ORIGINAL ARTICLE

Hepatocellular Carcinoma: Frequency and Risk Factors at a Tertiary Care Hospital

Mujahid Ali Chandio[*], Ghulam Asghar Chandio[**], Bharat Lal[***], Waseem Raja[****], Shehzad Memon[*****], Sardar Khatoon[******].

ABSTRACT

Objective: To detect the frequency of Hepatocellular Carcinoma (HCC) and its association with viral and non-viral risk factors at a tertiary care hospital.

Methods: This cross sectional study was conducted in the department of Medicine Unit-I, Peoples University of Medical and Health Sciences (PUMHS) Nawabshah, 2 years data from January 2016 to December 2017 was initially assessed from medical OPD and medical department of PUMHS and NORIN caner hospital Nawabshah. The patients were assessed for HCC in relation to HCV and HBV. All the demographic and clinical data was collected on a proforma, the results were tabulated and statistically analyzed.

Results: Total 70 patients included in this study, 45(64.28%) were males, 30 (42.85%) had hepatitis C virus (HCV), 20(28.57%) hepatitis B virus (HBV), 10 (14.28%) patients had both types and 10 (14.28%) patients were negative for viral markers. The patients with hepatitis C, only 6 (8.57%) patients developed carcinoma of liver, and among HBV cases, only 3 (4.28%) patients were diagnosed as HCC. Out of 10 patients having both viral markers positive, 2(2.85%) patients resulted in HCC.

Conclusion: It is summed up that the incidence of viral hepatitis is increased if males rather than females and the incidence of HCC is increased in patients suffering from HCV.

Key Words: Hepatocellular Carcinoma, Hepatitis, Frequency, HCV, HBV.

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INTRODUCTION:

Hepatocellular carcinoma (HCC) is increasingly in incidence throughout the world especially in third world countries. It is the most common primary tumor of liver in young patients. It is mostly associated with viral infections like Hepatitis B and C or is caused by toxins like alcohol or aflatoxin. The deficiency of alph alcohol or aflatoxin. The deficiency of alph 1-antitrypsin deficiency enhances the risk of liver cancer[1].

Its incidence is highest in Asia and sub-Saharan Africa due to enhanced prevalence of hepatitis B virus. Many children are affected by birth. However, the incidence of HCC in America is due to increased incidence of Hepatitis C virus infections. It is common in males as compared to females[2].

Mostly the patients have clinical features of chronic liver disease but HCC can also present directly with yellow skin, distention of abdomen, caput medusa, bruising all over the body, loss of appetite, weight loss, pain in abdomen, nausea, vomiting and feeling tired[3,4].

This condition commonly occurs in cirrhotic patients attributed to viral hepatitis. 60-70% patients are alcohol users. 80% of cases are caused by chronic viral hepatitis globally. Risk factors include chronic hepatitis B, C,

* *Assistant Professor, Medical Unit-II, PUMHSW-SBA*
** *SMO Oncology, NORIN Cancer Hospital Nawabshah. SBA.*
*** *Associate Professor, MU-II, PUMHSW-SBA.*
**** *Assistant Professor, MU-III, PUMHSW-SBA.*
***** *Assistant Professor, Deptt. of Medicine, Gambat Medical College.*
****** *Consultant Oncologist, NORIN Cancer Hospital. Nawabshah-SBA.*

Correspondence to:
Dr. Mujahid Ali Chandio
Assistant Professor, Medical Unit-II
PUMHW, SBA
Email: mujahidalidr@gmail.com

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This condition commonly occurs in patients suffering from cirrhosis of liver attributed to viral hepatitis. 60-70% patients are alcohol users. 80% of cases are caused by chronic viral hepatitis globally. Risk factors include chronic hepatitis B, C, alcohol abuse, aflatoxin, type 2 diabetes, Alpha 1-anti trypsin deficiency, Wilson's disease and Hemophilia[5]. Large benign liver tumors such as Hepatocellular adenoma are sometimes associated with co existing malignant HCC. Children and adolescents rarely develop chronic liver disease but the congenital liver diseases can augment the chances of developing HCC particularly billiary atresia, infantile cholestasis, glycogen storage diseases[6].

