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Research Article

SOCIO-DEMOGRAPHIC FACTORS ASSOCIATED WITH ADVANCED HEPATOCELLULAR CARCINOMA

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Abstract:

Aim: To evaluate the patient's various socio-demographic and clinical factors related to advanced HCC.

Place and Duration: In the Gastroenterology department of Jinnah Hospital Lahore for one-year duration from March 2019 to March 2020.

Methods: The study was conducted on the basis of a retrospective assessment of various socio-demographic data (age, gender, place of residence, socioeconomic status and habits), clinical presentation, basic risk factors (CHC, CHB and unspecified), child classification and APRI assessment of liver fibrosis of all 690 HCC patients registered in the HCC database. All patients were divided into two groups: Group 1, which included 250 patients with early HCC, their age with mean \pm standard deviation (SD) is 54.8 ± 12.795 , and the male / female ratio was 155/95. Group 2: It consisted of 440 patients with moderate to advanced HCC, their age with mean \pm SD of 57.05 ± 13.366 , and male to female ratio 299/141. HCC diagnosis is based on four-phase computed tomography (MDCT) and / or MRI with dynamic contrast.

Results: Our results revealed that advanced patients with HCC in group 2 had a much higher age distribution, presented much more in patients from rural areas and also presented much more in poor socioeconomic conditions than patients with early HCC in group 1 (P 0 values, respectively) , 0309, 0.0455 and 0.0107). In patients with advanced HCC from group 2, significant importance of liver fibrosis with a higher degree according to APRI and Child B or C classification was significantly more important than in early patients with group 1 HCC (P values <0.0001 for both). Male sex, smoking, BMI and DM are not significantly associated with advanced patients with group 2 HCC (p values 0.0309, 0.0628, 0.6168 and 0.0969). Clinical presentations of early HCC patients in group 1 were accidentally discovered asymptotically, much more than presentations of advanced HCC patients in group 2 (p value <0.0001). CHB and CHC were the largest risk factors for both early and advanced HCC (p-value <0.0033).

Conclusion: Advanced HCCs are significantly associated with poor socioeconomic status, especially in rural areas, which can lead to delayed diagnosis until HCC become more advanced and symptomatic, while advanced HCCs are associated with high liver fibrosis and more advanced liver disease. Based on these conclusions, we should recommend regular screening programs for the early detection of HCC, especially in rural areas with poor socioeconomic status, especially in elderly patients with high liver fibrosis and grade B or C in a child

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INTRODUCTION:

Hepatocellular carcinoma (HCC) is the fifth most common cancer in the world and its incidence in Asia and the United States is increasing. In Pakistan, HCC reported that about 4.7% of patients with chronic liver disease (CLD) count¹⁻². HCC epidemiology is characterized by significant demographic and -geographical differences. Its development refers to the occurrence of chronic hepatitis B virus (HBV) or hepatitis C (HCV), a chronic liver disease caused by alcohol consumption and metabolic syndrome³⁻⁴. The primary paronychium liver is rarely normal and exhibits a number of histological changes, including inflammation and fibrosis that cause cirrhosis of the liver. Potentially improved treatments include cancer resection, liver transplantation and transdermal interventions, which can lead to a full response and better survival in a large proportion of patients⁵⁻⁶. In some cases, transarterial interventions cause palliation with a good response rate and greater survival. Drugs, as well as conventional radiation therapy have proven effectiveness to date. However, if treated in the early stages, a 5-year survival rate can be as high as 70%⁷⁻⁸. HCC was detected at an earlier stage of screening, so tumors were smaller and patients were more likely to receive potential treatment and reduced mortality. Although therapeutic interventions are effective in patients with limited illness (1-3 lesions, 5 cm in diameter) and underlying liver disease (cirrhosis of infants A), more than 80% of patients in diagnosis have advanced HCC and advanced liver disease, which limits therapeutic measures for better maintenance care⁹. The causes of late diagnosis of HCC should be evaluated in order to overcome this high advanced HCC rate. Therefore, we strive to assess the socio-demographic and clinical factors of many patients with HCC progress in our HCC unit in Jinnah hospital.

PATIENTS AND METHODS:

This analysis was held in the Gastroenterology department of Jinnah Hospital Lahore for one-year duration from March 2019 to March 2020. This study was conducted with a retrospective evaluation of various sociodemographic, clinical and laboratory data of 690 HCC patients

- Group 1: 250 patients with early HCC, between 54.8 and 12,795 with an average SD age, the ratio between men and women is 155/95.
- Group 2: 440 patients with moderate and advanced HCC, on average between 57.05-13,366, ratio of men and women to 299/141.

