Dynamic changes of CTLs, NK cells, and NKT cells in patients with acute hepatitis B infection

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Background: To explore the effects of specific CTLs, NK and NKT cells on viral clearance and liver injury in patients with self-limited AHB.

Methods: Dynamic profiles on the frequency of certain MHC-Pentamer specific CTLs and lymphocyte subsets in AHB patients were analyzed and their relationships to changes in liver function, HBV Ag, and HBV DNA levels were examined. ELISPOT was conducted to detect INF-γ secretion of specific CTLs.

Results: Frequencies of HBV-specific CTLs in AHB patients were higher than in CHB patients. HBsAg and HBV DNA disappeared earlier in AHB patients with a high frequency of HBV-specific CTLs. INF-γ spots were significantly greater in AHB patients. CD3+CD8+ cells in AHB patients were more than that in healthy control and reached peak levels at the second week after admission. NK and NKT cells were significantly lower in AHB patients and were negatively correlated with the frequency of HBeAg-specific CTLs.

Conclusions: HBV-specific CTLs play an important role in viral clearance and the self-limited process of the disease. NK and NKT cells are likely involved in the early, non-specific immune response to clear the virus that exists in the liver.

Evaluation on external quality control for diagnosis of Anaplasmosis in China

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Objective: To evaluate the performances of the second stage external quality assessment (EQA) relevant to laboratory diagnoses of Anaplasmosis in 10 Provincial/City CDCs laboratories in China.

Methods: The micro-indirect immunofluorescence assay (mIFA) proposed by WHO Rickettsial Diseases Collaborating Center was assessed as a standard serological diagnoses technique. The performances of two nested PCR assays, one testing for most members of family Rickettsia by amplifying groEL gene and the other targeting members of family Anaplasm by amplifying 16SrRNA gene, were evaluated. Participants received a package containing primers and 5 reference templates (P1, P2, P3, P4, P5) for PCR tests, and S1 and S2 reference sera for serological assays. Each laboratory was asked to perform these procedures by using their own laboratory condition including equipments and some reagents except the provided reference materials.

Results: 7 laboratories from 10 participants units returned their results for testing S1 and S2 references, and among these 7 Labs, 5 (71.4%) were eligible according to the assessment criteria. 8 participated laboratories gave their PCR results and there are significant differences in specificity and sensitivity of PCR performance among laboratories, with 62.5% (5/8) of laboratories providing acceptable results for P1 and P2 PCR references and 50% (5/10) of laboratories defining eligible results for P4, P5, P6 references. For repeatability evaluation, all laboratories reported acceptable results.

Conclusion: Each participated laboratory had systematic error in their performances. Revising these errors should be performed and internal quality control for these techniques should be conducted regularly in future surveillance works. Supported by the national basic research project-973 plan (2010CB530206), and special project of key communicable viral hepatitis-research on infectious diseases surveillance platform of national Sci-Tech key