Cyclophosphane 'Pulses' in Three Inbred Strains of Mice with Experimental Immune Complex Nephritis

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Dear Sir,

Cyclophosphane (Cy) 'pulses' were found to be effective in lupus nephritis [1] and in some patients with idiopathic nephritis [2]. We examined the influence of Cy pulse therapy on the development of the acute serum sickness nephritis in three different strains of mice (C57B1, CBA and NFR).

Groups of 20 mice from each of these three strains were injected daily with 1 ml of human plasma intraperitoneally for 10 days [3], and 10 out of 20 mice of each group were given a single large dose of Cy (5 mg p.o.) on the 1st day of the experiment. 24 h after the last injection of plasma the mice were sacrificed and specimens of renal tissue were examined by light and electron microscopy.

The injections of plasma produced different changes in renal glomeruli of these inbred strains, and Cy was found to have a different effect on the development of glomerular lesions in these strains of mice.

C57B1 mice not treated with Cy developed severe nephritis of the mesangial type with mesangial cell proliferation, enlargement of mesangial matrix and extensive immune complex deposition. A single injection of Cy on the starting day of the experiment prevented both cell proliferative reaction and immune complex deposition.

In CBA mice human plasma injections caused proliferation of mesangial, endothelial and epithelial cells; electron-dense deposits were seen in mesangial and sub-endothelial area. Cy prevented deposit formation, but did not alter cell reaction.

In NFR mice glomerular mesangial cell proliferation and mesangial matrix enlargement, mesangial and sub-endothelial electron-dense deposits were seen. Cy appeared to have no effects on these morphological features of nephritis.

Our experiments show that a single high dose of Cy may prevent the development of immune complex nephritis in mice despite repeated antigen stimulation. We suggest that such protective effect is limited by genetic factors. Thus in C57B1 mice Cy prevented cell proliferative reaction as well as immune complex deposition. In CBA mice Cy prevented immune complex deposition but not cell reaction. In NFR mice Cy treatment had no effect on both immune complex deposition and cell reaction. This demonstrates the existence of different types of Cy resistance.

References

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