Various demographic data for all patients in both groups were assessed, including age, gender, place

of residence, special habits and socioeconomic conditions, in addition to determining body mass index (BMI), diabetes (DM), basic risk factors such as HCV and HBV. Primary liver disease was assessed using both Child Pugh Classification and Non-Invasive Assessment of Hepatic Fibrosis, which was performed using the Aspartate Aminotransferase (AST) to Platelet Index (APRI) assessment system, according to the following formula [(AST / AST upper limit) / platelet count (109 / l) × 100]. HCC diagnosis is based on 4-phase multi-detector computed tomography (MDCT) and / or MRI with dynamic contrast.

Statistically analysis

The comparison between the groups was made using the student's t-test, using full chi or fisherman tests for continuous variables with normal distribution and categorical variables. P <0.05 was considered statistically significant. SPSS version 17.0 (SPSS Inc., Chicago, IL, United States) was used for statistical analysis.

RESULTS:

Our results revealed that advanced patients with HCC in group 2 had a greater age distribution than those in early patients with HCC in group 1 with a significant difference (mean ± SD was 57.05 ± 13.366 and 54.8 ± 12.795, respectively, with a p value of 0, 0309). Our results also showed that in advanced patients with HCC in group 2 the gender distribution was larger than in group 1 with early HCC, but without a significant difference (men / women are 299/141 and 155/95, respectively, with a p-value of 0.1332). Regarding the place of residence of patients, the Court found that patients from urban / rural areas had 120/130 for group 1 and 176/264 for group 2 with a significant difference (p-value 0.0455). Special habits were assessed for all patients in both groups and we found that 129 (51.6%) patients with smoking addiction in group 1 comparable with 264 (60%) patients with smoking addiction in group 2 with an insignificant difference (p value 0, 0628). one patient (0.4%) in groups 1 and 4 (0.9%) patients were alcohol consumers. Socioeconomic status for all patients showed that 131 (52.4%) patients in Group 1 had poor socioeconomic status compared to 295 (67%) patients in Group 2 with a significant difference (p-value 0.0107). Our results showed that BMI goroup1 was 28.160 ± 2.824, while for group 2 it was 28.327 ± 3.125 with no significant difference (P value = 0.6168). At the same time, patients with diabetes in group 1 had 85 (34%), while in group 2 patients with DM had 192 (43.6%) irrelevant (p-value 0.0969).

Result table: Socio-demographic factors for all patients.

Parameter		Group1 (Early HCC) n=250	Group2 (Moderate to advanced HCC) n=440	P value
Age (yr)	Mean ± SD	54.8±12.795	57.05±13.366	0.0309
Sex	Male	155 (62%)	299 (68%)	0.1328(ns)
	Female	95 (38%)	141 (32%)	
Residence	Urban	120 (48%)	176 (40%)	0.0455
	Rural	130 (52%)	264 (60%)	
Special habits	No habits	120 (48%)	172 (39.1%)	0.0628(ns)
	Smoking	129 (51.6%)	264 (60%)	
	Alcohol	1 (0.4%)	4 (0.9%)	
Socio-economic status	Poor	131 (52.4%)	295 (67%)	0.0107
	Good	119 (47.6%)	145 (33%)	
BMI	Mean ± SD	28.160±2.824	28.327±3.125	0.6168(ns)
DM		85 (34%)	192 (43.6%)	0.0969(ns)
Risk factor	CHC	205 (82%)	308 (70%)	0.0033
	CHB	20 (8%)	66 (15%)	
	Coinfection(HBV+HCV)	5 (2%)	22 (5%)	
	Un-specified	20 (8%)	44 (10%)	
Child's classification	A	226 (90.4%)	144 (32.7%)	< 0.0001
	B	24 (9.6%)	176 (40%)	
	C	0	120 (27.3%)	
APRI score	Mean ± SD	1.820± 0.2578	2.056 ± 0.2878	< 0.0001
Clinical presentation	Incidentally	222 (88.8)	198 (45%)	< 0.0001
	Symptomatic	28 (11.2%)	242 (55%)	

At the same time, liver fibrosis was assessed non-invasively by the APRI scoring system; in this respect, the results for group 1 showed 1.820 ± 0.2578 , while the results for group 2 showed 2.056 ± 0.2878 with a high significant difference (P value < 0.0001). The main causes of cirrhosis in group 1 were chronic hepatitis C (CHC), chronic hepatitis B (CHB), co-infective infection (CHB + CHC) and unspecified causes in relationships [205 (82%), 20 (8%), 5 (2%) and 20 (8%) respectively for group 1, while for group 2 there were [308 (70%), 66 (15%), 22 (5%) and 44 (10%)] respectively a significant difference (P value 0.0033). Regarding the clinical picture of HCC in all patients, our results showed that 222 (88.8%) of early HCC patients in group 1 and 198 (45%) of patients with advanced HCC in group 2 were accidentally discovered during an irrelevant assessment of patients using abdominal ultrasonography, while 28 (11.2%) patients with HCC in group 1 and 242 (55%) patients with HCC in group 2 were symptomatically revealed with a large significant difference (p-value < 0.0001).

