ORIGINAL ARTICLE

Clinicoepidemiological study of hepatocellular carcinoma cases attend in AL-AZHAR University hospitals

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Abstract

Background: ***Hepatocellular carcinoma (HCC), which is responsible for over eighty percent of liver cancers, is one of the top three reasons for cancer-correlated deaths in forty-six nations.***

Aim: ***Epidemiological and clinical study of HCC attend in Al-Azhar University hospitals.***

Patients and methods: ***This cross-sectional study was conducted at the Hepatogastroenterology and Infectious Disease Department in Al-Azhar University hospitals and lasted for 12 months. It was conducted on 100 patients.***

Results: ***Regarding clinical manifestations of HCC patients, 88% have ascites, 82% have weight loss, 79% have abdominal pain, 67% have jaundice, 66% have varices, 56% have lower limb edema, and 21% developed hepatic encephalopathy. Among the 82 patients who had ascites, 31.7% had mild ascites, 63.4% had moderate ascites, and 4.9% had severe ascites. Among patients with HCC, the Child score ranged between 5 and 14, with a mean value of 8.84±2.48. Child class was A in 24%, B in 30% and C in 46%. AlBi score ranged between -3.41 to -1.30 with mean value of -2.46±0.52.AlBi grade I was detected in 41%, grade II in 57% and grade III in 2% of HCC patients. BCLC category A was detected in 15%, category B in 22%, category C in 45% and category D in 18% of HCC.***

Conclusion: ***The study primarily involved male, rural, non-working, married patients with HCC, liver cirrhosis, ascites, well-defined tumors, and metastasis, with a mean Child score of C.***

Keywords: HCC; Liver; Clinical

1. Introduction

Hepatocellular carcinoma, which is responsible for over eighty percent of liver cancers, is one of the top three reasons for cancer-correlated deaths in forty-six nations and one of the top five in ninety nations. Developing countries have a greater frequency of liver diseases.[1]

Many cases of liver cancer, particularly HCC, have underlying cirrhosis that is correlated with established etiological risk factors, such as hepatitis B virus (HBV) or hepatitis C virus (HCV) infection, metabolic dysfunction-associated steatotic liver disease (MASLD) or alcohol-related liver disease (ALD).[2]

Hereditary haemochromatosis, primary sclerosing cholangitis, primary biliary cholangitis, autoimmune hepatitis, and other chronic hepatitides are examples of less common risk factors. There is additionally epidemiological proof that suggests a correlation between environmental exposures, including aflatoxin, smoking, and air pollution, and an elevated risk of hepatocellular carcinoma.[3]

The aim of the work was an epidemiological and clinical study of HCC patients attending Al-Azhar University hospitals.

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2. Patients and methods

This cross-sectional study was conducted at the Hepatogastroenterology and Infectious Disease Department in Al-Azhar University hospitals and lasted for 12 months, conducted on 100 patients.

Inclusion criteria: Age: 18 years or more, sex both males and females will be included in patients diagnosed with hepatocellular carcinoma and all sociodemographic, clinical, laboratory and radiological data were obtained from the medical records.

Exclusion criteria: Other cancer rather than hepatocellular carcinoma, age: less than 18 years old and refusal of the study.

Sample Size: This study base on study carried out by Dharmapuri et al. Epi Info STATCALC was used to calculate the sample size by considering the following assumptions: - 95% two-sided confidence level, with a power of 80%. &an error of 5% odds ratio calculated= 1. 115.The final maximum sample size taken from the Epi- Info output was 89. Thus, the sample size was increased to 100 subjects to assume any drop out cases during follow up.

Methods

All patient were subjected to: Complete history taking, physical examinations, general examination and local examination, inspection: Examined the abdomen for visible abnormalities like distention, skin changes, veins, or masses, and observed abnormal movement with breathing to identify underlying organomegaly or ascites, palpation: Palpation for Hepatomegaly (Liver Enlargement): Palpating from the right iliac fossa, we gently pressed down to feel the liver edge during inspiration, assessing its texture, tenderness, and size below the costal margin ,palpation for Splenomegaly (Spleen Enlargement): The patient palpated the spleen using their fingertips during inspiration, focusing on its size, consistency, and tenderness, ensuring a thorough examination and Percussion :Percussion for Liver Size: Percussion from the right midclavicular line downwards was used to detect lung resonance and liver dullness, and the lower edge of the liver was identified to estimate liver span, percussion for Ascites (Fluid Accumulation): Percussed abdomen, checked for ascites, and performed fluid wave test to detect shifting dullness and fluid wave on opposite side ,auscultation: We examined the abdomen for bowel sounds and listened to the liver area for abnormal vasculature, possibly linked to hepatocellular carcinoma, special Tests: The patient's fluid accumulation was detected through changes in sound, indicating potential minimal ascites, rebound tenderness in cases of hepatocellular carcinoma complicated by peritoneal spread and routine laboratory investigations.

