An in situ Cytomegalovirus DNA Hybridisation Study in IgA Nephritis

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Dear Sir,

Cytomegalovirus (CMV) infection is known to pursue an aggressive clinical course in patients with renal allo-grafts. In addition tubulointerstitial disease and glomerulopathy have been well described. However, more recently attention has focussed on the role of CMV in the pathogenesis of IgA nephropathy (IgAN). Gregory et al. [1] using an immunofluorescence technique and poly-clonal antisera found CMV antigen in the glomeruli of all cases of IgAN examined, but subsequent data have proved less convincing.

We examined paraffin-embedded renal biopsies from 40 patients with IgAN from Britain and Singapore using an in situ DNA hybridisation technique with a CMV probe, in an attempt to detect viral DNA within glomeruli. The specific CMV DNA probe (Enzo Diagnostics) was applied and denatured in a hot air oven at $94 \pm 2^\circ\text{C}$ for 8 min. This was followed by hybridisation at 37°C for 30 min, application of posthybridisation reagent and streptavidin-biotinylated horseradish peroxidase complex for 15 min each. The sections were developed with 2% aminoethyl carbazole, and counterstained with haematoxylin. To test the probe specificity, the CMV DNA probe was replaced by that for herpes simplex virus (HSV) or Epstein-Barr virus (EBV). Postmortem lung tissue from an AIDS patient with CMV pneumonitis was used as control.

The 40 IgAN cases from Britain and Singapore showed no staining for CMV DNA antigen. The CMV pneumonitis control was positive, and sections substituted for HSV/EBV were negative indicative of specificity of our technique. Our findings confirm the work from Japan [2] which failed to detect mesangial CMV antigen using indirect immunofluorescence and monoclonal and polyclonal antisera. Non-specific staining due to contaminating antibodies to human antigens in commercial antisera was reported by Waldo et al. [3]. Ballar-die et al. [4] and Newkirk et al. [5]

described a cross-reactive idiotypic borne by a rheumatoid factor [6], in the sera of patients with IgAN. Therefore methodologies employing CMV antibodies in the presence of a circulating IgA rheumatoid factor must be interpreted with caution.

Our findings indicate that in British and Singapore patients with IgAN, CMV DNA was not detected in the mesangium in any cases. We conclude that in these patients, CMV appears to play no role in the pathogenesis of IgAN.

References

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