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The biological significance of serum complements C3 and C4 in HCV-related chronic liver diseases and hepatocellular carcinoma

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This study aims to evaluate the diagnostic power of serum complements C3 and C4 in early detection of hepatocellular carcinoma (HCC) in HCV-infected patients with liver cirrhosis (LC). Twenty patients with HCC and twenty patients with chronic liver diseases (CLD) were recruited for the study. Twenty healthy non-HCV infected subjects were also included as negative controls. Serum complements C3 and C4 levels were estimated with nephelometry while HCV antibody was detected by third generation ELISA kits. Serum samples were also tested for alpha-fetoprotein by microparticle enzyme immunoassay kits. Serum levels of complements C3 (124.1 +/- 34.4 mg/dl) & C4 (55.9 +/- 28.8 mg/dl) in cases of liver cirrhosis without HCC, were lower than in HCC cirrhotic patients (136.9 +/- 39.1 mg/dl) and (62.3 +/- 20.7 mg/dl), respectively ($P > 0.05$). On the other hand, serum levels of C3 & C4 were significantly higher in HCC group than in controls (101.9 +/- 18.7 mg/dl) and (23.8 +/- 8.9 mg/dl), respectively ($P < 0.01$, $P < 0.001$). Regarding levels of C3 &C4 in CLD patients, they were significantly higher than controls ($P < 0.05$, $P < 0.001$). The optimal cut-off values selected by Receiver Operating Characteristic (ROC) curve were 112 mg/dl for C3 and 45 mg/dl for C4. Based on these data, the positive predictive values, negative predictive values, and the accuracies for C3 were 59.1%, 55.6%, and 58.1% and for C4 were 65.2%, 75%, and 67.7%, respectively. In conclusion, the combined use of both AFP and C4 at cut-off 8 ng/ml & 88.1 mg/dl, respectively will result in improving detection of HCC in HCV-related liver cirrhosis patients.

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