

Prevalence of Hepatocellular Carcinoma in Hepatitis C Patients

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ABSTRACT

Background: The major risk for HCC is HCV and HBV among developed and under developed countries. The utmost cause of liver transplant among US population with HCC was also considered to HCV. The fibrosis stage plays an important role among chronic HCV patients and associated to HCC risk. Although the annual incidence of HCC is high in cirrhotic cases and less developed in less fibrosis livers.

Methods: This was an observation cohort study where a total of 100 HCV patients were screened for HCC and risk factors associated. The exclusion criteria include all the patients with Hepatitis B and renal failure, whereas the patients with chronic Hepatitis C (HCV) of both genders were included.

Results: The study cohort constitute of total of 100 patients, where all of them were HCV positive. The mean age of the patient was 42±8.9. 62(62%) of the patients were males and 38(38%) were females. Most of the HCC patients were with elevated AFP. AFP has sensitivity, specificity positive predictive value and negative predictive values of 75%, 88%, 64%, 92% and 77%, 98%, 86%, 93% at cut off value 100 and 200 ng/ml, respectively.

Conclusion: The HCC was more prevalent among HCV patients and the leading causes were, positive family history, HBV comorbidity, jaundice and Hepatic encephalopathy.

Keyword: Hepatocellular carcinoma, liver transplant, fibrosis, Hepatic encephalopathy

INTRODUCTION

Now a day, an epic clinical disease is Hepatocellular carcinoma (HCC). It is the second most leading cause of cancer death throughout the world. Specifically in U.S. most of cancer related deaths are due to HCC. [1] The major risk for HCC is HCV and HBV among developed and under developed countries^{2,3}. The utmost cause of liver transplant among US population with HCC was also considered to HCV³. The fibrosis stage plays an important role among chronic HCV patients and associated to HCC risk. Although the annual incidence of HCC is high in cirrhotic cases and less developed in less fibrosis livers^{4,5}. The achievement of sustained virological responses (SVR) does not mean the end if risk of HCC in spite of emergence of Direct-acting antivirals (DAAs) for HCV and even when the patients have already developed advanced liver fibrosis^{6,7,8}. Published reports suggested that the direct carcinogenic effects of HCV proteins have been suggested in a variety of experimental models as additional drivers of HCV-induced HCC development⁹. This study aims to estimate the prevalence of HCC among HCV patients in local population.

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MATERIAL AND METHODS

This was an observational cohort study, conducted at xyz department of abc hospital. The study period was of one year started from Feb 2014. The exclusion criteria include all the patients with Hepatitis B and renal failure, whereas the patients with chronic Hepatitis C (HCV) of both genders were included in the study. The medical history of all patients along with their demographics were noted and stored electronically. Blood samples were collected for further examination of viral load. As the study includes humans, an informed consent was taken from each of the patient and an ethical approval was also taken from the Hospital ethical committee.

Statistical analysis: All the collected data was stored electronically & analyzed later by using SPSS version 18. Descriptive statistics were applied to calculate mean and standard deviation. Frequency distribution and percentages were calculated for qualitative variables like gender, TLC level. Over all a P values less than 0.05 was considered statistically significant.

RESULTS

The study cohort constitute of total of 100 patients, where all of them were HCV positive. The mean age of the patient was 42±8.9. 62(62%) of the patients were males and 38(38%) were females. Later the age was stratified, 12(12%) of the patients were below 20 years of age, 14(14%) were belong to age group of 21-30, 25 (30%) were of 31-40 years and

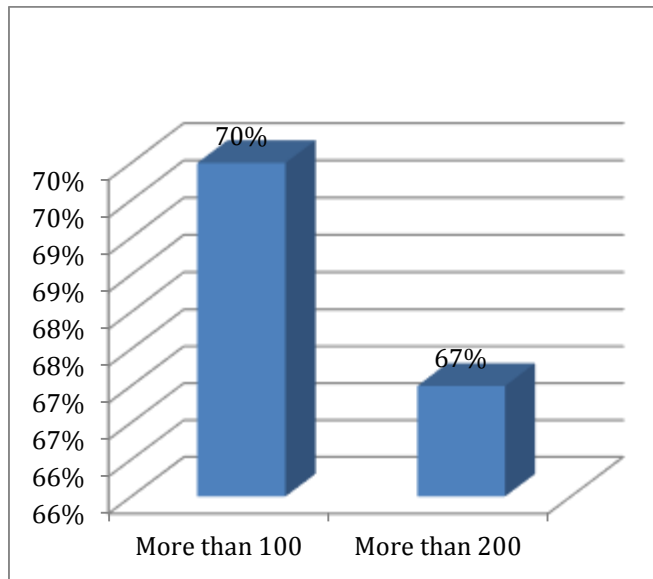
35(35%) were in age group of 41-50 and 6(6%) were above 50 years of age. A summary of demographic and clinical statics was given in table 1.

