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Characteristics and Prognosis of Patients with Hepatocellular Carcinoma at Campus Teaching Hospital of Lome

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Abstract

Background: Hepatocellular carcinoma (HCC) is one of the most common malignant tumors in the world, as well as in Togo, where it is a major public health problem. HCC is the third most common cause of death from cancer. Chronic infection with HBV and HCV is the most important cause of HCC. **Objective:** To determine the epidemiological, diagnostic and evolutionary aspects of HCC in the hepatology and gastroenterology department of Campus Teaching Hospital of Lomé. **Patients and method:** Descriptive and analytical study, conducted from January 1, 2013 to December 31, 2017, on all patients admitted in the hepatology and gastroenterology department of Campus Teaching Hospital of Lome for hepatocellular carcinoma. The statistical analysis was done using Stata 13 software. The significance threshold was used for $p < 0.05$. **Findings:** A total of 250 patients were retained. Hospital prevalence was 6.1%. There was a male predominance with a sex ratio of 2.84. The average age was 47.15 ± 13.85 (extreme: 20 - 85 years). The average duration of symptoms was 67.08 ± 82.59 days. Pain in the right hypochondrium was the most common reason for consultation (64.6%). The average AFP value was 24,062 ± 33,318 ng/ml. Ultrasound found more than two nodules in 74.75% of cases and a portal thrombosis in 64.97% of cases. The main etiologies found were chronic hepatitis B (55%) and C (8%) virus infections. The majority (89.20%) of patients were in the BCLC D stage. Survival at 6 months was 45%. Factors associated with death were: chronic ethylism (OR = 16.87, p = 0.002), jaundice (OR = 341.57, p = 0.004), rupture of esophageal varices (OR = 42.45, p = 0.008) and a BCLC D score (OR = 9.82, p = 0.041). **Conclusion:** Young adults were the most affected by HCC, whose etiologies are dominated in our context by hepatitis B and C viruses. The majority of

our patients consulted late and was found at the terminal stage of the disease, limiting any therapeutic possibility. In this situation, the best attitude remains prevention.

Keywords

Hepatocellular Carcinoma, Diagnosis, Survival, Togo

1. Background

Hepatocellular carcinoma (HCC) is the most common malignant tumor of the liver. HCC is the third leading cause of cancer deaths worldwide, with a prevalence of 16 to 32 times higher in developing countries than in developed countries [1] [2]. This cancer has a heterogeneous geographical distribution based on the prevalence of risk factors in different parts of the world. It is frequent in Sub-Saharan Africa and Southeast Asia where it is responsible for a large proportion of cancer deaths, but is rare in the United States and Europe [3]. The high incidence rate may be related to the high prevalence of Hepatitis B viral (HBV) and Hepatitis C viral (HCV) infections [4]. HCC in black Africans carries a particularly grave prognosis, in very few exceptions, and all of the patients survive for less than one year [2] [5]. In Western countries, HCC is increasingly being diagnosed at an early stage though regular screening of those at risk [6]. In our context, the prognosis of HCC is generally poor with patients usually presenting late with an advanced stage of the disease [7] [8]. This is partly due to a lack of awareness about the importance of early consulting in the hospital for the early diagnosis and treatment of this disease. There is a paucity of information regarding HCC in Togo. This is partly due to a lack of published local data and the lack of cancer registries in our countries.

The objective of this study is to describe the clinical and prognostic aspects of this cancer at Campus Teaching Hospital of Lome.

2. Patients and Method

Our hospital is an academic tertiary care center located in Lome (Togo) that receives the majority of patients as referrals from other hospitals. It is a prospective study, conducted from January 1, 2013 to December 31, 2017, on all patients admitted in the hepatology and gastroenterology department of Campus Teaching Hospital of Lome for HCC.

In high-income countries, the diagnosis of HCC usually relies on cytology and/or histology combined with computed tomography (CT) or magnetic resonance imaging [9] [10]. In sub-Saharan Africa, these imaging resources are not widely available and liver biopsy is rarely performed in suspected cases of HCC facing the lack of curative treatment to be proposed and the morbidity associated to this invasive technic (bleeding or needle-track seeding) [11]. Sus-

pected cases of HCC underwent a systematic standardized abdominal ultrasounds examination combined with a plasmatic α-fetoprotein (AFP) measurement for diagnostic confirmation. The diagnosis of HCC was defined as the combination of one or more space-occupying well-characterized tumours ≥ 2 cm, suggestive of an HCC and a plasmatic AFP ≥ 400 ng/ml. In a few cases of abdominal ultrasound highly suggestive of HCC with a serum AFP < 400 ng/ml, an abdominal CT Scan was requested for diagnostic confirmation.

