

HCC burden in Egypt

Abstract

Hepatocellular carcinoma (HCC) is the commonest primary cancer of the liver. Geographical distribution of HCC varies throughout the world with an incidence rate ranging from 2.1 in Central America to 35.5 in Eastern Asia. The burden of HCC has been increasing in Egypt with a doubling in the incidence rate in the past 10 years. This may be attributed to high prevalence of HCV in Egypt. Egypt has a high incidence of HCC about 21% in cirrhotic Egyptian patients. HCV and HBV infections, diabetes and smoking are the main determinants of HCC development in Egypt. Occult HBV infection may influence the outcome of HCV infection leading to development of HCC. An active surveillance and secondary prevention programs for patients with chronic hepatitis are the most important steps to reduce the risk of HCC.

Keywords: hepatocellular carcinoma, Hepatitis C virus, chronic liver diseases

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Abbreviations: HCC, hepatocellular carcinoma; HCV, hepatitis C virus; HBV, hepatitis B virus

Introduction

Hepatocellular carcinoma (HCC) is one of the most common cancers worldwide. It is rarely detected early. HCC is the commonest primary cancer of the liver. Hepatocellular carcinoma is one of the 130 major causes of morbidity and mortality in the world. It represents the third leading cause of cancer death in males and the fourth in females with more than 600,000 deaths per year.¹ Geographical distribution of HCC varies throughout the world with an incidence rate ranging from 2.1 in Central America to 35.5 in Eastern Asia. The burden of HCC has been increasing in Egypt with a doubling in the incidence rate in the past 10 years.² There is a geographic correlation between the incidence of HCC and the prevalence of chronic hepatitis B and C, suggesting that these two viral infections are the most important risk factors of HCC worldwide. Co-infection with Hepatitis B virus (HBV) and Hepatitis C virus (HCV) is associated with a higher risk for developing HCC than either infection alone.³ Several risk factors for the development of HCV-associated HCC have been reported such as aging, gender and alcohol intake.⁴

Egypt has the highest prevalence of HCV worldwide and has rising rates of HCC.⁵⁻⁷ Our retrospective study about risk factors for hepatocellular carcinoma on cirrhotic Egyptian patients⁸ was done on 300 patients with HCC and 50 patients with chronic liver diseases without HCC as controls. Prevalence rate of DM and smoking was significantly higher in HCC cases (59.3% and 69% respectively) than controls (38% and 50% respectively) ($P=0.005$ and 0.006 respectively). The prevalence of HBsAg and HCV Ab was significantly higher in HCC cases (18% and 70% respectively) than controls (4% and 40% respectively) ($P=0.02$ and 0.0001 respectively). On multivariate analysis, the risk of HCC development in smokers with HBV or HCV was 4.90 and 8.47 respectively (OR) ($P=0.0001$). It was higher than in non-smokers with HBV or HCV (OR=2.48 and 4.44 respectively) ($P=0.037$ and 0.0001 respectively) and in smokers without HBV or HCV (OR=2.56 and 2.77 respectively) ($P=0.01$). The risk of HCC development in HBV or HCV positive patients with DM was 3.98 and 9.19 respectively (OR) ($P=0.001$ and 0.0001 respectively). It was higher than for HBV or HCV positive patients without DM (OR=2.80 and 4.65 respectively) ($P=0.031$ and 0.0001 respectively) and that

for HBV or HCV negative patients with DM (OR=2.56 and 2.23 respectively) ($P=0.011$ and 0.0001 respectively). A preliminary data from a survey on 1350 Egyptian cirrhotic patients revealed that 289 patients had HCC (21.4%). Also HCV, HBV and smoking are risk factors of HCC development.

Our study about the prevalence of occult HBV (OBI) among HCV positive Egyptian patients documented that out of 100 chronic HCV patients; only 16 patients (16%) had OBI. HCC was significantly more common in OBI/HCV dually infected (31%) than HCV mono-infected patients (7%) ($P=0.01$). On doing multiple logistic regression analysis, OBI is a risk factor for HCC in Egyptian HCV positive patients ($P=0.04$).⁹ Extensive collaborative research was carried out during the last decade to explore independent and combined effects of HBV and HCV and other factors in the etiology of HCC. Although HBV is considered worldwide as a major risk factor for liver cirrhosis and HCC, the prevalence of HBV infection in Egypt has been declining over the last two decades, while HCV has increased. Egypt has possibly the highest HCV prevalence worldwide around 14%.¹⁰ In our previous study,⁸ HCV positive patients are 211 representing 70% of the total number of HCC cases, while HBV positive cases are only 54 representing 18%. There is a higher OR for HCV+ve cases compared with those of HBV representing 24.33 and 17.65 respectively. The rising trend of HCC has been associated with increased prevalence of Hepatitis C virus (HCV) infection in Egypt.⁸ Moreover, in addition to HCV and HBV infections, DM appears to be associated with HCC.¹¹ DM increased the risk of HCC development independent of chronic HCV hepatitis and chronic HBV hepatitis as previously described.^{5,12} Previous studies suggest that HCV, HBV and DM play an independent role and synergistic effect in liver tumorigenesis.^{13,14} HCV positive Egyptian cirrhotic patients with diabetes had a higher risk of HCC than those without diabetes. Seronegative individuals with diabetes also had a higher risk of HCC than those without diabetes.⁸

A prominent role of tobacco smoking in the etiology of HCC can be observed. Such a relationship is due to several chemicals in tobacco smoke metabolized and then activated to be carcinogenic in the liver.¹⁵ Smoking increased the risk of HCC development independent of HCV and HBV infections in Egyptian cirrhotic patients.⁸ There was a synergism between HBV and smoking as risk factors for HCC in Egyptian cirrhotic patients. Moreover, smokers with HBV+ve have an OR significantly higher than HBV+ve alone or smoking alone (OR=

4.90, 2.84 and 2.56 respectively). Franceschi et al.¹⁶ had demonstrated that tobacco smoking was related to HCC risk and seemed to enhance HCC risk among viral hepatitis patients.

Conclusion

Egypt has a high incidence of HCC about 21% in cirrhotic Egyptian patients. HCV and HBV infections, diabetes and smoking are the main determinants of HCC development in Egypt. There is a synergistic effect of many risk factors. An active surveillance and secondary prevention programs for patients with chronic hepatitis are the most important steps to reduce the risk of HCC. Occult HBV infection may influence the outcome of HCV infection leading to development of HCC. The persistent HBV infection may have a critical role in the development of HCC in HBsAg-negative patients. So, occult HBV should be considered and evaluated by more sensitive PCR among HCV-infected patients.

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Conflicts of interest

Author declares there are no conflicts of interest.

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