Studies on Mechanism of Liver Cell Damage and Significances of Autoantibodies in Autoimmune Liver Diseases

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In this paper anti-liver antibodies, especially anti-liver cell-bound antibody was undertaken to examine the significances of the liver cell damage both in experimental and clinical studies.

In vitro experiments were performed to investigate immunological cell injury on liver cell surface reacted with antibodies against liver subcellular antigen and cell membrane.

Subcellular fractions of rat liver cells were separated by the method of Hogeboom et al.

Rat liver cell membrane was prepared by the method originally described by Takeuchi and Terayama.

Normal rabbits were immunized with a mixture of liver antigens emulsified in Freund's complete adjuvant.

Liver cell adherence test was performed by our method previously described. Immunofluorescence staining was done by the method of Neville.

The results were as follows:

1) Immune adherence test (liver cell adherence test) and immunofluorescence staining were carried out with positive results both with anti-membrane and supernatant serum.

The other anti-cytoplasmic antisera failed to demonstrate the ability to fix on the intact liver cell surface.

These results suggested that the supernatant fraction might also contain cell membrane surface antigens which were related to positive immune adherence.

2) Liver cells fixed with these antibodies showed high activity of released enzyme and high rate of 0.5% trypan blue stained cells.

3) In clinical cases with chronic liver diseases, positive anti-liver cell membrane antibody is relatively more frequently found in chronic hepatitis (active type) than in prolonged hepatitis and chronic hepatitis (inactive form).

4) From these results, it seemed to suggest that for liver cell damage anti-liver cell membrane antibody was one of the important factors.