Liver cirrhosis was diagnosed by clinical evidence (signs of portal hypertension on endoscopic examination or characteristic imaging features on ultrasound examination).

AFP was measured using an automated quantitative enzyme linked fluorescent assay (mini-VIDAS™ AFP, Biomerieux, Marcy-L'Etoile, France). The detection of the antigen HBs was made according to the sandwich ELISA technique. HBe antigen, anti –Hbe antibodies, anti-HCV antibodies were detected by ELISA test (Biomérieux Clinical Diagnostics, Geneva, Switzerland). HBV DNA was measured by the technique COBAS Ampliprep/COBASTaqMan HBV Version 2.0 from Roche (Meylan, France) with a positive threshold of 20 IU/ml (linearity from 20 IU/ml to 170,000,000 IU/ml). The COBAS TaqMan HBV test (CTM HBV test; Roche Diagnostics, Meylan, France) is a commercial nucleic acid amplification test for HBV DNA viral load determination based on TaqMan PCR chemistry. Ultrasound examinations, CT scans, and chest X-rays were analyzed for the number of lesions, the size of the largest lesion, the approximate amount of liver volume taken up by the tumor, and the presence of extrahepatic lesions.

For statistical analysis, data were described by median and range. The number of patients with a specific trait was listed along with the number of patients for whom enough data was available to assess the absence or presence of this trait. Comparisons of continuous data between groups were performed using the Mann-Whitney-*U*-test (two groups) or the Kruskal-Wallis-test (more than two groups). Relationship between groups of nominal/ordinal data were explored using the chi-squared test, if necessary in its modification as the Fisher's exact test. To analyze survival data Kaplan-Meier-analysis was performed and survival differences between groups tested using the Log-rank-test. The Kaplan-Meier estimate for median or mean survival was reported depending on patient number.

3. Findings

We collected 250 patients out of 4070 admitted in the department during the study period; this corresponds to a frequency of 6.14%. There was a male predominance, with a sex ratio (M/F) of 2.84. The average age of the patients was 47.15 ± 13.85 years (20 to 85 years). Most patients (75.5%) had more than 2 nodules, and only 20.5% had a single nodule. Biologically, the AFP assay was performed in 230 patients (94.40%). Its average value was 24,062 ± 33,318 ng/ml. The distribution of patients by nodule size on imaging showed that 25% had a

nodule less than 5cm (Table 1). Most of our patients (89.2%) were in the terminal stage according to the BCLC classification; none were in the early stage. The etiologies (Figure 1) were dominated by viral hepatitis B (55%) and C (8%). Survival was 45% at 6 months, 37% at 1 year and 25% at 2 years (Figure 2). Factors associated with this survival were chronic ethylism (OR = 16.87, p = 0.002),

Table 1. Clinical, biological and morphological characteristics of patients.

Parameters	Groups	Population	Percentage
Sex	Male	185	74
	Female	65	26
Age (years)	>55	70	28
	≤55	180	72
AgHbs	Positive	117	69.64
	Negative	51	30.36
Alpha-fetoprotein (ng/ml)	<400	80	32
	≥400	170	68
Number of nodules	One	41	20.5
	Two	8	4
	>Two	151	75.5
Nodules size (cm)	≤5	5	25
	>5	15	75
Portal thrombosis	Yes	128	64.97
	No	69	35.03
Child-Pugh Score	B	195	78
	C	55	22
BCLC	B	11	4.40
	C	16	6.40
	D	223	89.20

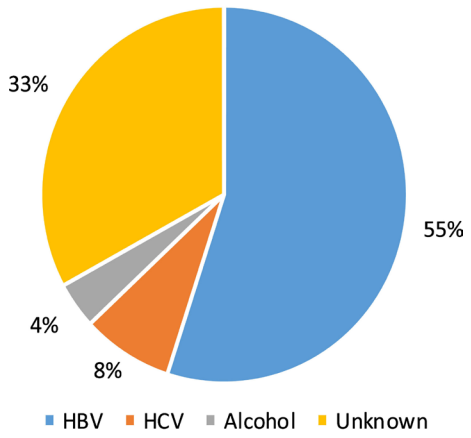

Figure 1. Distribution of patients by etiology.

