Therapeutic effect of mushroom lectin in combination with hepatitis B subunit vaccine on transgenic mice

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Background: Chronic hepatitis B virus (HBV) infection remains a serious public health problem because of its worldwide prevalence. HB subunit vaccine is the most effective way to prevent HBV infection. However, HB subunit vaccine cannot elicit HB antigen specific cellular immune responses and cannot be used for HBV infection treatment. Mushroom lectin has shown the capability to stimulate T cell responses. Our previous study showed that lectin from *Pleurotus ostreatus* (POL) enhanced immunogenicity of HBV DNA vaccine.

Objective: The therapeutic effect of HB subunit vaccine combined with POL on HB transgenic mice.

Methods: The HB transgenic mice were treated with HB subunit vaccine/POL for 3 times. Serum were collected for HBV surface antibody and antigen test by using ELISA kits. T cell proliferation was perfored by using CFSE staining. The livers of treated mice were stained with CD4 and CD8 mAbs for lymphocyte infiltration test by flow cytometry. The livers of treated mice were fixed with 4% paraformaldehyde for paraffin section, then stained with hematoxylin and eosin for pathological analysis.

Results: Serum from the treated mice were tested by ELISA kits. The HB surface antibody level was higher and the HB surface antigen was lower significantly in HB subunit vaccine/POL treated mice than those in other groups. There were more proliferated T cells in HB subunit vaccine/POL treated mice than those in other groups. In livers, the infiltrated CD8 T cells decreased significantly in HB subunit vaccine/POL treated mice than those in other groups.

Conclusion: POL combined with HB subunit vaccine have potential for treatment of chronic HBV infection.

Key words: Mushroom lectin; Hepatitis B subunit vaccine; Hepatitis B transgenic mice; Treatment