

Recent approach for diagnosis of early HCV infection

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PMID: 15724394

Detection of HCV infection during the window phase of infection, before seroconversion, is important in blood screening. However, a significant delay exists between the time of infection and the development of antibodies. The delay in window period can last up to 70 days. The aim of the present study was to investigate the kinetics of HCV markers during early infection, with detection of HCV core antigen as an early method for diagnosis. The study included determination of HCV RNA by qualitative and quantitative PCR, HCV core antigen detection by enzyme linked immunosorbent assay (ELISA) and specific serological markers including anti-HCV IgG and IgM. The study was carried out on 34 patients diagnosed as non A non B acute hepatitis and proved to be hepatitis C by qualitative HCV RNA PCR. Sixteen healthy control subjects were also included. From each consenting patient and control, blood samples were collected and serum was separated and subjected to determination of AST and ALT and the following virological laboratory tests: HCV core antigen detection by ELISA, determination of specific anti-HCV IgM and specific anti-HCV IgG, qualitative and quantitative determination of HCV RNA by second version of PCR. In patients, the median quantity of HCV RNA was 739.1×10^3 lu/ml with minimum quantity 2.1×10^3 lu/ml and maximum 38352.3×10^3 lu/ml. A comparison between the different diagnostic methods revealed that the highest sensitivity was for HCV-core antigen detection (82.4%), specificity was 100% negative predictive value was 72.2% and positive predictive value was 100%. Specific anti-HCV IgG had moderate levels of sensitivity (58.5%), specificity (75%), negative predictive value (46.2%) and positive predictive value (83.3%). The least sensitive method was the specific anti-HCV IgM (29.4%) with negative predictive value 40% but had specificity and positive predictive value of 100% of each. From this study we could conclude the followings: From virological methods, serological detection of specific IgM anti-HCV had the least sensitivity limits, while it had the highest specificity and positive predictive value. Specific anti-HCV IgG had moderate sensitivity and specificity. The most sensitive and specific tool for diagnosis of early HCV viraemia was the detection of HCV core Ag by ELISA when compared to molecular biological methods.