

# Assessment of humoral immune response in patients with chronic hepatitis C virus infection

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Hepatitis C infection is a major public health problem worldwide. Hepatitis C virus (HCV) infection has been identified as a major causative agent of post-transfusion hepatitis. The host immune response to HCV infection is composed of both non-specific immune response, including interferon (IFN) production and natural killer (NK) cell activity and a virus-specific immune response, including humoral and cellular components. Susceptibility to infection has been related to immunological disturbances. Several studies have provided experimental evidence of disorders of both cellular and humoral immunity. Humoral Immunity is dependent mainly on immunoglobulins and little data are available about serum immunoglobulin values in chronic hepatitis C. The present study aimed to evaluate humoral immune response by measuring the concentration of serum immunoglobulin isotypes (IgG, IgM, IgA) and IgG-subclasses level (IgG1-4) in chronic hepatitis C patients and healthy controls. This study included 50 patients with chronic hepatitis C. All of them had positive serum anti-HCV antibodies, positive serum HCV-RNA by PCR, and histologically-proven chronic hepatitis. The results were compared with 25 healthy controls. Total IgG, IgA and IgM were assayed by nephelometry. IgG subclasses were assayed using human IgG subclasses enzyme immunoassay. Serum protein electrophoresis was performed in agarose gel. The results showed that no significant difference in serum immunoglobulin levels were found among patients with chronic hepatitis C of minimal liver damage (Knodell index  $\leq 3$ ) and patients with mild liver disease (Knodell index  $> 3$ ). A significant increase in total serum IgG, IgG1 and IgG2 levels were found in patients with chronic hepatitis than in healthy controls but no difference was found in IgG3 and IgG4 in both patients and controls. Mean serum IgM was increased in patients with HCV infection compared with healthy controls. No significant difference was found in IgA level in both the patients and healthy controls. Our data revealed an increase of humoral immune response in chronic hepatitis C infection. This is evidenced by an elevation in serum immunoglobulin isotypes; IgG and its subclasses IgG1 and IgG2 and IgM. These findings may provide some new insights into the antibody response to HCV.