sions. Endothelial proliferation and leukocytic infiltration was observed in percutaneous renal biopsies. As regularly observed in our previous studies of sporadic acute glomerulonephritis, approximately ¼ of these patients had nodular deposits of IgG and beta $_1$C globulin along the glomerular basement membranes by immunohistochemical analysis. 90 % of remaining patients showed interrupted linear deposition of beta $_1$C along glomerular membranes without IgG. Electron microscopic study revealed minimal development of the characteristic discrete electron dense deposits on the epithelial side of the glomerular basement membrane. Focal membrane thickening and basement membrane-like material among mesangial cells was observed. This study, sampling an entire spectrum of acute poststreptococcal glomerulonephritis, suggests that nephritogenic strains of streptococci may exert a toxic action rendering the glomerulus susceptible to injury by antigen-antibody complexes. (Supported by American Heart Association, USPHS, and Minn. Heart) (SPR)

42 *Focal Nephritis, a Form of Normocomplementemic Persistent Glomerulonephritis Responsive to Steroid.* C.D. West, A.J. McAdams* and J.D. Northway*, Children's Hospital, University of Cincinnati, Cincinnati, Ohio

Since advent of renal biopsy, the definition of a type of persistent nephritis characterized by focal and segmental lesions has been possible. Heptinstall has recognized this lesion in adults in the absence of lupus, bacterial endocarditis, anaphylactoid purpura or periatritis. We have observed 11 cases of focal nephritis in children not attributable to any of the above entities. All the patients have been normocomplementemic and have had a course characterized by a mild-to-severe nephrotic syndrome, usually with signs of nephritis. The data suggest that signs and symptoms develop rapidly after onset, without a long, silent, subclinical stage. In 9 of the cases, onset was preceded by an upper respiratory infection, but ASO titers were usually not elevated. The entity is important to recognize because of the beneficial effects of steroid therapy. In 3 of our patients not treated with steroid initially, the nephritic-nephrotic picture subsided, but all signs and symptoms recurred several months later, usually following a respiratory infection. After treatment in these 3 patients as well as in 7 of 8 treated shortly after onset, no recurrences have been noted in follow-ups ranging from 9 months to 4 years. The 11th patient never responded to therapy and eventually succumbed with a severe nephrotic syndrome. In the remaining 10 patients, signs of the nephrotic syndrom have slowly disappeared with therapy, and several show no evidence of renal disease except for focal glomerular scarring. The similar pathological picture, clinical course and therapeutic results in the 10 responsive patients suggest that focal nephritis in children is a disease entity. Its diagnosis rests on typical histopathological changes by renal biopsy in a normocomplementemic patient. (APS)

43 *Evaluation of Combined Therapy (Steroids and Cyclophosphamide) in the Steroid Resistant (SR) and Steroid Dependent (SD) Nephrotic Syndrome.* Luther B. Travis* and Warren F. Dodge, University of Texas Medical Branch, Galveston, Tex.

Over the past 5 years there has been a revival of interest in the combined use of steroids and immunosuppressive agents in the child with the idiopathic nephrotic syndrome (INS) who is either SR or SD. The combined administration of steroids and cyclophosphamide is usually effective in inducing an initial response in the majority. Little information is available on the cource of these patients after cyclophosphamide is discontinued.

Of 169 patients with INS, approximately 40 % were found to be either SR or SD. Thirty-five of these were evaluated and subjected to cmbined therapy. Eleven were SR and 24 were SD. Seventeen of the 35 are classifiedas having 'lipid' nephrosis, while 10 had proliferative and 8, membraneous glomerulonephritis. Eighteen SD patients had a complete initial response while 6 SR patients exhibited a similar response. An additional 3 SR patients had a partial response. Approximately 50 % of the patients who initially had a complete response and who have been followed for at least 6 months after discontinuing cyclophosphamide, have, however, had further exacerbations and their ultimate course does not appear to have been materially altered.

This study would suggest that 1. SR and SD are not infrequent; 2. clinical and pathologic studies may define groups of patients who are either steroid sensitive, SR or SD, but may be of little help with individual patients; 3. combined therapy will usually induce an initial complete response; 4. approximately one-half of patients so treated will ultimately revert to some degree of unresponsiveness. (SPR)

44 *Experimental Studies on Pathogenesis of Nephrotic Hyperlipemia and Dysproteinemia.* Walter Heymann, Stephen Ghentow* and John L. Zitel*, Western Reserve University, Department of Pediatrics, Cleveland, Ohio.

Drainage of the abdominal chyleduct was carried out for 1–18 days in 11 rats, a continuous i.v. drip preventing dehydration. Marked hypoalbuminemia (with values < 1.0 gm %) developed in all and cholesterol and total lipid values in sera remained within normal limits. At the same time electrophoretic patterns obtained on sera of these rats showed the appearance of proteins with the mobility of α_2 globulins that were not obtained before. Marked decreases of γ globulins were also noted. In as much as these observations were made on animals without kidney disease, it would seem possible that the increase of α_2 globulins observed regularly in the nephrotic syndrome do not reflect any etiological or pathogenic manifestation of the disease process. These observations also do not support the contention that the nephrotic hyperlipemia is due to hypoalbuminemia. Sera of 5 children with non nephrotic hypoalbuminemias also revealed normal cholesterol and total lipid values with increased α_2 globulins. (APS)

45 *Accelerated Intravascular Coagulation in the Hemolytic Uremic Syndrome.* Carolyn F. Piel*, Kenneth Hadley* and Roderic H. Phibbs*, Univ. California-S.F. Medical Center, San Francisco, Cal. (introduced by M.M. Grumbach).

Renal tissue was obtained by percutaneous biopsy in 11 patients with hemolytic uremic syndrome from 9 to 365 days after onset of disease; by autopsy in 5 after 6 to 58 days of illness. By light microscopy, the early histologic lesion (up to 30 days) was characterized by glomerular capillary ectasia and intracapillary eosinophilic depositions (fibrin-like material). Regardless of duration or severity, electron microscopy revealed irregular swelling and fragmentation of basement mem-