleroy, L.A., Schall, J.I., Eveleth, P.B., Bowers, E.J., Hediger, M.L., Gruskin, A.B., and Katz, S.H., Children's Hospital of Philadelphia, St. Christopher's Hospital for Children, Philadelphia, Penna.

It is well established that weight is positively associated with blood pressure (BP) and that overweight is a significant risk factor for elevated BP. However, determining the relative importance of fat and lean body mass in explaining this phenomenon requires further investigation. This study examines the association between height (ht) and weight (wt) and BP at 7 years and body composition variables and BP during adolescence, using a representative sample of 600 black children from Philadelphia. The variables from the adolescent data are wt, ht, upper arm muscle circumference, and skinfold thicknesses and were analyzed using a mixed longitudinal design. The results from the 7 year and adolescent data show that wt, ht, and corrected wt for ht are all significantly correlated with BP. However, wt is more highly related to BP than the other variables. Further analyses of the adolescent data indicate that in those age and sex groups in which wt explains a significant proportion of BP variance, lean body mass is generally a more important contributor to this association than fat body mass. For example, for 13 and 14 year old males, the results of multiple regression analysis show that muscle circumference is the important contributor in systolic BP (adjusted beta weights .46 and .33, $p < .01$). Particularly in young adolescent males, lean body mass appears to be the component of wt which is associated with systolic BP. This work was supported by NHLBI Grant #HL-19869.

IMMUNOLOGY

212 STUDIES ON THE PATHOGENESIS OF MINIMAL CHANGE NEPHROTIC SYNDROME

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Soluble immune complexes in the sera of the patients with minimal change nephrotic syndrome (MCNS) were studied, longitudinally. The search for soluble immune complex was performed by plyethylene glycol method. The serum was added in polyethylene glycol PBS solution (3%) and the turbidity that appeared in the solution was measured using laser nepherometer. The degree of turbidity was proved to be pallalel with the concentration of soluble immune complex in the serum. The sera of MCNS patients during exacerbation were revealed to be high in a soluble immune complex titer. The titer decreased rapidly in the patients who had complete remission in a short period. The titer decreased gradually and did not reach normal range in the patients who had no complete remission and in frequent relapsers. It was strongly suggested that the soluble immune complex plays an important role on developing MCNS. To solve the mechanism by which soluble immune complex causes MCNS to develop, B-cell lymphokine production by stimulation with immune complex was studied. B-cells obtained from MCNS patients in complete remission were stimulated with immune complex and washed in PBS solution to be cultured. Chemotactic lymphokine activity of the culture supernatant was assayed in modified Boyden chamber. B-cells of MCNS patients were revealed to produce much more chemotactic lymphokine than those of control group. Lymphokines produced in MCNS patients may develop MCNS.

213 INCREASED FREQUENCY OF THE BfF GENE IN THE IDIOPATHIC NEPHROTIC SYNDROME (INS): STUDIES OF THE ALTERNATIVE COMPLEMENT PATHWAY IN INS. McLean, R.H., Kennedy, T.L. Ballow, M., Siegel, N.J., Univ. of Connecticut Health Ctr., Farmington, CT and Yale Univ. Sch. of Med., New Haven, CT,U.S.A.

Polymorphism of serum Factor B (Bf) of the alternative complement (C) pathway was determined in 61 (non-Black) children with steroid-responsive INS ages 1 to 15 and in 70 (non-Black, unmatched) normals using prolonged agarose electrophoresis with immunofixation. Immunochemical assays of C3 and Factor B and functional assays of the alternative (APH50) C pathways and Factor D, were also performed.

Bf gene frequencies were significantly different between INS and normals with an increase in BfF and a decrease in BfS (INS: BfS-.7213, BfF-.2623, BfF1-.0164; Normals: BfS-.8500, BfF-.1357, BfF1-.0143; $\chi^2=5.944$ with Yates; correction, $p<.05$). Phenotype frequencies (excluding rare variants) were not different (INS: BfS-35, BfFS+BfF-24; Normals: BfS-50, BfFS+BfF=18; $\chi^2=2.2747$ with Yates' correction, $p>.10$). BfF1 was similar between groups and not present in 2 patients with INS and diabetes mellites. C3 type was not different between INS and normals.

