

# EPIDEMIOLOGICAL, CLINICAL, AND PARACLINICAL TESTS CHARACTERISTICS OF LIVER CANCER PATIENTS AT MILITARY HOSPITAL 175 IN 2024

*Nguyen Thi Truc<sup>1</sup>, Tran Thi Cam Phuong<sup>1</sup>, Tong Thi Dung<sup>1</sup>,  
Pham Thi Duy Yen<sup>1</sup>, Cao Ha Long<sup>2</sup>*

## ABSTRACT

**Objective:** *To identify pathological and laboratory characteristics of patients with hepatocellular carcinoma.*

**Subjects and Methods:** *A descriptive, retrospective cross-sectional study was conducted on 172 patients diagnosed and treated for HCC at Military Hospital 175 from January 2024 to December 2024, to record and analyze clinical features and laboratory findings.*

**Results:** *The mean age at diagnosis was  $61.8 \pm 11.9$  years, with the most common age group being 61-70 years (33.7%). The majority of patients were male (86.6%). Chronic hepatitis B and C infections were the predominant risk factors, accounting for 80.8% of cases. The most common presenting symptoms were abdominal pain (78.5%) and fatigue (33.1%), while 8.7% of cases were detected through routine health check-ups. The average tumor size was  $5.7 \pm 3.7$  cm. Over half of the patients had multiple tumors, predominantly located in the right liver lobe (87.2%). Most patients showed elevated liver enzymes, especially AST, with ALT elevation observed at a lower rate and alpha-fetoprotein (AFP) was elevated in 58.7% of cases. Liver function remained relatively preserved in the majority, with 78.5% classified as Child-Pugh A. Stage B was the most common stage at diagnosis (38.4%), but a significant proportion of patients (35.5%) were still diagnosed at late stages (C or D).*

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<sup>1</sup>Institute of Oncology & Nuclear Medicine – Military Hospital 175

<sup>2</sup>Department of Functional Diagnostics – Military Hospital 175

Corresponding Author: Nguyen Thi Truc

Email: [truc4141@gmail.com](mailto:truc4141@gmail.com)

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**Conclusion:** *Patients with HCC exhibited distinct demographic and clinical characteristics, particularly regarding gender, age, and disease stage. Chronic hepatitis B and C infections are the major risk factors. Laboratory results reflect liver injury and functional impairment, though some patients with HCC have normal AFP levels.*

**Keywords:** *hepatocellular carcinoma, clinical features, laboratory results.*

## I. INTRODUCTION

Hepatocellular carcinoma (HCC) is one of the most common and lethal cancers globally, ranking 6th in incidence with 866,136 cases per year and 3rd in mortality with 758,725 cases [1]. This is particularly significant in Asian countries like Vietnam, which has a high prevalence of Hepatitis B and C infections. According to recent statistics, liver cancer has surpassed lung cancer as the leading cancer in Vietnam, with nearly 26,500 new cases annually, accounting for 14.5% of all cancer cases. Among these, 77% of liver cancer cases occur in males [2].

Primary liver cancer mainly includes hepatocellular carcinoma, intrahepatic cholangiocarcinoma (ICC), and mixed types. Among these, HCC accounts for the vast majority. This malignancy is often linked to chronic risk factors such as HBV, HCV infection, cirrhosis, and alcohol abuse, and it typically progresses silently, leading most patients to be detected at advanced stages.

Identifying epidemiological characteristics, risk factors, and clinical/paraclinical manifestations is crucial for early detection, staging, prognosis, and selecting appropriate treatment methods. Given this clinical urgency, we conducted this study with two objectives:

1. Describe the epidemiological characteristics and risk factors of liver cancer patients at Military Hospital 175 in 2024.

2. To describe the clinical, paraclinical features, disease stage, and initial treatment direction of liver cancer patients at Military Hospital 175 in 2024.

## II. RESEARCH METHODS

### 1. Study Design:

Retrospective, cross-sectional descriptive study.

### 2. Location and Time:

The study was conducted at Military Hospital 175 from April 2025 to May 2025.

### 3. Subjects:

Patients with a confirmed diagnosis of primary liver cancer between January 1, 2024, and December 31, 2024.

### 4. Inclusion Criteria:

Patients diagnosed with primary liver cancer (according to Ministry of Health standards) when the liver lesion met one of the following three criteria:

- Typical HCC imaging\* on contrast-enhanced CT scan or MRI of the abdomen + AFP  $\geq$  400 ng/ml.