Table 1: Demographic and clinical finding of HCV cohort.

Parameter	n	%age
Sex		
Male	62	62%
Female	38	38%
Residence		
Rural	54	54%
Urban	48	48%
HCC	23	23%
Family History of HCC	15	15%
Smoking	56	56%
Hepatic encephalopathy	32	32%
Jaundice	65	65%
HBsAg+ anti HCVAb	8	8%
Anti schistosomal antibodies	90	90%

The AFP level among Patients was given in figure 1.

Fig.: AFP level among patients



The elevated AFP frequency for above 100 and above 200 ngm/ml was given in contingency table 2a and 2b.

Table 2a: AFP at 100 ngm/ml and diagnosis of HCC

AFP	HCC	NO HCC
>100	19	11
<100	4	66

Table 2b: AFP at 200 ngm/ml and diagnosis of HCC

AFP	HCC	NO HCC
>200	18	9
<200	5	68
Total	23	77

AFP has sensitivity, specificity positive predictive value and negative predictive values of 75%, 88%, 64%, 92% and 77%, 98%, 86%, 93% at cut off value 100 and 200ng/ml, respectively. Moreover the tumor was presented as single focus, 2 foci, and multiple foci in 18, 3 and 2 patients, respectively. Six patients had bi-lobar affection. Fourteen patients had their tumor diameter >5 cm.

DISCUSSION

This study was conducted to determine the prevalence of the HCC among HCV patients. We report twenty three percent of the HCV with HCC. Similar percentages were reported by other studies¹⁰. Worldwide, some of the Middle East countries like Egypt have high prevalence of HCV with HCC and Cirrhosis. [11] There may be environmental factors involved, which were non-viral like pesticides and aflatoxin due to the wider use in the region and can contribute to the pathogenesis of HCC through serious DNA damage or mutation^{12,13}. Another finding of our study was the male to female ratio. We observe in our study that more males with HCC and at high risk. This ratio was reported as 2:1. In spite of high ratio, the male predominance in HCC may be explained by greater exposure of males to other environmental carcinogens¹⁴, a role for sex hormones, and higher DNA synthetic activities in male cirrhotic patients compared to females. Our study reports more HCC patients with age between 41-50 years, where as other published studies reports the common age just above 50^{14,15}. But some of the region reports with high risk of HCC the mean age was younger. We also observe in our study more cases with rural living area similar to the findings of El Zyayadi et al¹⁶. This high prevalence can be explained due to their living area as of the exposure to more pollutant environments as herbicides and pesticides to the growing fields. We report in our study another factor contributing to the high prevalence of HCC was smoking, as smoking is a major source of 4-aminobiphenyl. This is a hepatic carcinogen and known to causal risk factor to HCC^{17,18}. Another observation of our study was co infection with HBV. Similar results were reported by Zampino et al¹⁹. He stated HBV and HCV co-infection is associated with more rapid progression to HCC. In our study findings, ultrasound leads by screening role by detecting focal lesion on most HCC cases, additionally AFP analysis amplifies its screening role also. We also examine the correlation of AFP with the size and tumor presentation. Due to the fact that the lack of correlation could be explained by the fact that tumor differentiation and its ability to secrete AFP are

more important than the tumor size in determining the level of AFP produced by HCC²⁰.

CONCLUSION

We concluded in our study that the HCC was more prevalent among HCV patients and the leading causes were, positive family history, HBV comorbidity, jaundice and Hepatic encephalopathy.

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Running Title: Hepatocellular Carcinoma in HCV Patients

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