APH50 was reduced during relapse with INS and had an overall correlation with serum Factor B ($r=.3818$, $p<.01$), albumin ($r=.4295$, $p<.01$) and C3 ($r=.3687$, $p<.01$). Factor B in INS also correlated with serum albumin ($r=.5938$, $p<.001$). Factor D showed no correlation with APH50, Factor B or albumin. We conclude that the BfF gene is increased in INS and that alternative C pathway function is reduced in relapsing INS.

214 EFFECTS OF SERUM FROM MINIMAL CHANGE NEPHROTIC SYNDROME (MCNS) PATIENTS ON LYMPHOCYTE TRANSFORMATION McLeod, T.F., McKinney, E.C., Sandberg, D.H., Zilleruelo, G., and Strauss, J., University of Miami School of Medicine, Miami, Florida, U.S.A.

A variety of abnormal immune reactions have been described in MCNS. This study further characterizes the serum factor(s) from MCNS patients associated with inhibition of lymphocyte blastogenic responses. Serum was taken from three children with active MCNS. Lymphocytes from normal donors were cultured for 48 hrs. with phytohemagglutinin (PHA) or pokeweed mitogen (PWM). ^{3}H-thymidine was added during the last 6 hrs; simultaneous cultures with normal human serum were used as control. A) In order to assess effect on initial binding of PWM to the cell, normal lymphocytes in serum-free medium were pre-incubated with PWM at 37°C. After 1 hr, normal or MCNS serum was added. No significant difference in inhibition was detected between cells initially incubated with PWM and MCNS serum (34%) or MCNS serum added after 1 hr (25%). B) Lymphocytes were incubated for 1 hr or 18 hrs with normal or MCNS serum, washed, and resuspended with mitogen and fetal calf serum. Lymphocytes incubated for 1 hr in MCNS serum showed no inhibition while lymphocytes incubated for 18 hrs showed 62% inhibition. C) Lymphocytes incubated for 18 hrs at 37°C in normal human serum or MCNS serum did not take up trypan blue dye. These data indicate that: A) inhibition is probably not associated with interference of binding of mitogen to the cell; B) inhibition is not reversible after 18 hrs; C) MCNS serum does not appear to be cytotoxic.

215 NEPHROTIC SERUM CONTAINS A SUBSTANCE WHICH INHIBITS THE DETECTION OF IMMUNE COMPLEXES. Davis, C.A. Case Western Reserve University, Rainbow Babies and Childrens Hospital, Dept. of Pediatrics, Cleveland, Ohio, USA.

Serums from 17 patients with idiopathic nephrotic syndrome were examined for immune complexes by a solid phase Clq radioimmunoassay. No serum had elevated Clq binding. Instead, the nephrotic serums contained a factor which inhibited the binding of monomeric IgG, aggregated IgG, and naturally occurring IgG immune complexes to Clq. As a result of this inhibition the amount of immune complex material in nephrotic serum is underestimated by the solid phase Clq radioimmunoassay. The inhibition could not be accounted for by the reduced levels of Clq or IgG in the nephrotic serums, nor by hyperlipemia, nor by IgM or IgM containing immune complexes. The factor did not bind to Clq.

Serum from patients with idiopathic nephrotic syndrome contains a substance which binds to IgG and reduces the affinity of IgG for Clq. Immune complex assays which rely upon the interaction of complexes with Clq give falsely low values in these individuals.

216 INHIBITORY ACTIVITY OF SERUM FROM PATIENTS WITH NEPHROTIC SYNDROME (NS) ON LYMPHOCYTE BLASTOGENESIS IN VITRO. Bartini A. Vitiello A. Department of Pediatrics, University of Pavia, Italy

Inhibitory activity on lymphocyte blastogenesis in vitro of sera from patients with steroid-sensitive NS (SSNS) has been reported as peculiar to this disease. We studied 12 patients with SSNS at onset of the disease before treatment and 10 with NS due to glomerulopathies (GP) other than minimal change NS or focal and segmental hyalinosis. Peripheral blood lymphocytes (PBL) from patients or normals were stimulated in vitro with PHA or different doses of ConA in the presence of either patient's serum, normal human serum (NHS) or mixtures of SSNS serum and NHS; cell transformation was measured as ^{3}HTdr incorporation. We conclude that: 1) blastogenesis of PBL from patients with SSNS and NS due to other GP is normal in the presence of NHS 2) lymphocyte blastogenesis is significantly inhibited not only by SSNS serum but also by serum from NS due to other GP 3) dose-response curves with ConA in the presence of SSNS serum are shifted to the right suggesting that the inhibitory substance(s) act(s) competitively with ConA.