- Typical HCC imaging\* on contrast-enhanced CT scan or MRI of the abdomen + elevated AFP (but below 400 ng/ml) + HBV and/or HCV infection. A liver biopsy may be performed for a

definitive diagnosis if deemed necessary by the clinician.

- Histopathological evidence of HCC.
- Complete information available in the medical records.

**6. Exclusion Criteria:**

- Medical records lacking critical data to confirm the HCC diagnosis (e.g., missing CT/MRI, AFP, or pathology results if required).

- Cases of secondary (metastatic) liver cancer.
- Incomplete data for study variables (AFP, Child-Pugh liver function, etc.).
- Patients diagnosed outside the study period (January 1, 2024 – December 31, 2024).

**7. Data Collection Method:**

Data were collected from medical records, histopathology reports,

and related paraclinical results on the E-hospital software. The collected factors included: age, gender, history of liver disease (Hepatitis B, C, cirrhosis), clinical symptoms, biochemical and hematological tests to evaluate liver function, tumor characteristics, and pathology.

**8. Data Analysis:**

Data were processed and analyzed using SPSS version 26.0 and Microsoft Excel 365. Descriptive statistics were utilized (frequency, percentage, mean, standard deviation).

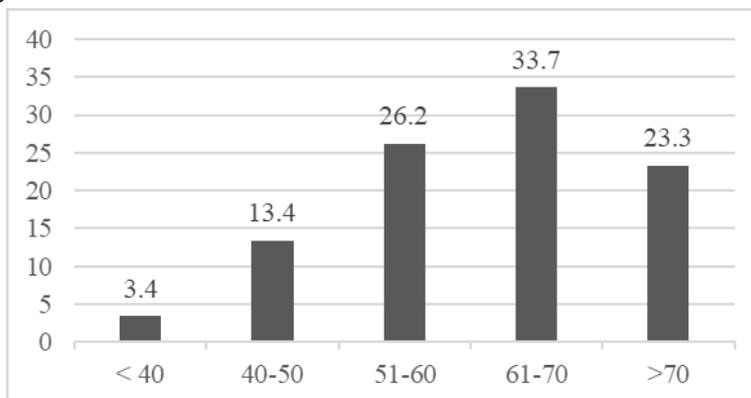
**9. Research Ethics:**

This is a retrospective study without intervention in the diagnosis and treatment process of patients and does not alter medical records. The research results aim to improve the quality of diagnosis, treatment, prognosis, and support future in-depth studies. All patient information is kept confidential.

**III. RESULTS**

**3.1 Characteristics of the study population**

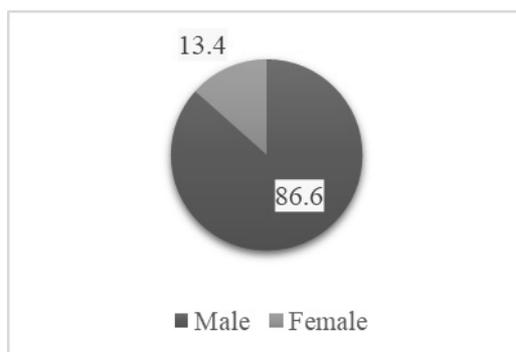
**3.1.1 Age**



**Chart 3.1: Age**

**Comments:** The majority of patients were diagnosed at > 50 years of age, accounting for 83.2%. The mean age at the time of diagnosis was 61.8 ± 11.9 years.

**3.1.2 Gender**



**Chart 3.2: Gender**

**Comments:** The majority of subjects were male, with 149 cases accounting for 86.6%

**3.2 Risk factors**

**Table 3.1: Risk factors**

<b>Risk factors</b>	<b>n</b>	<b>%</b>
HBV infection	99	57.6
HCV infection	29	16.8
Alcohol	15	8.7
HBV + HCV	4	2.4
HBV + Alcohol	1	0.6
HCV + Alcohol	2	1.2
None	22	12.7
<b>Total</b>	<b>172</b>	<b>100</b>

**Comments:** The majority of risk factors were Hepatitis B and C virus infections, accounting for 80.8%. Among these, Hepatitis B virus infection was most prevalent at 60.5%, with a small number of cases involving co-infection of both Hepatitis B and C, as well as alcohol consumption as a risk factor

### 3.3. Clinical and paraclinical characteristics

#### 3.3.1. Clinical symptoms

**Table 3.2: Common symptoms**

Symptoms	n	%
Abdominal pain	135	78.5
Fatigue	57	33.1
Jaundice	10	5.8
Abdominal distension	7	4.1
Subcostal mass	4	2.3
Asymptomatic	15	8.7

**Comments:** Abdominal pain and fatigue were the two most common symptoms that prompted patients to seek medical consultation. Specifically, abdominal pain accounted for 78.5%, while fatigue accounted for 33.1%. A small group of patients (8.7%) were asymptomatic and were diagnosed during routine health check-ups.

