

# Association of Polymorphism in Survivin gene and the risk of Liver Cancer resulting from Hepatitis C Virus among Egyptian patients

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## Abstract

**Background:** This study aims to investigate the relation between Survivin gene polymorphisms, and the risk of Hepatocellular carcinoma (HCC) resulting from hepatitis C infection among Egyptian population.

**Methods:** This prospective study was conducted on 164 patients, 57 patients were diagnosed with hepatitis C, where other 57 were diagnosed with HCC in addition to 50 healthy volunteers as controls. Genotyping for Survivin rs1042489 and rs8073069 single nucleotide polymorphisms was carried out by the allelic discrimination Real-Time Polymerase Chain Reaction Single Nucleotide Polymorphisms genotyping technology.

**Results:** The results of Survivin rs1042489 polymorphism, revealed that the TC and CC genotypes were significantly different between hepatocellular carcinoma patients (OR=15.5, 95% CI: 3.299-72.825,  $P<0.001$ ), and controls (OR=44, 95% CI: 8.025-241.254,  $P<0.001$ ). Furthermore, CC genotype was significantly different between cirrhotic and hepatocellular carcinoma patients (OR=19.2, 95% CI: 3.097-119.049,  $P=0.002$ ). Moreover the TC genotype shows a significant different between controls and cirrhotic patients (OR=5.5, 95% CI: 2.111-14.328,  $P<0.001$ ). However when comparing TT genotypes, CC+TC genotypes results showed a significant association with increasing the risk of cirrhosis and hepatocellular carcinoma (OR=4.812, 95% CI: 1.893-12.233,  $P=0.001$ ), (OR=21.607, 95% CI: 4.738-98.532,  $P<0.01$ ), respectively. On the other hand, there was no significant difference among all studied groups for all genotypes, regarding Survivin rs8073069. Also CC+GC genotype showed no significant association with increased the risk of hepatocellular carcinoma ( $P=0.999$ ) compared with the GG genotypes.

**Conclusion:** The study indicates that functional Survivin rs1042489 polymorphism may contribute to the risk of hepatocellular carcinoma while Survivin rs8073069 polymorphism has no significant association with increased risk of hepatocellular carcinoma among the studied groups.

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