Hepatocellular Carcinoma: A Cross-Sectional Analysis of Risk Factors

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ABSTRACT
Background Hepatocellular carcinoma is the most prevalent primary liver cancer globally and the major cause of cancer-associated deaths.
Method: A cross-sectional study was carried out at CMH Multan's Department of Histopathology. The individuals with HCC presented to CMH Multan's OPD or indoor general medicine department were selected. Informed consent was obtained. On a standardised proforma, all information such as gender, age groups, residence status, family history, diabetes, smoking, hypertension, and obesity was entered and analysed using the latest version of the SPSS.
Results: 85 (67.5%) of the 126 study cases were male, whereas 41 (32.5%) were female. 72 (57.1%) were from metropolitan areas, while 54 (42.9%) were from rural areas. Smoking was found in 10 (7.9%), and diabetes was found in 43 (34.1%). Obesity was found in 18 (14.3%), and hypertension was present in 74 (58.7%). Only 5 (4%) of our study cases had a family history of HCC.
Conclusion: HCC is more common in male patients, older patients, urban patients, and patients with diabetes, hypertension, and obesity. Individuals with diabetes, hypertension, and obesity undergo screening for HCC regularly. Further research is necessary to recognise the environmental and genetic variables that could contribute to developing HCC in various environments and populations.
Keywords: Liver, Risk factors, Hepatocellular carcinoma, Liver neoplasms.

INTRODUCTION
Hepatocellular Carcinoma (HCC) is a well-known health problem that results in an array of complications with the liver. It is the most common and primary type of liver cancer.[1] HCC, estimated to account for 5% of all malignant tumours worldwide, is the sixth most frequent malignancy and the third leading cause of cancer-related fatalities. HCC incidence is expected to have reached its highest by 2030.[2] HCC is an intricate condition with multiple related and associated risk factors. Significant developments in lifestyle have fundamentally transformed health objectives in the vast majority of the world over the last hundred years. Non-Alcoholic Fatty Liver Disease (NAFLD) prevalence varies significantly across Asia and the Pacific, as would be anticipated in a region with marked variation in socioeconomic, political, and educational growth rates, in addition to variations in dietary habits, lifestyle, and sedentary lifestyle.[3] The primary contributing factors to the increasing malignancy burden among underprivileged communities include growing populations, ageing, social or economic-demographic variables, healthcare access, and viral illnesses.[4] The lifetime risk for individuals having hepatitis B virus (HBV) and hepatitis C virus (HCV) cirrhosis is estimated to vary between 10% and 37%. As a result, not all cirrhotic individuals, as well as not every individual with persistent HCV or HBV infection, will end up with HCC. Significant risk factors for HCC, such as related factors that contribute to developing HCC other than hepatitis B and hepatitis C, are the risk of developing HCC in various environments and populations.

MATERIALS AND METHODS
Following ethics committee permission, a cross-sectional study was carried out at the CMH, Multan's Histopathology Department. The sample was selected from individuals with HCC who presented to the Combined Military Hospital Multan's outpatient department (OPD) or indoor general medicine department. Informed consent was obtained, and they were instructed on the study's aims, the integrity and availability of the information provided, and the absence of any risk to the patient. On a standardised proforma, all information such as gender, age groups, residence status, family history, diabetes, smoking, hypertension, and obesity was entered and analysed using the latest version of the SPSS. The mean, as well as the standard deviation for patient age, were calculated using descriptive statistics. For categorical variables such as gender, age groups, residence status, cigarette smoking, family history, hypertension and diabetes, and obesity, frequencies and percentages were determined.

RESULTS
There were 126 patients included in the study, of which 85 (67.5%) were male while 41 (32.5%) were females. The mean age was 54.18 ± 9.13. The minimum age was 39 years, while the maximum age was 70 years, as shown in Table 1.

The male patient's mean age was 53.88 ± 9.54 years, whereas the female patient's mean age was 54.80 ± 8.28 years (p=0.597). Most of the cases, 79 (62.7%), were over the age of 50 years. Of the 126 study cases, 54 (42.9%) were from rural, while 72 (57.1%) were from urban areas. Smoking was observed in 10...
(7.9%) of our research cases. Diabetes was found in 43 (34.1%) of the patients. In our research, hypertension was present in 74 (58.7%) cases. The patients' mean Body Mass Index (BMI) was 25.43 ± 2.13 kg/m², and obesity was observed in 18 (14.3%) participants. Only 5 (4%) people had a family history of HCC, as shown in Table 2.