The risk of HCC in type 2 DM is 2 to 7 times more as compared to non-diabetic patients. Among them, the common patients are related to uncontrolled DM whose insulin control is poor. Poor insulin regulation is also seen in other conditions also like NAFLD[7].

Chronic infections of liver like Hepatitis B and C promote the development of HCC as these compel body's own immune system to work against the liver cells. These cells cause release of free radicals like reactive oxygen species and NO, which ultimately damage DNA and mutations of carcinogenic gene. This damage cycle after repeated repairs can make mistakes that lead to carcinogenesis[8]. This hypothesis is for Hepatitis C. Through the stage of cirrhosis, Hepatitis C causes HCC. In case of Hepatitis B, infected cells do not need cirrhotic stage mostly in causing HCC[9].

The diagnosis of HCC commonly involves blood testing and imaging. Previously, biopsy was needed to diagnose this disease but the introduction of MRI in this regard has made b iopsy meaningless. Ultrasound of abdomen and alpha protein levels are necessary to be done. Intravenous contrast is also required to be done. MRI is more specific than CT scan. LI-RADS reports the lesions of liver seen on imaging[10].

The treatment of HCC is the partial liver resection, down staging for moderately advanced disease, locoregional therapy, RFA, Cryoablation and liver transplantations. In patients who have HCC beyond liver were treated by Sorafenib and oral multikinase inhibitor. Portal vein embolization is used to enhance the3 volume of healthy liver. The Singapore Liver Cancer recurrence score is used to estimate the risk of recurrence after the surgery[11].

Prevention is better in HCC as the majority of cases are only due to Hepatitis C and B. vaccination of Hepatitis B in childhood is necessary because it reduces the risk of HCC in future. Alcohol use should not be done in excess[12]. The rationale of our study to find out the relation of Heaptitis B and C in causing HCC and aware patients of the preventive measures to be taken in order to prevent oneself from the disease.

METHODS:

This study was carried out in the department of Medicine Unit-I, on 70 patients of medical wards of PMCH Nawabshah from January 2016 to December 2017. Patients were also taken from medical OPD, medical emergency department of PMC Hospital Nawabshah and NORIN cancer hospital Nawabshah. Those patients who were having either high-risk clinical history for Hepatitis B and hepatitis C or had clinical stigmata of liver disease were included in this study. Apart from it patients who were known cases of hepatitis B, hepatitis C and diabetes were also included while those patients who were having primary malignancy at sites other than liver like colon, prostate and lung were excluded from this study. Clinical history along with Physical examination was done. General condition of the patient was also examined from head to toe especially the presence of absence of jaundice, anemia, and mass in abdomen and weight loss measured in arm circumferences. Examination of

CNS, CVS, respiratory, and spines was also done to exclude other causes. HCV and HBV were detected on ELISA method and positive cases were confirmed by PCR. Preliminary ultrasound of abdomen was gotten to see the texture, any focal lesions and its size. Besides routine blood investigations, alpha-fetoprotein level was done. CT scan was done in most of the patients and MRI in some patients was done to make definitive diagnosis. All the clinical and demographic data was collected over a proforma, statistically analyzed and results were tabulated.

RESULTS:

Out of 70 patients 45(64.28%) were males and 25 (35.71%) were female.

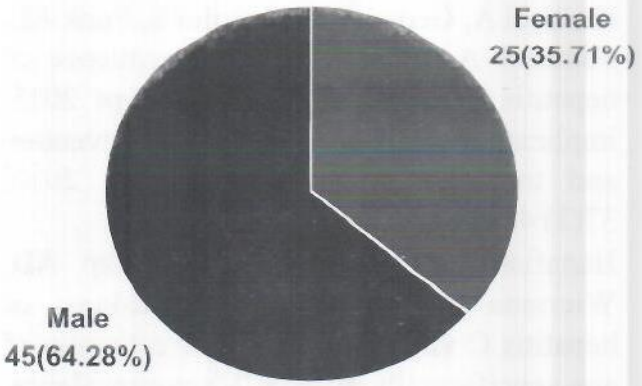

Fig-I: Male and Female Ratio of Study Population (n=70)

Out of total patients, 30 (42.85%) were having hepatitis C virus, 20(28.57%) were hepatitis B virus, 10 (14.28%) patients had bith viral hepatitis and 10 (14.28%) patients were negative for viral markers.

