157 THE COMBINED SCANNING AND TRANSMISSION ELECTRON MICROSCOPE STUDY OF NEPHROTIC SYNDROME IN CHILDREN

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Scanning electron microscope(SEM) is the most suitable method for studying the three-dimensional ultrastructure of the renal glomeruli. But it is necessary to compare observations by SEM with those by transmission electron microscope(TEM) simultaneously to exclude various artificial changes which are noticed sometimes on observations by SEM. Renal biopsy specimens were obtained from 13 patients of nephrotic syndrome,aged 5-16 years (4 in remission,9 in no remission). All specimens were cut into small cubes,immersed in 2% osmium tetraoxide buffer solution,dehydrated in a siries of alcohol and embedded in styrene-methacrylate resin. After ultra-thin sectioning for TEM,residual surface of blocks were observed by SEM. The observations by SEM and TEM of the same glomeruli from 13 patients with or without proteinuria revealed same findings. 4 cases in remission that had the clear foot processes by TEM showed regular and well arranged terminal processes which looked fern leaf like branching. 9 in no remission had irregularly swollen podocyte corresponding to the amount of proteinuria.

GENETICS

GENETIC ANALYSIS OF BENIGN FAMILIAL HEMATURIA

158 Genetic analysis was performed in 27 pedigrees with benign familial hematuria. A total of 343 family members including 31 propositi was investigated. Family data are summarized in the Table.

Study of pedigrees indicated that the mode of inheritance was autosomal dominant, because affected individuals were observed in each generation and in both sexes. Then, test of simple autosomal dominant inheritance by utilizing chi-square method revealed non-significant deviation between an observed and expected ratio of affected to nonaffected among siblings as well as male to female among affected siblings. Furthermore, no correlation was observed between the sex of affected siblings and that of affected parents. Finally a priori and a posteriori methods were sufficient to confirm the hypothesis indicated by the study of pedigrees.

In conclusion, benign familial hematuria proved to be inherited as an autosomal dominant.

Table Family Data in 27 Pedigrees

M: Male
F: Female
T: Total

Affected parent	No. of Family	Siblings — Affected M	F	T	Nonaffected M	F	T	Total
Father	22	12	13	25	18	18	36	61
Mother	34	24	28	52	21	13	34	86
	56	36	41	77	39	31	70	147
Both parents	8	11	8	19	5	3	8	27
Total	64	47	49	96	44	34	78	174

159 HLA IN MINIMAL CHANGE NEPHROTIC SYNDROME(MC) AND FOCAL SEGMENTAL GLOMERULOSCLEROSIS(FSS). Lenhard, V., Muller-Wiefel, D.E., Dippell, J., Schroder, D., Seidl, S., Scharer, K. Depts. of Immunology and Pediatrics, Universities of Heidelberg and Frankfurt, F.R.C.

It has been questioned that children with MC represent a different entity from those with FSS. We have studied the frequency of HLA antigens in 122 children with NS subdivided in 88 pts with MC and 34 with FSS. The MC pts were classified according to the frequency of relapses and the presence of atopy. HLA typing was performed using the NIH microlymphocytotoxicity technique. The p-values of the x^2 test were corrected (pc) by multiplying them by the number of HLA-alleles testes. In MC HLA-B8 was significantly increased compared to controls (33% vs 18%, pc 0.05). In contrast to other reports, HLA-B12 was not more frequent in MC than in controls (25% vs 22%) but it was increased in FSS (35%). In MC HLA-B8 association seemed to be related to the clinical course: no or infrequent relapses: 26%, FR without steroiddependency: 27%: FR with steroiddependency:35%. HLA-B8 was more frequent in atopic than in non-atopic pts (38% vs 30%). These findings indicate that MC and FSS in children with NS are pathogenetically different disorders. An unfavorable clinical course seems to be more frequent in HLA-B8 positive MC patients.

160 FAMILIAL NEPHROSIS (FN). KLEINKNECHT C., GONZALEZ G., GUBLER M.C., LENOIR G., BROYER M. Hôpital des Enfants Malades, PARIS.

32 children with FN were studied, after exclusion of finnish type. They belonged to 17 families totalizing 39 affected subjects. When compared to sporadic nephrosis (N) FN showed a higher incidence of infantile onset (11/32 vs 9/249 : $p < 0.001$) of males affected (81 vs 71%), of steroid resistance (16/32 vs 65/249 $p < 0.01$) and poor outcome, but appeared as a heterogeneous entity. Two groups were separated according to steroid (S) response : 16 children from 9 families were S-responders, 16 from 8 families were S-resistant. No discordance was found in any of the families. S-responsive FN showed the same age and sex distribution as sporadic N and similar good prognosis. It affected both sexes in 5 families, two generations in 3 and 2 siblings in 6 families. S-resistant FN affected exclusively siblings (3 in 3 families, 2 in the others), boys except for 2 sisters, and children under 3 (11/16 under 1 year). Two pairs of siblings had microcephaly and dysmorphy. Three died from complications, 6 deteriorated to renal failure after 1 to 14 years and 7 had normal renal function after 1 to 15 years. Renal biopsy showed in S-responders 6 minimal changes (MC) and one focal lesion (FL), and in S-resistant 8 MC, 1 FL and 4 mesangial sclerosis (including 3 siblings). In conclusion : S-sensitive FN do not differ from sporadic N. The facilitating role of environmental or genetic factors is not prominent but cannot be excluded. S-resistance FN appears as (a) different entities(y) and is consistent with a heriditary disease suggesting a recessive transmission.

161 THE GENETICAL ASPECTS OF EXPERIMENTALLY INDUCED POLYCYSTIC KIDNEY DISEASE. Crocker, J.F.S. and Blecher, S.R., Departments of Pediatrics and Anatomy, Dalhousie University and the Izaak Walton Killam Hospital for Children, Halifax, Nova Scotia, Canada.

Genetical factors play an important role in the etiology of some forms of polycystic kidney disease. However, virtually nothing is known of the molecular nature of the gene product defect(s), nor their site of action. A study of the genetically determined basis for susceptibility to steroid teratogens in the causation of the polycystic kidney disease was begun. In this model polycystic kidney disease is induced by injecting a glucocorticoid acetate on the first day of life. The cysts occur, with renal failure, over the next week. In the present study only a percentage of animals within an experimental group showed susceptibility to the teratogen and there was no sex predilection. Some litters showed complete resistance, others were totally sensitive, and yet others were partially reactive. Furthermore, our study indicates considerable variation in the susceptibility of rats of one and the same strain (Sprague Dawley) obtained from three sources.

Biddle and Fraser studying steroid induced cleft palate susceptibility to the teratogen showed it was influenced by a small number of genes. It is possible that a similar situation pertains to polycystic disease of the kidney.

HLA TYPES IN A FAMILY WITH ALPORT'S SYNDROME

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Alport's syndrome is referred to as familial nephritis with defness. But the cause of this disease remains still unknown. Study on the heredity of HLA in a family with Alport's syndrome is considered to be meaningful in order to clarify the relationship between the disease and immunological heredity.

24 members of a Japanese family with Alport's syndrome were HLA typed by Terasaki's microcytotoxity method.

According to our research there is some interrelation between AW31, BW51, DW1 and Alport's syndrome.

Our result suggests the possible importance of HLA in Alport's syndrome heredity.