# Frequency of Hepatoma among Chronic Hepatitis C Virus Infected Patients With Liver Cirrhosis

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## ABSTRACT

**Background:** Hepatoma is a high grade malignancy showing rapid infiltrative growth, early stage metastasis, poor therapeutic response and prognosis even after successful curative resection. Hepatoma is considered as the most common type of primary liver cancer. Hepatocellular carcinoma occurs most often in people with chronic liver disease, such as cirrhosis caused by hepatitis B or hepatitis C infection.

**Objective:** To determine the frequency of hepatoma among chronic hepatitis C virus infected patients with liver cirrhosis.

**Material and Method:** This study was conducted at Naseer Teaching Hospital Peshawar. It was a descriptive (cross sectional study) which was conducted for the period of one year from _june 2017 to july 2018 . The total sample size was 113.All the patients with chronic HCV (minimum five years) having cirrhosis, raised AFP levels (>20ng/ml of blood)and focal lesion or nodule in liver on ultrasound. Age range between 20 to 60 years and both gender were included. The patients were subjected to liver biopsy as per international protocols and the specimens were sent in formalin for histopathalogical examination. The exclusion criteria had strictly followed to control confounders and exclude bias in study result. All the data was stored and analyzed on SPPS version 17.

**Results:** Our study shows that mean age was 45 years with SD ± 12.24. Fifty nine percent patients were male while 41% patients were female. Hepatoma was diagnosed in twelve (11%) HCV infected patients with cirrhosis .

**Conclusion:** This study concluded that in our setup the frequency of hepatoma was 11% in chronic HCV infected patients with liver cirrhosis

***Key Words:*** *hepatoma, chronic hepatitis C virus infected, liver cirrhosis*

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## INTRODUCTION

Hepatoma (also known as hepatocellular Carcinoma) is a high grade malignancy showing rapid infiltrative growth and early stage metastasis. It has poor prognosis even after successful curative resection. Hepatoma is considered as fifth known cancer all over the world. Its incidence in developing countries is 35% which is two to three folds higher than the developed countries.[1]

Most Hepatoma cases (<80%) are due to hepatitis B virus (HBV) or hepatitis C virus (HCV) infections, explaining the distinct geographic distribution of Hepatoma found in developing countries with endemic infections. Strong and continuing recent increases in Hepatoma rates have been observed in Western countries where from 1550% of Hepatoma cases are cryptogenic.[2]

Hepatomas are common in Asia and Africa, but are uncommon in Europe and North America.[3] Most cases of Hepatomas are associated with cirrhosis related to chronic hepatitis B virus (HBV) or hepatitis C virus (HCV) infection. Changes in the time trends of Hepatoma and variations in its age, sex and race-specific rates among different regions are likely to be related to differences in hepatitis viruses that are most prevalent in a population, the timing of their spread, and the ages of the individuals infected by the viruses. Environmental, genetic, and viral factors can affect the risk of Hepatoma in individuals with HBV or HCV infection.[4]

Hepatoma is the most common de novo liver nodule in cirrhosis.The size of the nodule increase the probability of hepatoma particularly in cirrhosis. The estimated probability of a nodule to be a hepatoma in cirrhosis is more than 80% in nodules having size of 2cm and between 50 and 75% in nodules less than 2cm.[5,6]

The global prevalence of HCV is estimated to be 2% (approximately 180 million people worldwide) and varies considerably among different regions[7]. Phylogenetic studies of HCV diversity described the chronology of the spread of HCV epidemics in Japan, Europe, and the US; these findings account for the geographical differences in the timing of the burden of HCV-related hepatomas[8]. HCV promote cirrhosis, which is found in 80%90% of patients with hepatoma[9]. The 5-year cumulative risk of developing hepatoma for patients with cirrhosis ranges between 5% and 30%, depending upon region or ethnicity (it is highest in Asians), and stage of cirrhosis (it highest in individuals with decompensated disease)[10].

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Hepatitis C has become an epidemic in Pakistan and ending with complications of cirrhosis and Hepatocellular Carcinoma. In a study of 282 patients of Chronic HCV included in the study, hepatoma was diagnosed in 34 (12%) of patients[11].