Procedures

Alfa fetoprotein

Imaging: Abdominal Ultrasound: To describe the hepatic focal lesions as regards (number, site, size, echogenicity, cystic or solid& relation to the surroundings), doppler: To assess the vascularity of hepatic focal lesions Vascular invasion by the tumor and cancer severity will be accessed with Barcelona clinic liver cancer (BCLC) staging[4] and Child-Pugh Classification[5], it was correlated epidemiological and clinical study of HCC attend in Al- Azhar University hospitals.

Ethical Considerations

The study objectives were briefly and clearly described to all participants, and oral consent was obtained from all patients. The data obtained from participants is confidential. The study participants were not be identified by name in any report or publication. concerning this study. Before the participants were admitted in this study, the purpose and nature of the study, as well as the risk–benefit assessment was explained to them. An oral. Consent was obtained.

Statistical analysis

Statistical analysis design: -collected data were reviewed and coding was done manually. These numerical codes were fed to the computer where statistical analysis was done using the Statistic Package for Social Science Version 22 (SPSS 22) for windows. Descriptive statistics: Quantitative data: were presented as mean and standard deviation (mean ± SD). Qualitative data: were expressed as numbers and percentage.

3. Results

Table 1 showed that, the current study included 100 HCC patients; 58% were males and 42% were females; their age ranged between 49-89 years with mean value of 66.05 ±9.32 years. Regarding residence, 56% were rural and 44% were urban. The majority of them 41% were non-working or housewife, followed by 22% were manual workers, 19% were professional workers and 18% were retired. Most of them 62% were married. Performance was I in 19% and II & III in 33% for each and IV in 15%.

Table 1. Sociodemographic data of the studied population

		N=100	
AGE (YEARS)	Mean ± SD	66.05 ± 9.32	
	Range	49-89	
		N	%
SEX	Male	58	58%
	Female	42	42%
RESIDENCE	Urban	44	44%
	Rural	56	56%

OCCUPATION	Professional work	19	19%
	Manual work	22	22%
	Retired	18	18%
	Non-working or housewife	41	41%
MARRIAGE	Single	2	2%
	Married	62	62%
	Divorced	5	5%
	Widow	31	31%
PERFORMANCE STATUS	I	19	19%
	II	33	33%
	III	33	33%
	IV	15	15%

Table 2 showed that, regarding underlying hepatic disorders, 81% have HCV, 9 % have HBV, and 10% have others (autoimmune, metabolic).100% of HCC patients have cirrhosis.

Table 2. Underlying hepatic disease in the studied population

		N=100	
		N	%
UNDERLYING HEPATIC DISEASE	HCV	81	81%
	HBV	9	9 %
	Others	10	10%
LIVER CIRRHOSIS	Yes	100	100%
	NO	0	0%

Table 3 showed that, regarding clinical manifestations of HCC patients; 88% have ascites, 82% have weight loss, 79% have abdominal pain, 67% have jaundice, 66% have varices, 56% have lower limb edema and 21% developed hepatic encephalopathy. Among the 82 patients who have ascites, 31.7% were mild, 63.4% were moderate and 4.9% were severe.

Table 3. Clinical manifestations of the studied population

		N=100	
		N	%
CLINICAL MANIFESTATIONS	Abdominal pain	79	79%
	Weight loss	87	87%
	Jaundice	67	67%
	LL edema	56	56%
	Ascites	82	82%
	Hepatic encephalopathy	21	21%
	Varices	66	66%
ASCITES SEVERITY (N=82)	Mild	26	31.7%
	Moderate	52	63.4%
	SEVERE	4	4.9%

Table 4 showed that, regarding HCC characteristics, the number of tumors were single in 29%, two in 27%, three in 24%, four in 6% and multiple (≥5) in 14%. Tumors were well defined in 94% and ill-defined in 6%. The size of largest tumor ranged between 2.5-12 cm with average size of 5.71±1.62 and the total size of tumor ranged between 2.5-15.5 cm with average size of 2.5-15.5cm.

Table 4. Tumor characteristics of the studied HCC population

		N=100	
		N	%
NUMBER OF MALIGNANT FOCI	1	29	29%
	2	27	27%
	3	24	24%
	4	6	6%
	Multiple (≥5)	14	14%
CHARACTER	Will defined	94	94%
	Ill defined	6	6%
SIZE OF LARGEST FOCI	Mean ± SD	5.71±1.62	
	Range	2.5-12	
TOTAL SIZE OF TUMOR	Mean ± SD	9.79±3.16	
	RANGE	2.5-15.5	

Table 5 showed that, among HCC patients, 63% have PV invasion, 50% have metastasis and 11% have previous surgical interventions. Among the 50 patients with metastasis, LN metastasis occurred in 74% followed by bone metastasis in 12%, chest metastasis in 10% and both LN & chest in 4%. MDT decision recommend giving Nexavar in 4% of patients and giving systemic therapy in 6% of patients.

