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ORIGINAL ARTICLE

Profile of Hepatocellular Carcinoma: An Experience from a Tertiary Care Hospital

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ABSTRACT

Background and Aim: Hepatocellular carcinoma (HCC) is the primary liver cancer around the world, and it has now become the third leading cause of cancer-related mortality. With an increasing global incidence, HCC is becoming a major health burden. The incidence of HCC varies from 0.3% to 1.6% in Asian countries. The present study aimed to assess the clinical and etiological profile of hepatocellular carcinoma in a tertiary care hospital.

Methodology: This retrospective study was conducted on 124 hepatocellular carcinoma patients in the Department of Gastroenterology, Jinnah Hospital, Lahore from June 2019 to May 2022. All the patients of age 10 years to 75 years fulfilling the diagnostic criteria were enrolled in this study. Patient's cytohistological, clinical, radiological, and etiological data were recorded and analyzed. Individual relevant features were noted in pre-designed proforma. SPSS version 25 was used for data analysis.

Results: Of the total 124 HCC patients, there were 78 (62.9%) male and 46 (37.1%) females. The overall mean age was 48.63±6.78 years. Liver cirrhosis was present in 91 (73.4%) patients out of which 14 (15.4%) were asymptomatic. The prevalent signs of hepatic decompensation were ascites 67 (54%) and Jaundice 23 (18.5%). Based on etiological data, the prevalence of the cryptogenic, Hepatitis B, and C were 58 (46.8%), 20 (16.1%), and 6 (4.8%) respectively. Tumor thrombosis was found in 18 (14.5%). Based on biopsy specimens, HCC with steatosis were seen in 19 (15.3%) patients. During surveillance, about 32 (25.8%) cirrhotic HCC patients were diagnosed.

Conclusion: The present study found that the most prevalent etiology was hepatocellular carcinoma. Most patients were asymptomatic and had major complaints of abdominal pain with certain specific comorbidities. Hypertension, diabetes, and ischemic heart disease were the specific co-morbidities in hepatocellular carcinoma patients. In our population, the prevalent cause of HCC was Hepatitis B.

Keywords: Clinical profile, Etiology, Hepatocellular Carcinoma

INTRODUCTION

Hepatocellular carcinoma (HCC) is a primary prevalent malignant tumor with increasing occurrence worldwide [1]. It accounts for almost 70% to 90% cases of primary liver cancer [2]. Due to poor prognosis, liver cancer becomes second from fifth leading cancer in terms of mortality [3]. Hepatitis B, toxins exposure, and Hepatitis C are the HCC development various risk factors. Other risk factors are alcohol consumption, obesity, and smoking. Hepatitis B and C contributed to 44% and 21% cases of hepatocellular carcinoma [4]. HCC increased risk is also associated with certain diseases such as antitrypsin deficiency Wilson and Alpha -1 and hemochromatosis [6]. Secondary to other causes, the majority of the hepatocellular carcinoma cases were already chronic liver disease patients. Most patients were asymptomatic verified by ultrasonography of liver disease for hepatocellular carcinoma. Variety of symptoms such as weight loss, abdominal pain, vomiting, sarcopenia, abdominal distension, jaundice, and fatigue were present in patients. HCC prognosis and treatment mainly rely on the number of lesions, extra hepatic, local and systematic, and size of the lesion [7].

The epidemiology of hepatocellular carcinoma is highly fragmented in Pakistan [8]. The prevalence of HCC could not be predicted accurately from cancer registry. Age adjusted incidence rate from available data indicates women range from 0.2 to 2.2 per 1,00,000 as compared to men from 0.7 to 7.5 per 1,00,000 [9]. HCC contributes to 4.8% of all cancers whereas male to female ratio is 4:1. The median age was 40 to 70 years. Liver cirrhosis has been observed in 70-90% patients treated in Pakistan-based tertiary care set-up [10, 11]. In Pakistan, the majority causative agent for HCC development has been documented as Hepatitis B virus infection [12]. HBV and HCV carriers are 50 and 10 million. Incidence of HCC were reported low but prevalence was higher which created discrepancies with poor coverage and underreporting HCC incidence. In the West, mostly cases of HCC are diagnosed at early stages due to better surveillance. However, in Pakistan, HBV infection is highly prevalent due to poor surveillance leading to higher mortality. HCC aspects have been described by several investigations but limited data found on the clinical profile of HCC. Due to scarcity of published data on Pakistani population HCC patient's clinical and laboratory profile, the present study aimed to assess the etiological and clinical profile of HCC.

