

Original Article

Epidemiology and Clinical Characteristics of Patients with Hepatocellular Carcinoma in North-East of Iran

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Abstract

Background: Hepatocellular carcinoma (HCC), the most common type of primary liver cancer, is a life-threatening disease worldwide. This study aimed to investigate the epidemiology and clinical features of HCC patients who referred to Omid hospital in Mashhad, northeast of Iran. **Materials and Methods:** In this cross-sectional retrospective study, we reviewed the medical records of patients who referred to Omid hospital – a cancer research center– in Mashhad from 1991 to 2012. Medical records of 29 patients with primary liver cancer were analyzed in this study. Records that had biopsy-proven HCC were included. **Results:** Of 25 eligible cases, 68% were male and the rest were female. The majority of HCC patients were in the 60-69 age group. The major histologic subtype of HCC was typical. Besides, 48% of cases had tumors in one lobe of their liver. The average time from treatment to death was about three months in 44% of patients. **Conclusion:** The age distribution and male preponderance of HCC patients observed in the present study were similar to the previous studies carried out in Iran and other countries. Since this is a retrospective study, we recommend a comprehensive study such as cohort or case-control by including a larger sample size in which other HCC-related factors can be considered to investigate the etiology of HCC in the northeast of Iran.

Keywords: Epidemiology, Clinical characteristics, Hepatocellular carcinoma, Iran

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Introduction

Hepatocellular carcinoma (HCC) as a primary liver malignancy, is the fifth most common cancer worldwide (1, 2). HCC is responsible for 5% of all malignant tumors in the human and it is the ninth cause of cancer-related deaths in the world (3) which is associated with 300,000 to 500,000 deaths per year (4). It is estimated that the average survival is

approximately 1 to 60 months, depending on the stage of HCC(5).

Several previous studies have consistently reported that males have higher rates of HCC development than females, with a ratio of 2:1 (6). Also, the prevalence of HCC is over than twice in developing countries than the developed countries(2).

The HCC distribution among regions of a

country depends on exposure to hepatitis B virus (HBV), hepatitis C virus (HCV) and other environmental risk factors. Determination of the etiologic agents may help to improve the surveillance of HCC patients. The most frequent underlying factors for developing HCC are chronic liver disease and cirrhosis, which are often associated with HBV and HCV infections (7). Indeed, ample literature has been published on the HCV and HBV-related HCC. Globally, it is estimated that around 350 million people are carriers of HBV. On the other hand, the HBV and HCV can easily spread via blood transfusions and the sharing of injecting equipment, which can increase the risk of developing HCC (8). Intake of metabolic toxins (such as alcohol or aflatoxin), smoking, obesity, and other infections like Schistosomiasis are additional risk factors for developing HCC (9). Our study aimed to assess the epidemiology and clinical features of HCC patients admitted to the largest referral cancer center in Mashhad.

Methods

This cross-sectional study was conducted between the years 1991 and 2012. The medical records of 25810 patients who admitted to Omid hospital, a major referral cancer research center in eastern Iran, were reviewed. We found 29 patients with HCC. All HCC patients who were confirmed through liver biopsy were included in the study. Consequently, four patients were excluded from the analysis due to a lack of availability of pathology records. Twenty-five subjects were analyzed for age, sex, histological subtypes of HCC, hepatitis B surface antigen (HBs Ag) status, number of the involved liver lobe. According to the information available in the medical records, all the participants were followed up by telephone contact to obtain the outcome of treatment including the meantime from treatment to relapse, and the meantime from treatment to death. Data were analyzed by SPSS version 20 (SPSS Inc., IL, USA) and the ANOVA method.

Results

As shown in Table 1, 68% (n=17) of patients

were male and 32% (n=8) were female, therefore, according to the results of the present study, the patients were predominantly male, with a male-female ratio of 2.1:1.

Of the 25 patients, 36% (n=9) were in their 60-69 years of age, 20% (n=5) of them were in the age group of 40-49 years, 16% (n=4) were under 40 years of age, 12% (n=3) were in the age group of 50-59 years, 16% (n=2) of patients were in age between 70-79 years and 16% (n=2) had more than 80 years.