Table-I: Viral Status of Study Population (n=70)

S.No	No. of Patient	Percentage	Viral Status
1	30	42.85%	Hepatitis C
2	20	28.59%	Hepatitis B
3	10	14.28%	Hepatitis B &C
4	10	14.28%	Negative for Viral Markers
Total	70	100%	

Out of 30 patients suffering from hepatitis C, only 6 (8.57%) patients developed carcinoma of liver. Out of 20 patients, only 3 (4.28%) patients were diagnosed as HCC. Out of 10 patients having both viral markers positive, 2 (2.85%) patients resulted in HCC as is shown in table-II.

Table-II: Viral Status HCC Patients (n=70)

S.No	No. of Patients	Viral Status	Patients with HCC	%
1	30	HCV+VE	6	8.57%
2	20	HBV +VE	3	4.28%%
3	10	BOTH +VE	2	2.85%
4	10	NON VIRAL	NIL	NIL
Total	70		11	15.7%

DISCUSSION:

Globally, HCC is the second common cause of mortality due to cancer. Its incidence is continuously increasing in the globe due to increasing incidence of viral hepatitis among the world population. Of all countries of the world, Mongolia the country having highest incidence of HCC having viral hepatitis association of 99.3% of all cancer cases. In a survey done in 2017 in Mongolia, only 19.4% of the adult persons were infected with viral hepatitis. The prevalence of hepatitis B in this study was 11.8% and with Hepatitis C, it is 11%. In our study, the prevalence is higher. It is 42.85% in Hepatitis C and 28.59% in hepatitis B respectively. The prevalence of HBV infection in USA is 0.3% and 1.6% for HCV[13].

It is found that most of the incidence of viral hepatitis occurs in developing countries because of the increasing migration of population. Chronic Viral Hepatitis infection is curable. Pakistan is counted among the developing countries with increasing poverty, decreasing economy, illiteracy and increasing inflation[14].

Nowadays the most common cause found in spreading HBV and HCV is the re usage of disposable syringes and infected instruments by

medical and non-medical staff. A study done in Pakistan on incidence of viral hepatitis among transgender show 25.5% incidence of HCV and 2.94% of HBV. In our study incidence is higher up to 42% and 28% for both viral diseases respectively. Among Trans- genders, 10 out of 12 had HCV positive so it is 83.33% incidence. Analysis showed that the common cause of its spread was sex done in same sex groups. The incidence in this group was 33.66%. The incidence of viral diseases in patients visiting dentist was 10.32%[15].

Pakistan has the rising prevalence of viral hepatitis. In Pakistan, majority of HCC are hepatitis C related. Around 10 million people are infected in Pakistan with hepatitis C. HCC is commonly associated with male gender. Previously in Pakistan like Zimbabwe, Columbia and Costa Rica there is no gender difference but now this trend has changed due to increase in incidence of HBV and HCV infections. Recent studies suggest that there is increased incidence in male adult population that is 7.6 per 100,000 persons and 2.8 for males and females respectively. These are hospital-based estimates. Studies done from 1970 to 2011 in Pakistan regarding the gender distribution showed that there is increased incidence of males developing HCC as compared to females. It is found in our study and other studies in Pakistan showed the increased incidence of males developing HCC rather than females. From 2006 to 2011, study included 2245 patients. Of them, 1772 were males and 473 wee females. In our study, 15.7% patients developed HCC suffering from Viral Hepatitis[16,17].

CONCLUSION:

It is summed up that the incidence of viral hepatitis is increased in our setup. The prevalence of HCC in our study is little bit lower as compared to other studies of the world. Multiple studies affirm the lowest ratio of HCC. The patients with viral hepatitis C have increased incidence of developing HCC as compared to persons with hepatitis B viral status.

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