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CLINICAL PROFILE AND TREATMENT OUTCOMES OF HEPATOCELLULAR CARCINOMA FROM A TERTIARY CARE HOSPITAL IN SOUTH INDIA: A RETROSPECTIVE STUDY

Oncology

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ABSTRACT

Background: Patients with hepatocellular carcinoma (HCC) have poor prognosis due to underlying liver disease, and diagnosis at an advanced stage of disease. Data regarding HCC treatment and outcome from India is limited and no major studies are available from South India. **Objectives:** We performed this study to understand the clinical profile and survival outcomes of HCC patients treated at our hospital. We also tried to identify the prognostic factors for survival. **Materials and Methods:** This is a retrospective study of 107 patients with HCC treated at our institute at Madras Medical College from January 2016-December 2019. Patient data and treatment details were collected and analyzed. **Results:** We enrolled 107 patients in the study. Males constituted the majority (102; 94.3%), with a mean age of 60 years. Most of the patients had cirrhosis. The common etiological factors included alcoholic liver disease (77; 71.96%) hepatitis B virus infection (10, 9.34%) and hepatitis C virus infection (6, 5.6%). Majority (87; 81.3%) presented with Barcelona Clinic Liver Cancer (BCLC) stage C and D disease, followed by BCLC 0, A and B (20; 18.7%). Portal vein thrombosis was noted in 33 (30.84%) patients. Liver-directed therapies, including surgery and trans-arterial chemoembolization, were received by 19 (17.7%) patients. Systemic treatments, sorafenib was administered to 68 patients (63.6%). 20 patients received best supportive care only. The median OS was 9 months. A significant association was seen between BCLC stage and OS (mean OS 25.4 months in stage 0, A and B vs 8 months in stage C and D, p value=0.002). OS was significantly associated with CTP class (17.09 months in CTP A, 8.61 months in CTP B and 4.06 months in CTP C, p value =0.001). **Conclusion** : Alcoholic liver disease is the most frequent etiological agent. Patients with HCC present with advanced stage disease and are often not considered suitable for curative intent treatment. BCLC stage and CTP were found to be prognostic in terms of OS.

KEYWORDS

Hepatocellular Carcinoma, Cirrhosis, Alcoholic liver disease, BCLC

INTRODUCTION

Hepatocellular carcinoma (HCC) represents a significant global health challenge, particularly in regions with high prevalence rates such as South India. The clinical profile and treatment outcomes of HCC patients are influenced by a myriad of factors, including underlying liver disease, demographic characteristics, and the availability of therapeutic options. The rising incidence of HCC is closely associated with chronic liver diseases, particularly those caused by hepatitis B virus (HBV) and hepatitis C virus (HCV) infections, alcoholic liver disease as well as metabolic disorders such as non-alcoholic fatty liver disease (NAFLD) (1). Understanding the clinical profile of HCC patients in a tertiary care setting is crucial for tailoring effective management strategies and improving patient outcomes.

Recent advancements in treatment modalities, including locoregional therapies such as trans arterial chemoembolization (TACE) and radiofrequency ablation (RFA), have shown promise in managing HCC, particularly in patients with intermediate to advanced disease (2). Furthermore, the advent of immunotherapy has opened new avenues for treatment, especially for patients with unresectable HCC (3). The integration of these therapies into clinical practice necessitates a comprehensive understanding of their effectiveness and the factors influencing treatment outcomes.

In South India, where the burden of HCC is substantial, it is imperative to conduct retrospective studies that elucidate the clinical characteristics and treatment responses of affected patients. Such studies can provide valuable insights into the epidemiology of HCC, the effectiveness of various treatment modalities, and the potential for improving surveillance and early detection strategies(1). By analyzing the clinical profiles and treatment outcomes of HCC patients in a tertiary care hospital, this study aims to contribute to the growing body of evidence that informs clinical practice and enhances patient care in the context of hepatocellular carcinoma.