METHODOLOGY

This retrospective study was conducted on 124 hepatocellular carcinoma patients in the Department of Gastroenterology, Jinnah Hospital, Lahore from June 2019 to May 2022. All the patients of age 10 years to 75 years fulfilling the diagnostic criteria were enrolled in this study. Patient's cytohistological, clinical, radiological, and etiological data were recorded and analyzed. Individual relevant features were noted in pre-designed proforma. Prior to study conduction, ethical approval was taken from the respective institute ethical committee. Patient's clinical presentation, cirrhosis presence and duration, and blood investigations such as liver functionality test, blood count (CBC), chemiluminescence method for hepatitis B surface antigen (HBsAg) and HCV, and radiological features such as number, location, and size of tumors were recorded. Based on radiological, clinical, and biochemical findings, cirrhosis was diagnosed. HBV-associated cirrhosis was diagnosed based on detection in serum. HCV viral load kit was used for the diagnosis of HCV-associated cirrhosis.

HCC diagnosis was made in all the patients using non-probabilities sampling technique. Clinical and historical examination was done after taking informed consent. ECOG scoring system was used for recording patient's all functional status. Abdominal examination was conducted using contrast CT scan and ultrasonography. Doppler sonography, upper GI endoscopy, and PCR was also performed for various investigations. SPSS version 25 was used for data analysis. Quantitative variables were described as mean and standard deviation. Etiological factors and gender distribution were expressed as frequency and percentages. Various features related to co-morbidities were also expressed in terms of frequency and percentage. All the data was analyzed using a 5% level of significance.

RESULTS

Of the total 124 HCC patients, there were 78 (62.9%) male and 46 (37.1%) females. The overall mean age was 48.63±6.78 years. Liver cirrhosis was present in 91 (73.4%) patients out of which 14 (15.4%) were asymptomatic. The prevalent signs of hepatic decompensation were ascites 67 (54%) and Jaundice 23 (18.5%). Based on etiological data, the prevalence of Hepatitis B, Hepatitis C, and cryptogenic were 58 (46.8%), 20 (16.1%), and 6 (4.8%) respectively. Tumor thrombosis was found in 18 (14.5%). Based on biopsy specimens, HCC with steatosis were seen in 19 (15.3%) patients. During surveillance, about 33 (26.6%) cirrhotic HCC patients were diagnosed. Figure-1 illustrates the presentation of hepatocellular carcinoma. Figure-2 demonstrates the gender's distribution. Associated co-morbidities are shown in Figure-3. Table-I represents the distribution of etiology.