DISCUSSION:

Despite scientific advances and early diagnosis measures of HCC in patients at risk, patient survival has not improved significantly over the past thirty years. Early diagnosis of HCC is crucial for finding less advanced HCC in recovery methods¹⁰. In this context, we try to retrospectively evaluate the various sociodemographic, clinical and laboratory data available in our HCC unit of our registered HCC patients and try to understand whether there is a significant link between the vast majority of advanced HCC cases discovered in our region. First, our results showed that male sex was

more advanced than C HCC than female, but did not reach significance (value P 0.1328). These results are similar to others who have found that El-Zayadi AR and HCC are more common in men than women, which can be explained at least in part by differences in exposure to risk factors. However, sex hormones and other genetic factors associated with X may also be important¹¹⁻¹². However, previous Egyptian studies have shown that HCC awareness has been significantly improved, leading to better early diagnosis and diagnosis of HCC. This was demonstrated by an increase in the rate of diagnosis of small lesions from 14.9% to 22.7%

and a reduction in the diagnosis rate of large KCC lesions from 85.1% to 77.3%. [3.10] Screening programmes in rural areas should therefore be supported by special equipment and financed. As for special habits, it turned out that advanced HCC is larger than non-smoking, but not important (value P 0.0628). Alcohol is very limited in our country, so it represents only 1 (0.4%) patients in group 1 and only 4 (0.9%) patients in group 2. The link between smoking and HCC has been studied in a number of studies in low-level and high-level areas, and various results suggest that any effect of smoking on HCC may be limited to a weak and subgroup of the general population. Long-term heavy alcohol consumption is a well-established risk factor for HCC. It is unclear whether the risk of HCC has changed significantly in people with low or moderate alcohol consumption¹³. Most data show that alcohol has no carcinogenic effect in itself; The greatest risk can lead to prolonged alcohol consumption, and not by cirrhosis of the liver. Body mass index (BMI) refers to a slightly advanced but unsigned HCC (P value 0.6168). Similarly, patients with diabetes were slightly more in group2 with advanced HCC, but it didn't matter (P value 0.0969). This is confirmed by cohort studies based on many populations, which showed a risk of HCC 2-3 times higher in obese men and women than in people with a normal BMI. Many studies have reported that diabetes, especially type 2, chronic liver disease and HCC were likely recommended as a risk factor through the development of NAFLD and NASH. HBV and HCV infection are considered to be the main risk factors contributing to the development of HCC. It has been proven in various studies that analyses HCC risk factors in CLD patients¹⁴. The role of HBV infection in HBV pathogenesis differs from HCV infection; While the HBV-DNA genome is integrated into hepatocellular chromosomes, HCV is likely to apply its effect by producing cirrhosis of the liver with severe liver damage. Most data shows that HCV plays an indirect role in hepatocarcinogenesis, and this can occur as a result of long-term cirrhosis of the liver by directly promoting chronic hepatitis. As for the relationship between advanced HCC and the child's liver status classification, we found that patients with b and child C were significantly more significant in group 2 than group 1 with early HCC (P <0.0001). The increase in HCC is characteristically silent, which can delay the diagnosis by up to 3 years from the date of development. The clinical table is variable, the patient can be asymptomatic, accidental diagnosis of tumors, may also quickly occur fluoride and liver failure. Active monitoring of HCC in high-risk populations increased the incidence of HCC diagnosis in asymptomatic patients¹⁵.

CONCLUSION:

From all this data, we can conclude that advanced HCC is significantly associated with poor socio-economic status, especially in rural areas, which can lead to late diagnosis until HCC becomes more advanced and symptomatic, but also advanced HC is associated with high-quality liver fibrosis and more advanced liver disease. On the basis of these findings, regular screening programs should be recommended for early detection of HHC, especially in rural areas with poor socio-economic status, especially in elderly patients with high-quality liver fibrosis and children b or c liver disease.

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