Table 1: Age and Gender Distribution of Participants

<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 50 years</td>
<td>18</td>
<td>37.3</td>
</tr>
<tr>
<td>More than 50 years</td>
<td>108</td>
<td>62.7</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>85</td>
<td>67.5</td>
</tr>
<tr>
<td>Female</td>
<td>41</td>
<td>32.5</td>
</tr>
</tbody>
</table>

DISCUSSION
Cancer is the leading cause of fatalities in the contemporary world, with HCC being the fifth most common malignancy and the third principal cause of malignancy-associated deaths worldwide.[10] African and Asian regions have been discovered to have the highest incidence of primary liver cancer, with eastern Asia having the highest age-standardised incidence rate (ASIR) and northern Europe having the lowest.[11] While the incidence of HCC is comparatively high in Asian and African regions, liver cancer fatalities are rising in more affluent countries, possibly due to changes in associated factors such as alcoholism, metabolic syndrome (MS), and obesity.[12] Chronic hepatitis C virus (HCV) or hepatitis B virus infection (HBV) or both have been identified as the aetiological factor in approximately three-quarters of all HCC cases.[13] Cirrhosis caused by alcoholism, smoking, arsenic, NAFLD, cirrhosis of any aetiologies, aflatoxin, oral contraceptive pills and tyrosinemia are also listed as risk factors.[14] In Pakistan, the ASIR for hepatocellular carcinoma is 7.6 for every 100,000 males and 2.8 for every 100,000 females annually.[7] The 5-year relative survival rate in the United States for HCC is only 14%, and it is even lower in developing countries.[15]

HCC screening techniques include both radiographic tests and serological indicators. Ultrasonography (US), computed tomography (CT), and magnetic resonance imaging (MRI) with contrast are all typical diagnostic procedures used for surveillance.[16]

Our study included 126 participants who met the study's inclusion criteria. There were 85 (67.5%) male and 41 (32.5%) female patients among the total 126 study cases. A survey from Lahore by Nadeem et al.[17] observed male gender preponderance in 68% of patients, which is comparable to our findings. Farooqi et al.[18] additionally observed that male gender predominance in HCC is consistent with our results. Alam et al.[19] kept a 64% male gender dominance in HCC, which concurs with our findings.

The mean age of our research cases was 54.18 ± 10.93 years, with a minimum age of 39 years and a maximum age of 70 years. Male patients had a mean age of 53.88 ± 2.93 years, while female patients had a mean age of 54.80 ± 8.28 years. According to our findings, 79 (62.7%) of our research cases were over 50 years old. Nadeem et al.[17] found similar results in a study conducted in Lahore. Naheed et al.[20] also, in a study conducted in Lahore, reported a mean age of 45 ± 10.95 years for the individuals they studied, which is consistent with our findings.

Farooqi et al.[18] also reported a mean age of 47.4 ± 4.2 years, comparable to our results. Alam et al.[19] also observed that 64% of the participants were between 45 and 60, which aligns with our findings.

54 (42.9%) of the 126 research cases were from rural, whereas 72 (57.1%) were from metropolitan regions. Smoking was found in 10 (7.9%) cases in our investigation. The more significant percentage of patients in urban areas can be ascribed to increased exposure to environmental toxins. The mean BMI was 25.43 ± 2.13 kg/m², and obesity was observed in 18 (14.3%) of our study cases, which is in accordance with a local study.[21]

Only 5 (4%) of the research's individuals had a family history of HCC. Diabetes was identified in 43 (34.1%) of the individuals in our research. A study conducted in the Netherlands by Wiazi et al.[22] revealed 37% diabetes, comparable to our observations. A survey carried out by Zein et al.[23] from the United States reported 25% diabetes, which correlates to our findings. In the study we conducted, hypertension was present in 74 (58.7%) of the cases. Almani et al.[24] reported 42% hypertension, which is in accordance with our findings.

CONCLUSION
HCC is more common in male patients, older patients, urban patients, and patients with diabetes, hypertension, and obesity, according to our findings. In our research, smoking, and a family history of HCC were less prevalent risk factors. Based on the results we obtained, we recommend that individuals with diabetes, hypertension, and obesity undergo screening for HCC on a regular schedule, especially if they are over the age of fifty and male. We also argue that these individuals should be encouraged to quit smoking and lose weight to decrease their likelihood of HCC and other challenges. More research is needed to understand the environmental and genetic factors that may play a role in developing HCC in various environments and populations. Additionally, regular screening and early detection can improve the prognosis of HCC. Therefore, healthcare providers should prioritise screening and monitoring for individuals at high risk of developing HCC.

REFERENCES
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