#### 3.3.2 AFP levels

**Table 3.3: AFP**

AFP	n	%
0-10	71	41.3
11-400	45	26.2
>400	56	32.5
<b>Tổng</b>	<b>172</b>	<b>100</b>

**Comments:** Increased AFP levels were observed in 58.7% of cases.

### 3.3.3 Liver tumor characteristics

Mean tumor size:  $5.7 \pm 3.7$  cm.

**Table 3.4: Number of tumors**

Number of tumors	n	%
Single tumor	78	45.3
2-3 tumors	9	5.2
Multiple tumors	83	48.3
Infiltrative type	2	1.2
<b>Total</b>	<b>172</b>	<b>100</b>

**Comments:** More than 50% of patients had more than one tumor (> 1 tumor). There were 02 cases of infiltrative liver cancer, accounting for 1.2%.

**Table 3.5: Tumor location**

Tumor location	n	%
Left lobe	15	8.7
Right lobe	150	87.2
Both lobes	7	4.1
<b>Total</b>	<b>172</b>	<b>100</b>

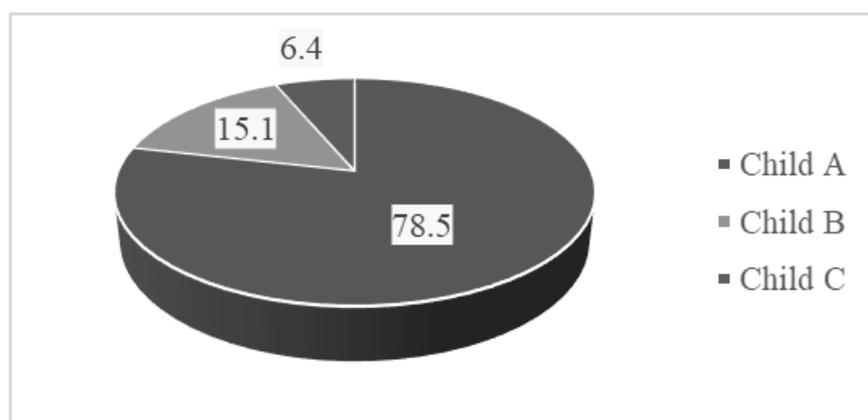
**Comments:** The tumors were primarily located in the right lobe, accounting for 87.2%

### 3.3.4 Liver function

**Table 3.6: Liver enzymes**

Liver enzymes		n	%
AST	Normal	62	36.0
	Elevated	110	64.0
ALT	Normal	84	48.8
	Elevated	88	52.2

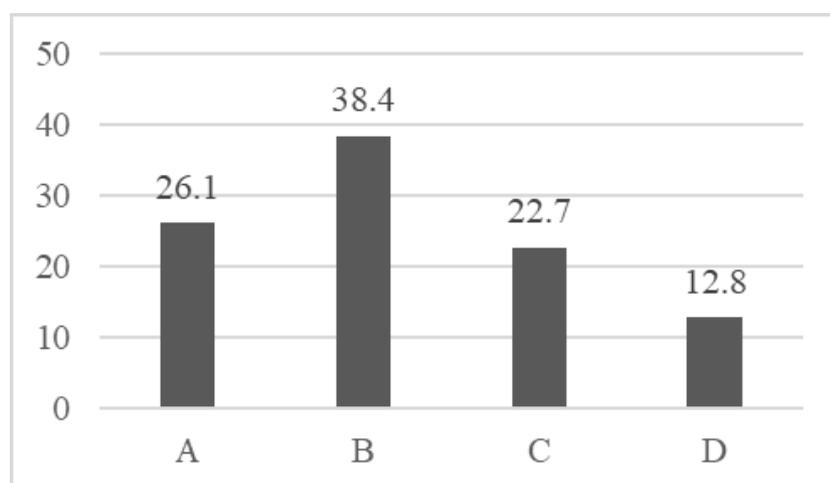
**Comments:** The majority of patients with liver cancer presented with elevated liver enzymes, particularly AST. The rate of ALT elevation was lower than that of AST.