The present study is designed to determine the frequency of hepatoma among patients with chronic HCV infection. HCV is endemic in our population and as mentioned above, the burden of HCV varies with geographical location and the type of virus as well. This study will give us quick local reference in terms of burden of hepatoma among patients with chronic HCV. The results of this study will be shared with other local physicians to make them aware about the gravity of the problem and recommendations for future research.

## MATERIAL AND METHODS

This study was conducted at Naseer Teaching Hospital Peshawar. It was a descriptive (cross sectional study) which was conducted for the period of one year from June 2017 to July 2018 . The total sample size was 113 using 12% proportion[11] of hepatoma among patients with chronic hepatitis C infection, 95% confidence interval and 6% absolute precision using WHO sample size estimation formula. More over non probability consecutive sampling. All the patients with chronic HCV (minimum five years) and having cirrhosis, raised AFP levels (>20ng/ml of blood), focal lesion or nodule in liver on Ultrasonography . Age rang was between 20 to 60 years and both gender were included. while patients with already diagnosed cases of hepatoma, lesion with non-specific vascular profile on USG, patients not willing for histopathology were excluded from the study. The patients fulfilling the inclusion criteria were enrolled in the study through Out Patient Department (OPD). All the patients were explained about the purpose of procedure, use of data and publication of the study. Informed written consents were taken from the patients. The patients were subjected to liver biopsy as per international protocols and the specimen was sent in formalin for histopathalogical examination. The premier stain for diagnosis was Hemotoxylin and Eosin. Most easily recognized features were the identification of trabecular and pseudoacinar pattern of tumor cells. Lack of normal parenchymal portal tracts and presence of both architectural and cytological features were helpful in diagnosis of HCC. Complex compact solid pattern of confluent sheets of tumor cells were present. The intravascular and intraductal tumor and stromal invasions are uncommon but diagnostic of malignancy.

All the above mentioned information like age, gender, duration of HCV were recorded. Exclusion criteria was strictly followed to control confounders to exclude bias in study result. All the data was analyzed on SPSS version 17. Mean + SD was calculated for quantitative variables like age and duration of HCV. Frequencies and percentages were calculated for categorical variables like gender.

Hepatoma was stratified among age, gender and duration of HCV to see the effect modifications. Post stratification chi square test was applied in which P value =0.05 was considered as significant. All results were presented in the form of tables and graphs.

## RESULTS

In this study age distribution was analyzed as 20(18%) patients were in the age range of 20-30 years, 23(20%) patients were in the age range of 31-40 years, 36(32%) patients were in age range 41-50 years, 34(30%) patients were in age range 51-60 years. Mean age was 45 years with SD ± 12.24. (Figure no 1) Gender distribution was analyzed as 67(59%) patients were male while 46(41%) patients were female. Duration of HCV was analyzed as 34(30%) patients had HCV **=** 10 years while 79(70%) patients had HCV >10 years. Mean duration of HCV was 12 years with SD ± 7.63. (Figure 2) Frequency of hepatoma among 113 patients was analyzed as 12(11%) patients had hepatoma while 101(89%) patients were not diagnosed with hepatoma. Stratification of hepatoma with age, gender and duration of HCV is given in table no 5,6,7

Figure No 1 Age distribution

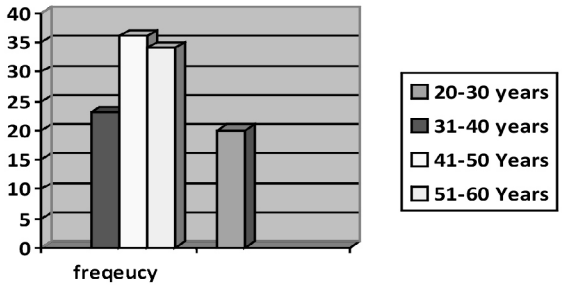
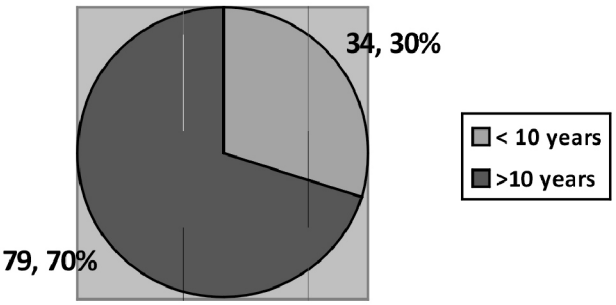