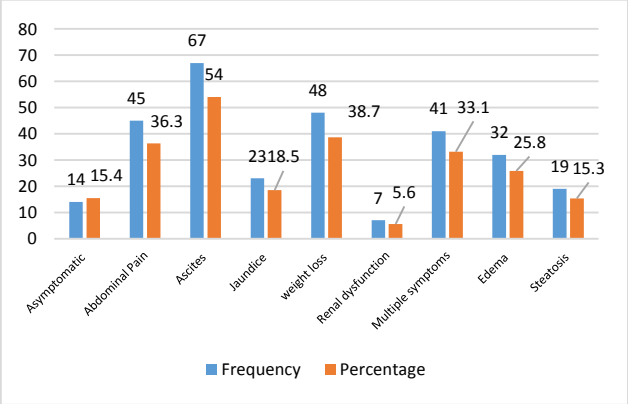

Figure-1: HCC presentation

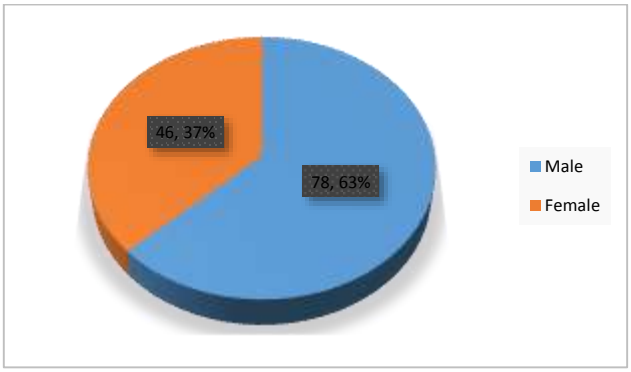

Figure-2: Gender's distribution

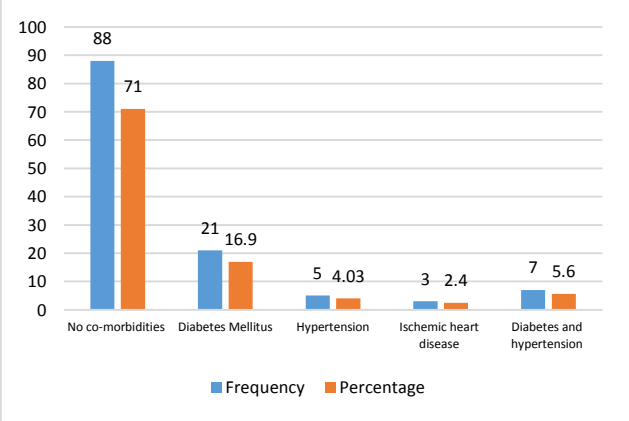

Figure-3: Associated Co-morbidities

Table-1: Etiology Distribution

Etiology	Male n (%)	Female n (%)	Total n (%)
Cryptogenic	4 (3.2)	2 (1.6)	6 (4.8)
HCV	8 (6.5)	12 (9.7)	20 (16.1)
HBV	43 (34.8)	15 (12.1)	58 (46.9)

DISCUSSION

The present study assessed the clinical profile and etiology of hepatocellular carcinoma (HCC) and found that the majority of patients were asymptomatic and had complaints of abdominal pain. Hepatitis B was the prevalent cause of HCC. Hypertension, diabetes, and ischemic heart disease were the specific co-morbidities in hepatocellular carcinoma patients. HCC is considered to be the prevalent malignant tumor of the liver accounting for 80 to 85% primary HCC [13]. Hepatocellular carcinoma is developed in about a third part of primary liver malignancy patients [14]. It has been observed that men are more susceptible to HCC compared to women. The hypothesis that supported the HCC affecting mostly men was supported by the argument that estrogen play a protective role in females [15].

Kumar et al [16] reported the incidence of asymptomatic patients was approximately 92% whereas only 15.4% patients were asymptomatic at the time of diagnosis in the current study. A better survival rate was reported in patients having higher performance in terms of ECOG scores as found by various studies [17, 18]. Still the prognostic factors role and clinical presentation of HCC rely on tumor size effect is to be determined. Higher mortality rate in patients having > 5 cm tumor size was reported compared to patients with <5 cm tumor size. Also, better survival rate was found in patients with no fibrosis or vascular invasion regardless of patient's tumor size [19, 20].

Various tertiary care set-up published studies regarding HCC clinical profile in Pakistan. Most studies reported a higher prevalence of male patients with mean age above 50 years similar to other studies [21, 22]. Male to female ratio in a recent study was 1.7:1. About 110 (88.7%) had symptoms of HCC during presentation. Abdominal pain was the dominant symptom in HCC patients followed by weight loss. Similarly, another study reported that abdominal discomfort was the prevalent cause of HCC [23]. Another study reported anorexia and weakness as the prevalent symptoms in HCC patients [24]. Choi et al [25] found that hepatomegaly was present in 75% of the patients. In our study cirrhosis was present in 26.6% of the HCC patients. Overall incidence of cirrhosis was 60-70% in Pakistan [26]. The present study reported lower occurrence of cirrhosis due to cirrhosis related minor features missed. HBV prevalence in Pakistan varies from 34% to 76% [27]. However, about 46.9% were reported in the present study.