*Figure 3.3: Liver function*

**Comments:** Most of the liver function is still good, Child Pugh A accounts for 78.5%.

### *3.3.5 Stage of the disease*



*Figure 3.4: Stage of the disease (according to BCLC- Barcelona Clinic Liver Cancer)*

**Comments:** Stage B is dominant, suggesting that many patients are detected at the intermediate stage – there is still the possibility of therapeutic intervention. The detection rate at the early stage (A) is not high, the rate of late diagnosis (C, D) is still large at 35.5%.

### 3.4 Initial direction of treatment

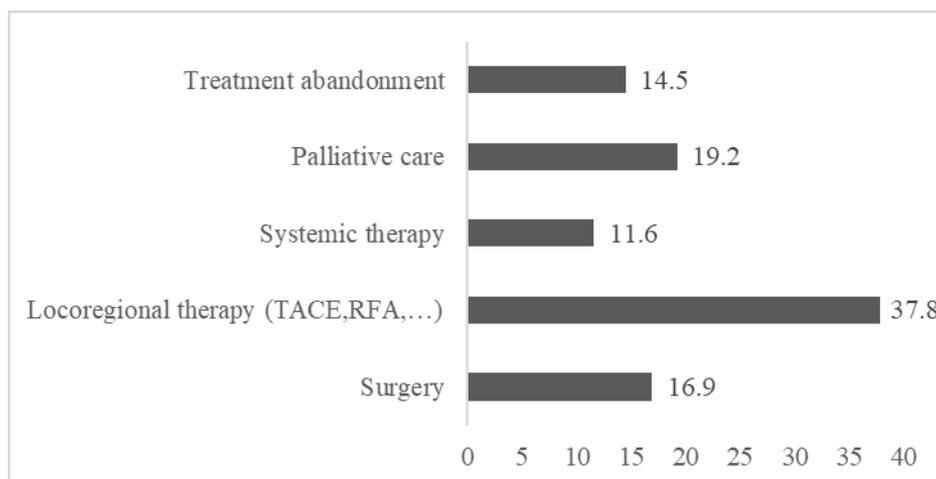


Figure 3.5: Initial treatment direction

Comments: 33.7% of patients do not have access to specific treatments. Local treatment accounted for the highest rate (37.8%).

### 3.5 Patient Treatment Management Department

Table 3.7: Department of Treatment Management

#### Faculty

Faculty	n	%
A3 (Endogastrointestinal)	99	57.6
B3 (Department of general surgery)	24	13.9
A20.3 (Chemotherapy)	16	9.3
A20.4 (Palliative Care)	26	15.1
Others (A1, C1-3, A5, A16)	7	4.1
<b>Total</b>	<b>172</b>	<b>100</b>

Comments: At the Military Hospital 175, liver cancer is managed and treated in many different departments: Internal Medicine, Gastroenterology, Chemotherapy Department, Palliative Care Department and a few are detected in other departments. More than 50% of patients are diagnosed and treated in the Department of Gastroenterology.

## IV. DISCUSSION

In 2024, there were 172 HCC treatment at Military Hospital 175. Most patients coming for examination and patients are detected at the age of >50,

accounting for 83.2%, most commonly at the age of 61-70, accounting for 33.7%. The mean age at the time of diagnosis was  $61.8 \pm 11.9$  (33-100); the proportion of men is clearly dominant (86.6%). This result is consistent with findings by Le Hoai Thuong (2021)  $60.07 \pm 11.90$  years old, male/female ratio: 8/1 [3]. Consistent with the general epidemiological characteristics of hepatocellular carcinoma, which is common in older men with advanced chronic liver disease, may be related to

endocrine factors, lifestyle habits (such as alcohol consumption), and a higher frequency of HBV infection in men. Liver disease is reported to develop more easily in patients with high testosterone levels and low estrogen levels [4]. Estrogen inhibits inflammation through interleukin 6 and thus reduces liver cell damage, whereas testosterone increases pathways through androgen receptors and thus promotes hepatocyte growth [5].

