Expression of human cytokine genes associated with chronic Hepatitis B disease progression

ABSTRACT

Background: Hepatitis viruses are non-cytopathic viruses that lead to the infection and pathogenesis of liver diseases as a result of immunologically mediated event. Objective: To investigate the expression of human inflammatory cytokines in chronic hepatitis B patients according to the severity of the infection. Methods: We recruited a total of 120 patients, 40 of whom from cirrhotic, 40 non-cirrhotic, and 40 acute flare chronic hepatitis B and 40 healthy controls. For all groups total cellular RNA was extracted from whole blood samples, genomic DNA was eliminated, and cDNA was synthesized using the RT2 first strand kit, as instructed by the manufacturer. The real-time profiler PCR array was performed on an a master cycler ep realplex and the data were analyzed using an online data analysis software. Results: Non-cirrhotic chronic hepatitis B patients were found to significantly upregulate interleukin 10 receptors that regulate the balance between T helpers 1 and 2. On the other hand, patients with cirrhosis were found to have significant upregulated interleukin 3 gene expression. Conclusion: Our finding suggests that upregulation of anti-inflammatory and downregulation of pro-inflammatory cytokines may play a roles in the progression of non-cirrhotic chronic hepatitis B patients to cirrhotic and acute flare. However, a multi-center study with a larger sample size is needed to confirm our findings.

Keyword: Acute flare; Hepatitis B; Inflammatory cytokines; Interleukins; Liver cirrhosis