MATERIALS AND METHODS

This is a retrospective study of 107 patients with hepatocellular carcinoma treated at our institute at Madras Medical College from January 2016-December 2019. Patient data and treatment details were collected and analyzed. HCC was diagnosed according to EASL criteria-triple phase contrast multidetector computed tomography (MDCT) /magnetic resonance imaging (MRI) and/or histology (where indicated).

Aims/objectives:

Our primary objective was to study the clinical profile and survival outcomes of HCC patients treated at our hospital.

Study methodology:

Patients with a diagnosis of HCC and with complete medical records were enrolled. We then collected data from the case records of these patients. Clinical details, laboratory findings, radiographic, and histopathological data were collected from hospital records. The diagnosis of HCC was based on radiological criteria and/ or histopathology when indicated. The diagnosis of cirrhosis was made using imaging and invasive indicators (upper gastrointestinal endoscopy showing varices and liver biopsy showing features of cirrhosis).

Portal vein thrombosis was diagnosed on imaging. The diagnosis of non-alcoholic steatohepatitis (NASH) was based on ultrasound documented fatty liver with or without diabetes mellitus, after ruling out the common causes like hepatitis B virus, HCV, and alcohol. Patients were managed as per Barcelona Clinic Liver Cancer (BCLC) staging system.

Data Analysis:

Initially, the information was entered into Microsoft Excel. The data analysis was performed using version 25.0 of IBM SPSS Statistics for Windows (IBM Corp.). Frequencies and percentages were employed to represent categorical variables. Quantitative variables, such as age, were represented in terms of median and interquartile range, and mean and standard deviation. The Kaplan-Meier method was employed to assess survival, while the log-rank test was utilized for comparing groups.

RESULTS

We enrolled 107 patients with HCC who had been registered between January 2016 and December 2019. The median age was 60 (range, 25–82) years. Baseline patient characteristics are provided in Table 1. Diagnosis of HCC was made on the basis of radiological criteria in 98/107 (91.56%) patients. The most common etiological factors included alcoholic liver disease (77; 71.96%) hepatitis B virus infection (10, 9.34%) and hepatitis C virus infection (6, 5.6%).

Portal vein thrombosis was noted in 33 (30.84%) patients. 89 patients (83.12%) had liver-limited disease; majority (67; 62.67%) presented with BCLC stage C and alpha-fetoprotein levels were elevated in 95 (88.78%) patients. Eastern Co-operative Oncology Group (ECOG) performance status was 0, 1, 2, 3 and 4 in 19 (17.76%), 68 (63.55%), 8

(7.45%), 12 (11.21%) patients, respectively.

Table 1. Patient characteristics

Characteristics	Category	Number (%)
Age	Mean	60 years (25 -82)
Sex	Male	102 (95.3)
	Female	5(4.67)
Symptoms	Pain	43 (40.19)
	Fullness	22 (20.56)
	Jaundice	12 (11.21)
	Anorexia	10 (9.34)
	Fatigue	7 (6.54)
	Others	13 (12.15)
Cirrhosis	Yes	90 (84.11)
	No	17 (15.89)
Child Pugh	A	43 (40.2)
	B	46 (43)
	C	18 (16.8)
Alcohol use		77 (71.96)
HBV		10 (9.34)
HCV		6 (5.6)
Alcohol +HBV		5 (4.6)
Alcohol +HCV		2 (1.9)
NASH		2 (1.9)
Unknown		5 (4.67)
BCLC Stage	0	3 (2.8)
	A	6 (5.6)
	B	11 (10.28)
	C	67 (62.62)
	D	20 (18.69)

