The relationship between HBV precore region mutation and the variation of T-lymphocyte subpopulations in patients with chronic hepatitis B

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Objective: To investigate peripheral T-lymphocyte subpopulation profile and its correlation with HBV precore region 1896 mutation in patients with chronic hepatitis B.

Methods: HBV precore region 1896 mutation and distribution of T-lymphocyte subpopulations in peripheral blood were measured in 65 CHB patients. HBV markers were detected with ELISA. Serum HBV DNA load was assessed with quantitative real-time polymerase chain reaction (PCR). The relationship between precore mutation and variation in peripheral T-cell subsets was analyzed.

Results: CHB patients had significantly decreased CD3+ and CD4+ cells and CD4+/CD8+ ratio, and increased CD8+ cells compared with uninfected controls, all with P<0.001. Comparing with HBV precore region non-mutation group, the patients with precore mutation had significant decreased CD4+ cells and CD4+/CD8+ ratio and increased CD8+ cells. Univariate analysis showed a similar pattern of these parameters was significantly associated with presence of serum HBeAg expression and high viral load, all with P<0.05 or 0.01. The presence of HBeAg expression and quantities of HBV DNA carried by the HBV precore region mutation positive group were not significant different than those observed in HBV precore region mutation negative group. No obvious differences of T-cell parameters and presence of precore mutation were observed among various age groups and sex groups.

Conclusion: T-lymphocyte failure was significantly associated with HBV precore region mutation in CHB patients. Which with HBeAg expression and the HBV DNA replication affect each other and co-result in lower T-cell immune function and chronic infection persistent status.

Enhancement of immune responses to HBsAg by a multi-copy CpG ODN-contained plasmid

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Background: Occult hepatitis B is defined by the presence of HBV DNA in serum or liver in the absence of HBsAg. Low serum HBV DNA titers, in the range of 100 to 1000 copies/ml, are typical in occult HBV infection. HBV infection can lead to chronic disease, cirrhosis and liver cancer. For this reason the aim of this research was to find out the prevalence of occult HBV infection in Tehran (Iran).

Methods: The methodology used in this research is a semi-experimental one. The research was conducted on 250 patients. HBsAg, anti-HBs and anti-HBc quality was tested by ELISA method and HBV DNA quantification was tested by real-time PCR assay in 2007 (Tehran).

Results: 130 of 250 patients were HBsAg and HBV DNA positive. 7 of 120 HBsAg-negative patients had HBV DNA positive. Occult HBV infection rate was 5.83%.

Conclusion: We found that prevalence rate of occult HBV infection tends to correlate with intermediated prevalence of hepatitis B infection in Tehran (Iran). Occult HBV infection rate range between 7% to 13% in the world.

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Background and objective: Thrombin activatable fibrinolysis inhibitor (TAFI), a member of the metallo-carboxypeptidase family, is a protein enyzmogen that is secreted from liver and transported to plasma. TAFI is a coagulation and fibrinolysis regulator that generates an important complement to the classical coagulation and fibrinolysis pathways. The aim of this article is to investigate the changes of plasma TAFI and its clinical significance in patients with chronic hepatitis B and hepatocirrhosis.

Methods: All 120 patients with chronic hepatitis B of different severe stage and liver cirrhosis and 60 normal control were recruited. 1.8ml limosis elbow vein blood was collected from patients and controls. The blood was anti-coagulated by adding 0.2 ml sodium citrate, followed by mixing and centrifugation at 3000 rpm for 15 min. Platelet-poor plasma was then taken, aliquoted and stored at -70°C for detection of TAFI concentration. Chromogenic assays were used to measure the TAFI activity (TAFI Act) and ELISA method to TAFI antigen (TAFI Ag).

Results: Plasma TAFI Act and TAFI Ag is 26.4±6.5μg/ml and 83.2±25.8 respectly in normal control group. Plasma TAFI Act and TAFI Ag in patients with chronic hepatitis B (moderate and severe stage) and hepatocirrhosis were significantly lower than those in control group (P<0.05 or P<0.01).

Conclusion: TAFI can repress the fibrinolytic system. With the damage of liver function, there is coagulation hypofunction and fibrinolysis hyperfunction and hemorrhagic tendency ensued. To test plasma TAFI can be as a valuable predictor for diagnosis and treatment and prognosis of chronic hepatitis B and liver cirrhosis.

Prevalence of occult HBV infection in the Province of Tehran, Iran

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Enhancement of immune responses to HBsAg by a multi-copy CpG ODN-contained plasmid

Ping Zhao, Yi-min Tong, Zhi-hui Chen*, Zhong-tian Qi. 1Department of Microbiology, Second Military Medical University, Shanghai, China; 2Department of Infectious Diseases, Shanghai Hospital, Second Military Medical University, Shanghai, China

Objective: To explore the possibility of using plasmid containing mu ti-copies of CpG ODN as adjuvant for therapeutic vaccine against hepatitis B.

Methods: A kind of plasmid pkO-CG6, containing six copies of D type CpG ODN was constructed. This plasmid and the carrier plasmid pkO were used to stimulate peripheral blood mononuclear cells (PBMC) of healthy or HBV infected persons and proliferation response and secretion of IFN-γ and IL-12 were detected. Further, Recombinant HBSAg was formulated with each of the both plasmids and used to immunize BALB/c mice and immune responses to HBSAg were assayed.

Results: Plasmid pkO-CG6 could activate PBMC of healthy or HBV infected persons and enhance the production of IFN-γ and IL-12 more efficiently than carrier vector pkO in vitro. Although vector pkO could act as immunological adjuvant for HBSAg in mice, plasmid pkO-CG6 elicited much more stronger immune responses to HBSAg, especially for cell-mediated response.

Conclusion: Plasmid containing multi-copies of CpG ODN could excite PBMC of HBV infected persons and enhance the immune responses to HBSAg in mice, which indicated this method may be potential value for therapeutic vaccine against hepatitis B.