**Table 4.1: Similar studies**

	<b>This study</b>	Nguyen Dinh Song Huy et al. (N=24.091) [6]	Le Van Quang et al (N=198) [7]	Pham Van Hung (N=189) [8]	Nguyen Viet Phuong [9]	Le Hoai Thuong (N= 150) [3]
Median age	<b>61.8</b>	-	57 (19-86)	-	-	60.09
Male (%)	<b>86.6</b>	86.4	89.9 (8.9/1)	-	75.6 (3.1/1)	88.9
Hepatitis B, C infection (%)	<b>80.8</b>	89.6	86.8	86.8	100	80.6
Right Hepatic Tumor (%)	<b>87.2</b>	-	-	57.7	68.3	-
Symptomatic (%)	<b>91.3</b>		92.4	-	-	-
Progression Stage (%)	<b>35.5</b>	40.8				42

The most prominent risk factor is hepatitis B and C virus infection, accounting for 80.8%, of which HBV infection alone accounts for the majority (60.5%), HCV infection is 16.8%, similar to other authors

in the country. The prevalence of hepatitis B and C viruses varies from region to region, Asian countries including China, South Korea and Vietnam, which have the highest incidence of liver cancer in

the world, are also epidemiological areas of hepatitis B, except Japan. South and Central America have low rates of liver cancer, but are on the rise. The BRIGDE study also recorded a high prevalence of hepatitis B virus in China and South Korea of 75-77%, hepatitis C only accounted for 3-10%, while Japan had a hepatitis C virus rate of 64%, hepatitis B virus only accounted for 14% [10].

The most prevalent clinical presentations leading to medical consultation were abdominal pain (78.5%) and fatigue (33.1%). These are non-specific symptoms and usually only appear when liver damage is already at an advanced stage, which explains why the majority of patients are not diagnosed at an early stage. However, a small group of patients (8.7%) were detected through routine check-ups – which shows the initial effectiveness of screening, albeit modest.

The liver cancer marker AFP was elevated in 58.7% of patients – consistent with the absolute non-specific nature of AFP, especially in cases of small tumors or high differentiation. Therefore, AFP should only be used in combination with imaging in screening and diagnosis.

In terms of imaging characteristics, more than 50% of patients had more than one tumor at the time of diagnosis, and there were 2 cases of infiltrated liver cancer (accounting for 1.2%) – a rare clinical form, poor prognosis and easy to miss on

ultrasound. Tumors are mainly localized in the right hepatic (87.2%), consistent with the anatomical and physiological characteristics of the right liver with higher blood flow from the portal vein. The average size of the tumor was 5.7 cm, indicating that the majority of cases were detected at the stage of large tumors, affecting the ability to treat thoroughly.

Liver function: most of the patients in our study have Child-Pugh A liver function accounting for 78.5%, similar to other authors Le Hoai Phuong (2021), Le Van Quang (2019). In the analysis of liver enzyme indexes of liver cancer patients, the results showed that AST was elevated in 64% of patients, while only 36% had AST values within normal limits. For ALT, the increase rate accounted for 52.2%, the remaining 48.8% remained within the normal limit. AST liver enzymes tend to be higher than ALT, reflecting a more severe and diffuse level of liver cell damage, which is common in patients with liver cancer, especially with cirrhosis. This disparity is consistent with the pathophysiological characteristics of liver cancer, where AST/ALT is usually >1, suggesting chronic liver damage or comorbid cirrhosis.

Stage of the disease (according to BCLC phases): in our study stage B was dominant, showing that many patients were detected at the intermediate stage – there was still room for therapeutic intervention. The detection rate at the

early stage (A) is not high, and it is necessary to improve screening and early diagnosis. The rate of late diagnosis (C, D) is still large (35.5%), leading to reduced treatment effectiveness and poor prognosis. Liver cancer treatment is multimodal, so the management of liver cancer is also located in different departments, which requires coordination between departments.

## V. CONCLUSION

The mean patient age was  $61.8 \pm 11.9$  (33 -100), the common age group is 61-70 years old. The majority are men, the male/female ratio is 8/1. Hepatitis B is still the most common risk factor.

Most patients have good liver function Child-Pugh A at the time of diagnosis. AFP is one of the diagnostic criteria for liver cancer of the Ministry of Health, but more than 1/3 of patients have a normal AFP index. Advanced liver cancer, a stage when treatment methods are still limited in terms of treatment benefits and costs, still accounts for a fairly high rate. The above results emphasize the need to promote liver cancer screening programs for high-risk groups. The dropout rate is relatively high, reflecting the urgent need for psychological, financial support and a treatment counseling system for patients.

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