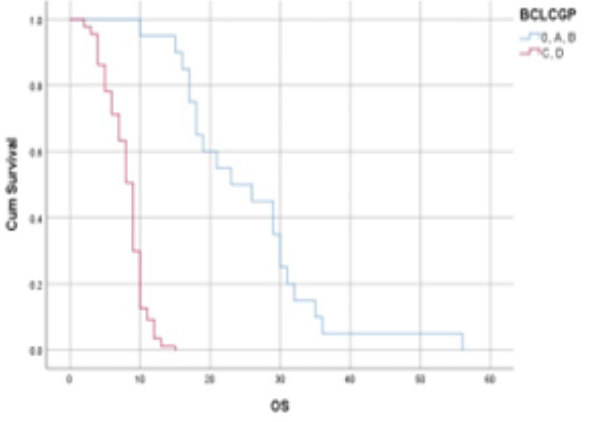
Among local therapeutic modalities, trans-arterial chemoembolization (TACE) and surgery, were the sole modalities of treatment received by 9 (8.4%), 10 (9.3%) patients, respectively. Sorafenib (68; 63.6%) was the only systemic therapies used. (Table 2)

Table 2. Treatment received

Treatment	Frequency	Percentage
Surgery	10	9.3
TACE	9	8.4
Sorafenib	68	63.6
Best supportive care	20	18.7

The median OS was 9 months. A significant association was seen between BCLC stage and OS (mean OS 25.4 months in stage 0, A and B vs 8 months in stage C and D, p value=0.002). (Figure 1) The mean OS was significantly associated with CTP class (17.09 months in CTP A, 8.61 months in CTP B and 4.06 months in CTP C, p value =0.001). There was no association between AFP and OS (p value=0.215). All the patients fell into ALBI grades 2 and 3. There was no association between ALBI score and OS (p value=0.284).

Figure 1. Kaplan Mier curve showing median OS in relation to BCLC stage group



DISCUSSION

In our study, the median age at diagnosis was 60 years (range, 25-82) years, which was higher than that of most Indian studies (51 years),—(46). Predominantly males were effected (95.3%) which was way higher than what has been reported in other Indian studies.(7,8). In our patients, abdominal pain (43; 40.19%) and abdominal fullness (22;20.56%) were the most frequent presentations. Pain and distention of the abdomen were the commonest presenting symptoms in other Indian studies as well. (4,9). Most (90; 84.11%) of our patients had underlying cirrhosis, similar to what has been reported in other studies (6,10) and the majority (46; 43%) had Child Pugh Class B, whereas 43 (40.2%) and 18 (16.8%) had Child Pugh Classes A and C, respectively. Hepatitis B virus infection has been reported to be the most common etiological factor in most Indian studies. (5,11,12). However, in this study, alcoholic liver disease was found to be the most common cause of HCC in the patients attending our Institute. This may be a result of introduction of hepatitis B virus vaccination in the immunization schedule of India, and effective treatment of hepatitis B virus infection as was observed in other countries, where the proportion of HBV-related HCC has been decreasing(13). There was no known etiological factor in 5 (4.67%) patients. In our study, 33 patients (30.84%) had main portal vein thrombosis, preventing them from receiving TACE or other types of locoregional treatment. Portal vein thrombosis has been reported to occur in varying proportions, ranging from 10 to 67.5% of patients in other studies. (6,9,14). A substantial proportion of our patients had poor performance status, i.e., Eastern Cooperative Oncology Group (ECOG) 3/4, advanced stage disease and no access to expensive medications.

There was no correlation between ALBI and OS, unlike previous data from China, Japan, Europe, US and UK""(15). The overall survival is dismal in BCLC C and D, which is an important aspect to be looked into, considering that most of the patients in our study presented in these stages.

CONCLUSION

Alcoholic liver disease was the most common cause of HCC. BCLC stage and CTP were found to be prognostic in terms of OS. No correlation could be identified between Serum AFP levels and OS. Most of the patients are detected at a late, precluding curative therapies. Improving the awareness among public about the harms of alcohol consumption, and improving access to primary health care, to detect cirrhosis at an early stage, may help reduce the disease burden.

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