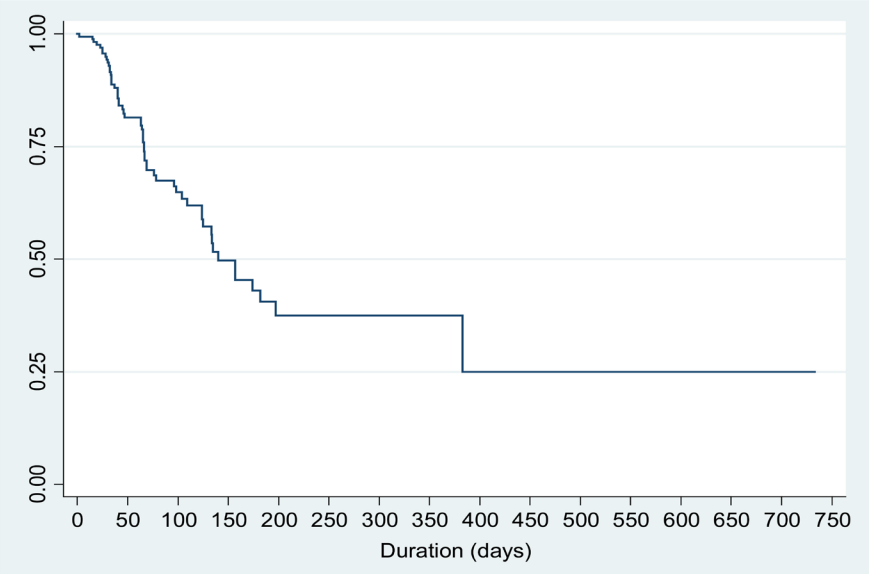

Figure 2. Overall survival curve of the study population.

jaundice (OR = 341.57, p = 0.004), prothrombin < 50% (OR = 10, p = 0.024), esophageal varices rupture (OR = 42.45, p = 0.008) and BCLC stage (OR = 9.82, p = 0.041).

4. Discussion

The frequency of HCC in our service is 6.14%, less important than that found in ivory coast by Kissi *et al.* [12] but more important than 5.6% found in Turkey [13]. This may be related to differences in diagnostic approaches and levels of exposure to other carcinogenic or mutagenic environmental agents. However, the male predominance found in our series is consistent with data from African literature [12] [14]. The average age in our study was 47.15 years, comparable to most African studies [14] [15]. In this study we discovered that 49.2% of the cases of HCC were between 25 years and 45 years. This is in sharp contrast to most western findings that the peak incidence of HCC is above age 50 years [16] [17]. Our findings could be explained by the fact that infection with hepatitis B and C viruses occurs early in young subjects, often vertically contaminated or in childhood [18]. The frequency of HBV is relatively high in the young population of our country with a prevalence of 16.4% [19]. In most cases there were more than 2 nodules, whose size was greater than 5 cm with an average very high AFP rate indicating the advanced stage of the disease at the time of diagnosis. These results are consistent with those found by other African authors [20] [21]. None of our patients were in the early stages of the disease according to the BCLC classification, limiting therapeutic possibilities, unlike in the West where diagnosis is often early through the screening of at-risk subjects [22] [23]. This result can be improved by strengthening screening for viral hepatitis B and C; and also by the treatment and the correct follow-up of the patients carrying chronic liver diseases. The main cause of HCC in our study was hepatitis B virus according to

data from the West African literature [12] [14] [24]. It is therefore crucial to enable access to HBV viral load monitoring and antiviral treatment to HBV-infected patients as it might prevent a significant proportion of HCC; HCV was also found as an important etiology of HCC in our study, therefore, efforts to prevent unsafe injection could potentially play an important role in the prevention of HCC. In our context of delayed consultation, survival was poorer compared to the results of Wang *et al.* [25] who found a survival of 49.3% and 35.3% in 1 and 2 years respectively. In our work, we showed that the prognostic factors were the BCLC stage, the degree of hepatocellular insufficiency as in Asian studies [25] [26].

5. Conclusion

Young adults are the most affected by HCC whose etiologies are dominated in our context by hepatitis B and C viruses. The majority of our patients consulted late and was found at the terminal stage of the disease, limiting any therapeutic possibility. In this situation, the best attitude remains prevention.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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