Figure No 2: Duration of HCV




More over twelve (11%) patients were diagnosed with hepatoma Hepatoma is a high grade malignancy showing rapid infiltrative growth and early stage metastasis.yhis is the most common type of primary liver cancer and is the most common cause of death in people with cirrhosis. Its incidence in developing countries is 35% which is two to three folds higher than the developed countries.[1]

Our study concluded that among 113 patients , 20(18%) patients were in age range 20-30 years, 23(20%) patients were in age range 31-40 years, 36(32%) patients were in age range 41-50 years, 34(30%) patients were in age range 51-60 years. Mean age was 45 years with SD ± 12.24 (table number 1)

Sixty seven (59%) patients were male while 46(41%) patients were female (table number 2).

Similar results were observed by Zahid M et al[12] in which out of all 282 patients, 35 (12.4%) had single/multiple mass or lesion in their liver parenchyma on ultrasonography. Out of these 35 patients, 34(97.14%) were labeled to have Hepatocellular Carcinoma as diagnosis was consolidated with the help of Computed Tomography of abdomen and very high levels of Alpha-fetoprotein (AFP). 33 had single mass lesion in liver while 2 had multiple lesions. One (2.86%) out of the total 35 had metastatic liver disease with normal to slightly raised levels of alpha-fetoprotein.

**CONCLUSION**

Hepatitis C has become an epidemic in our country and ending with complications of cirrhosis and Hepatocellular Carcinoma. It is time to focus our full attention on prevention of HCV infection in the first instance. Moreover, those patients who have already developed cirrhosis should undergo regular surveillance for an early detection of HCC so that effective treatment could be instituted in time.

Similar results were observed in study by Farooqi JL et al[13] .In this study 10.98% of the cirrhotic patients were found with the hepatocellular carcinoma .Most of these patients of HCC were anti-HCV antibodies positive.[15]

Another study with similar results were observed by Ahmani SA et al[14]. Majority of these patients (52%) were Anti HCV antibody positive. This study found that the prevalence of HCC in these patients with liver cirrhosis was 7%.

**TABLE NO. 1 STRATIFICATION OF HEPATOMA W.R.T AGE DISTRIBUTION (n=113)**

| HEPATOMA | 20-30 years | 31-40 years | 41-50 years | 51-60 years | Total |
|---|---|---|---|---|---|
| **Yes** | 1 | 3 | 4 | 4 | **12** |
| **No** | 19 | 20 | 32 | 30 | **101** |
| **Total** | **20** | **23** | **36** | **34** | **113** |

Chi Square test was applied in which P value was 0.8341

**TABLE NO. 2 STRATIFICATION OF HEPATOMA W.R.T GENDER DISTRIBUTION (n=113)**

| HEPATOMA | Male | Female | Total |
|---|---|---|---|
| **Yes** | 7 | 5 | **12** |
| **No** | 60 | 41 | **101** |
| **Total** | **67** | **46** | **113** |

Chi Square test was applied in which P value was 0.9429

Study having results were observed by Amin S et al[15] in Hayatabad Medical Complex, Peshawar during 2010 & 2011. This study found the frequency of HCC to be 10.5% among the patients with liver cirrhosis, majority of the patients were Anti- HCV antibodies positive .

All the above mentioned studies were conducted on patients with liver cirrhosis whether HCV induced or due to some other cause. However, one recent study included only those patients who had HCV induced liver cirrhosis. This study found the frequency of HCC to be 9.75%.[16]

## CONCLUSION

Our study concluded that the incidence of hepatoma was found to be 11% among chronic hepatitis C virus infected patients with liver cirrhosis in our setup.

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