Based on geographical variation, HCC etiological features vary which was evidenced by 40 (32.3%) patients of HCC having no causes. Cryptogenic, HBV, and HCV were the different etiologies present in 4.8%, 16.1%, and 46.9% respectively. Hypertension, diabetes mellitus, and their combination were different etiological symptoms and comorbidities present in the HCC patients. The HTN and DM higher incidence was based on cryptogenic as an etiology. Due to the retrospective nature of study, cryptogenic risk factors could not be assessed. Even in the absence of cirrhosis, cryptogenic-associated HCC is more likely to develop. Non-cirrhotic patients are thought to account for half of all cases of cryptogenic-induced HCC [28]. On the other hand, the majority of patients had tumor nodules larger than 5 cm in size, which contradicts the assumption that adhering to a surveillance program would have detected patients at an earlier stage. As a result, it is more likely that patients with more advanced disease did not present to this hospital.

CONCLUSION

The present study found that the most prevalent etiology was hepatocellular carcinoma. Most patients were asymptomatic and had major complaints of abdominal pain with certain specific

comorbidities. Hypertension, diabetes, and ischemic heart disease were the specific co-morbidities in hepatocellular carcinoma patients. In our population, the prevalent cause of HCC was Hepatitis B.

REFERENCES

1. Sia D, Villanueva A, Friedman SL, Llovet JM. Liver Cancer Cell of Origin, Molecular Class, and Effects on Patient Prognosis. Gastroenterology. 2017;152(4):745-61.
2. Rawla P, Sunkara T, Muralidharan P, Raj JP. Update in global trends and aetiology of hepatocellular carcinoma. Contemp Oncol (Pozn). 2018;22(3):141-50.
3. Baecker A, Liu X, La Vecchia C, Zhang ZF. Worldwide incidence of hepatocellular carcinoma cases attributable to major risk factors. European journal of cancer prevention : the official journal of the European Cancer Prevention Organisation (ECP). 2018;27(3):205-12
4. Butt AS, Abbas Z, Jafri W. Hepatocellular carcinoma in Pakistan: where do we stand? Hepat Mon. 2012;12(10 HCC):e6023-e
5. Hester D, Golabi P, Paik J, Younossi I, Mishra A, Younossi ZM. Among Medicare Patients with Hepatocellular Carcinoma, Non-alcoholic Fatty Liver Disease is the Most Common Etiology and Cause of Mortality. J Clin Gastroenterol. 2019.
6. Liu P, Xie S-H, Hu S, Cheng X, Gao T, Zhang C, et al. Agespecific sex difference in the incidence of hepatocellular carcinoma in the United States. Oncotarget. 2017;8(40):68131-7.
7. Ai D-S, Zhang C, Chen P, Jin S-J, Jiang G-Q. The prognostic correlation of AFP level at diagnosis with pathological grade, progression, and survival of patients with hepatocellular carcinoma. Sci Rep. 2017;7(1):12870-
8. Butt AS, Hamid S, Wadalawala AA, Ghufran M, Javed AA, Farooq O, et al. Hepatocellular carcinoma in Native South Asian Pakistani population; trends, clinico-pathological characteristics & differences in viral marker negative & viralhepatocellular carcinoma. BMC research notes. 2013;6(1):137.
9. Wu G, Wu J, Wang B, Zhu X, Shi X, Ding Y. Importance of tumor size at diagnosis as a prognostic factor for hepatocellular carcinoma survival: a population-based study. Cancer Manag Res. 2018;10:4401-10.
10. Dai CY, Lin CY, Tsai PC, Lin PY, Yeh ML, Huang CF, et al. Impact of tumor size on the prognosis of hepatocellular carcinoma in patients who underwent liver resection. Journal of the Chinese Medical Association: JCMA. 2018;81(2):155-63