Eleven individuals were found to be HBsAg positive. But the HBsAg status of 9 patients was not reported. Furthermore, as illustrated in Table 1, the histologic subtypes of HCC were as follows: 88% typical, 8% clear cell, and 4% FLC. It should be noted that no other histological features were found. Moreover, 48% of patients' tumors were restricted to one lobe of the liver, and 44% had both lobes involvement.

Table 1. Patient characteristics

Variables		Number	Percent	P-value
Sex	Male	17	68	0.009
	Female	8	32	
Age, (range)	Under 40	4	16	0.001
	40-49	5	20	
	50-59	3	12	
	60-69	9	36	
	70-79	2	8	
	Up 80	2	8	
HBsAg status	Positive	11	44	0.003
	Negative	5	20	
	Unknown	9	36	
Histologic subtypes	Clear cell	2	8	0.022
	Normal	22	88	
	FLC	1	4	
Number of liver lobe involvement	One	12	48	0.013
	Two	11	44	
	Unknown	2	8	

Follow up findings showed that 56% of patients had no recovery in terms of average time from the treatment of HCC to relapse. Besides, relapses were reported in 8% and 4% of patients after 12 and 18 months, respectively (Table 2). Table 3 also shows the frequency of HCC cases based on the average time from treatment to death.

Table 2. Frequency of HCC patients categorized by the average time from treatment to relapse

Frequency (<i>n</i>) (%)	Average time from treatment to relapse
14 (56)	No recovery
2 (8)	12 months
1 (4)	18 months
1 (4)	24 months
7 (28)	Undetermined

Table 3. Frequency of HCC patients categorized by the average time from treatment to death

Frequency (<i>n</i>) (%)	Average time from treatment to death
11 (44)	3 months
2 (8)	6 months
1 (4)	12 months
1 (4)	18 months
1 (4)	24 months
1 (4)	36 months
7 (28)	Undetermined
1 (4)	Alive

Discussion

Globally, HCC is the fifth and seventh most common cancer in males and females, respectively. Moreover, HCC is the most common cancer which leads to death after lung and stomach cancers (1). A number of previous studies have reported that the HCC is more common in many regions of the world,

such as parts of East Asia and sub-Saharan Africa than North America and some parts of Europe (10). This variation appears to be related to the geographic pattern or on etiologic factors in different regions. The age distribution of HCC patients and also male preponderance in the present study was in parallel with previous studies in Iran and other countries (1, 11-13). Since in the current study the HBsAg status of nine samples was not reported, therefore, the relationship between HCC and HBV infection cannot be deduced.

Regard to the relationship between HCC and viral hepatitis, we found that Khorasan Razavi province can be classified as one of a relatively low-risk area in the world, because of the prevalence of HBV infection and HBs Ag among the Iranian population are approximately 2.2% (14) and 1.84% (15), respectively. Also, the legal and religious limitations of alcohol consumption (one of the HCC risk factors) in Iran can be another reason for the low prevalence of HCC. Moreover, it may be due to the patients who had not referred to Omid hospital.

We acknowledge the limitations of our study due to the retrospective nature of the data collection. The incomplete medical records especially laboratory and imaging tests should be considered in future research. Prospective multicenter studies would be of great interest in this regard. Therefore, we need further studies with a larger sample size in a case-control study to evaluate the *p*-value for HCC related-risk factors. Also, it is needed to identify other HCC-related factors such as HCV infection, alcohol or aflatoxin intake, smoking, hemochromatosis, and levels of androgenic hormones to understand the major causes of the HCC.

Conclusion

This study revealed that HCC was more prevalent in men than women, especially in the age group of 60-69 years old. The most histological feature of HCC tumors, in our patients, was typical subtype. However, further research is necessary to identify the clinical characteristics and trends of HCC among the Iranian population.

Conflicts of Interest

The authors declare that there is no conflict of interest in the publication of this paper.

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