Interstitial Naive and Memory T Cells in Chronic Mesangial Proliferative Glomerulonephritis

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Dear Sir,

The degree of cell infiltration in the inter-stitium showed direct correlation with the severity of glomerular damage in typical cases of primary glomerulonephritis [1]. However, the role of interstitial infiltrating cells in the progress of glomerulonephritis has not been clarified. A common finding in previous reports [2, 3] is the dominance of CD4-positive helper/inducer T cells in the interstitium.

For further analysis of the phenotypes and the roles of interstitial cells, immunohistochemical staining of CD45RA-positive cells, that is, non-antigen-stimulated 'naive T cells' and CD45RO-positive cells, that is, antigen-stimulated 'memory T cells' [4, 5] in primary chronic mesangial proliferative glomerulonephritis (CGN) using the avidin-biotin complex peroxidase technique was performed. As shown in table 1, we evaluated renal tissues after separating them into two groups, i.e., mild glomerular change group (grade I or II) and moderate to severe change

group (grade III or IV). CD45RO-positive memory T cells were the dominant population of interstitial infiltrating T cells (fig. 1). Memory T cells are known as producers of cytokines [5, 6]. In order to evaluate the hypothesis that infiltrating T cells produce cytokines, we attempted immunohistochemical peroxidase-alkaliphosphatase double staining using several anticytokine antibodies, but no clear signals indicating memory T cells produced some cytokines could be obtained. A sophisticated technique such as the in situ hybridization method is required to clarify the role of interstitial memory T cells.

Acknowledgement

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9.0±4.5 9.0±4.5 12.2±8.0 11.1±8.0 11.1±7.0 10.4±8.3

Table 1. Percentage of positive cells in all countable infiltrating cells

27.5±11.3 i

Mild CGN 44.8 ± 10.6 30.6±8.0 11.1 ± 3.2

(n = 12)

21.3+12.4

39.8 ± 8.7

Severe CGN 43.8+15.5 36.9+11.8 12.2+6.9

(n=23)

18.9+12.3 34.6+11.4

Total 44.4+14.0 34.5+11.0 11.7+5.8

Results are percentage of stained cells among all infiltrating cells (mean+SD). BD = Becton Dickinson. *p < 0.05; **p < 0.01.

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Fig. 1. Immunoperoxidase stain of CD45RA-positive cells (a) and CD45RO-positive cells (b; 1/8 A nephropathy grade III). × 150.

References

- Abe S, Amagasaki Y, Iyori S, Konishi K, Kato E, Sakaguchi H: Significance of tubulointerstitial lesions in biopsy specimens of glomerulonephritis patients. *Am J Nephrol* 1989;9:30-37.
- Stachura I, Si L, Madan E, Whiteside T: Mono-nuclear cell subsets in human renal disease enumeration in tissue sections with monoclonal antibodies. *Clin Immunol Immunopathol* 1984; 30:362-373.
- Boucher A, Droz D, Adafer E, Noel LH: Characterization of mononuclear cell subsets in renal cellular interstitial infiltrates. *Kidney Int* 1986; 29:1043-1049.
- Sanders ME, Makgoba MW, Sharrow SO, Ste-phany D, Springer TA, Young HA, Shaw S: Human memory T lymphocytes express increased levels of three cell adhesion molecules (LFA-3, CD2, and LFA-1) and three other molecules (UCHL1, CDw29, and Pgp-1) and have enhanced IFN-γ production. *J Immunol* 1988; 140:1401-1407.
- Budd RC, Cerottini JC, MacDonald HR: Selectively increased production of interferon-γ by subsets of Lyt-2+ and L3L4+ T cells identified by expression of Pgp-1. *J Immunol* 1987; 138: 3583-3586.
- Salmon M, Kitas GD, Bacon PA: Production of lymphokine mRNA by CD45R+ and CD45R- helper T cells from human peripheral blood and by human CD4+ T cell clones. *J Immunol* 1989; 143:907-912.

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