11. Younossi Z, Stepanova M, Ong JP, et al. Nonalcoholic steatohepatitis is the fastest growing cause of hepatocellular carcinoma in liver transplant candidates. Clin Gastroenterol Hepatol. 2019;17:748–55.
12. Hafeez Bhatti AB, Dar FS, Waheed A, Shafique K, Sultan F, Shah NH. Hepatocellular Carcinoma in Pakistan: National Trends and Global Perspective. Gastroenterology Research and Practice. 2016;2016:10.
13. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin. 2018;68:394-424.
14. Elsayes KM, Hooker JC, Agrons MM, et al. 2017 Version of LIRADS for CT and MR imaging: An update. Radiographics. 2017;37:1994-2017
15. Zheng J, Cai J, Li H, et al. Neutrophil to lymphocyte ratio and platelet to lymphocyte ratio as prognostic predictors for hepatocellular carcinoma patients with various treatments: a meta-analysis and systematic review. Cell Physiol Biochem. 2017;44:967–81.
16. Kumar A, Acharya SK, Singh SP, et al. 2019 Update of Indian National Association for study of the liver consensus on prevention diagnosis, and management of hepatocellular carcinoma in India: The Puri II Recommendations. J Clin Exp Hepatol. 2020;10:43–80.
17. David D, Raghavendran A, Goel A, et al. Risk factors for nonalcoholic fatty liver disease are common in patients with non-B non-C hepatocellular carcinoma in India. Indian J Gastroenterol. 2017;36:373–9.
18. Zhu RX, Seto WK, Lai CL, Yuen MF. Epidemiology of hepatocellular carcinoma in the Asia-Pacific Region. Gut Liver. 2016;10:332–9.
19. Bhattacharya GS, GovindBabu K, Malhotra H, Ranade AA, Murshed S, Dutta D. Hepatocellular carcinoma in India. Chin ClinOncol. 2013;2(4):41.
20. Lee SH, Song IH, Noh R, Kang HY, Kim SB, Ko SY. Clinical outcomes of patients with hepatocellular carcinoma treated with sorafenib: a retrospective study of routine clinical practice in multi-institutions. BMC Cancer. 2015;15:236.
21. Aljumah AA, Kuriry H, AlZunaitan M. et al. Clinical presentation, risk factors, and treatment modalities of hepatocellular carcinoma: a single tertiary care center experience. Gastroenterol Res Pract 2016; 2016: 1989045.
22. Han DH, Joo DJ, Kim MS. et al. Living donor liver transplantation for advanced hepatocellular carcinoma with portal vein tumor thrombosis after concurrent chemoradiation therapy. Yonsei Med J 2016; 57 (05) 1276-1281
23. Chong JU, Choi GH, Han DH. et al. Downstaging with localized concurrent chemoradiotherapy can identify optimal surgical candidates in hepatocellular carcinoma with portal vein tumor thrombus. Ann Surg Oncol 2018; 25 (11) 3308-3315
24. Choi HJ, Kim DG, Na GH. et al. The clinical outcomes of patients with portal vein tumor thrombi after living donor liver transplantation. Liver Transpl 2017; 23 (08) 1023-1031
25. Barman PM, Su GL. Limitations of the barcelona clinic liver cancer staging system with a focus on transarterial chemoembolization as a key modality for treatment of hepatocellular carcinoma. Clin Liver Dis (Hoboken) 2016; 7 (02) 32-35
26. Vitale A, Peck-Radosavljevic M, Giannini EG. et al. Personalized treatment of patients with very early hepatocellular carcinoma. J Hepatol 2017; 66 (02) 412-423
27. Bhatti ABH, Dar FS, Qureshi AI. et al. Living donor liver transplantation for hepatocellular carcinoma: a single-center experience from Pakistan. J Clin Exp Hepatol 2019; 9 (06) 704-709.
28. Cerban R, Ester C, Iacob S. et al. Predictive factors of tumor recurrence and survival in patients with hepatocellular carcinoma treated with transarterial chemoembolization. J Gastrointestin Liver Dis 2018; 27 (04) 409-417