Table 5. Tumor metastasis and PV invasion of the studied HCC population

		N=100	
		N	%
PV INVASION	Yes	63	63%
	No	37	37%
METASTASIS	Yes	50	50%
	No	50	50%
SITE OF METASTASIS (N=50)	LN	37	74%
	Bone	6	12%
	Chest	5	10%
	LN & chest	2	4%
PREVIOUS INTERVENTION	Yes	11	11%
	No	89	89%
MDT DECISION	Nexavar	4	4%
	SYSTEMIC THERAPY	6	6%

Table 6 showed that, among patients with HCC, Child score ranged between 5-14 with mean value of 8.84±2.48. Child class was A in 24%, B in 30% and C in 46%. AlBi score ranged between -3.41 to -1.30 with mean value of -2.46±0.52.AlBi grade I was detected in 41%, grade II in 57% and grade III in 2% of HCC patients. BCLC category A was detected in 15%, category B in 22%, category C in 45% and category D in 18% of HCC

Table 6. Severity scores of the studied HCC population

		N=100	
		N	%
CHILD SCORE	Mean ± SD	8.84±2.48	
	Range	5-14	
CHILD CLASS	A	24	24%
	B	30	30%
	C	46	46%
ALBI SCORE	Mean ± SD	-2.46±0.52	
	Range	-3.41 TO -1.30	
	I	41	41%
	II	57	57%

ALBI GRADE	III	2	2%
	A	15	15%
	B	22	22%
BCLC CATEGORY	C	45	45%
	D	18	18%

Table 7 showed that, there was no statistically significant difference between different regimens of DAAs regarding abdominal pain, varices, weight loss, jaundice, ascites, lower limb edema, and hepatic encephalopathy.

Table 7. Comparison between different regimens of DAAs in studied HCC group regarding clinical presentation.

	SOF-RIB (N=5)	SOF-DAC (N=41)	SOF-DAC-RIB (N=32)	P- VALUE
ABDOMINAL PAIN	3 (60%)	32 (78%)	27 (84.3%)	0.53
VARICES	3 (60%)	24 (58.5%)	25 (78.1%)	0.06
WEIGHT LOSS	3 (60%)	21 (51.2%)	31 (96.9%)	0.15
JAUNDICE	4 (80%)	24 (58.5%)	25 (78.1%)	0.16
ASCITES	3 (60%)	32 (78%)	30 (93.75%)	0.15
LOWER LIMB EDEMA	2 (40%)	20 (48.8%)	22 (68.75%)	0.20
HEPATIC ENCEPHALOPATHY	2 (40%)	8 (19.5%)	7 (21.9%)	0.83

Table 8 showed that, there was no statistically significant difference between different regimens of DAAs regarding child score, child class, and BCLC.

Table 8. Comparison between different regimens of DAAs in studied HCC group regarding severity scores.

CHARACTERISTICS		SOF-RIB (N=5)	SOF-DAC (N=41)	SOF-RIB-DAC (N=32)	P-VALUE
CHILD SCORE		5.9±0.8	6.6±1.7	6.7±1.7	0.54
CHILD CLASS	A	3 (60%)	10 (24.3%)	6 (18.7%)	0.105
	B	1 (20%)	11 (26.8%)	11 (34.3%)	
	C	1 (20%)	20 (48.9%)	15 (46.8%)	
BCLC	A	1 (20%)	6 (14.6%)	5 (15.6%)	0.18
	B	3 (60%)	9 (22%)	6 (18.7%)	
	C	1 (20%)	17 (41.4%)	16 (50%)	
	D	0 (0.0%)	9 (22%)	6 (18.7%)	

BCLC, Barcelona Clinic Liver Cancer, Ps; Performance status, Fib4; Fibrosis 4 index

4. Discussion

Our study showed that 58% were males and 42% were females; their age ranged between 49 and 89 years, with a mean value of 66.05 ± 9.32 years. Regarding residence, 56% were rural and 44% were urban. The majority of them, 41%, were non-working or housewives, followed by 22% manual workers, 19% professional workers, and 18% retired. Most of them 62% were married. Performance was I in 19%, II & III in 33% each and IV in 15%.

Our study supported with Shaker et al.,[6] who aimed to study epidemiological characteristics of HCC in Egypt, the study conducted on 1313 patients, reported that there was 78.8% were males and 21.2% were females, with mean age of 56.2 + 8.6 years, regarding residence there was 75.5% of patients were rural and 24.5% were urban. Performance was I in 9.2%, II in 2.3%, III in 15.3% and IV in 0.8%.

Our studies showed that 78% had HCV, 22% had HBV, and 10% had others (autoimmune, metabolic). .100% of HCC patients have cirrhosis.

As well Qari & Mosli.[7] described the epidemiology and clinical features of hepatocellular carcinoma (HCC), and it investigates any association between Child-Pugh's classification and HCC, the study reported that 33.6% patients had HCV, 24.2% had HBV and 38.3% had others, 62.5% of HCC patients had cirrhosis.

Our study showed that, regarding clinical manifestations of HCC patients, 82% had ascites, 87% had weight loss, 79% had abdominal pain, 67% had jaundice, 66% had varices, 56% had lower limb edema, and 21% developed hepatic encephalopathy. Among the 82 patients who had ascites, 31.7% had mild ascites, 63.4% had moderate ascites, and 4.9% had severe ascites.

As well, Salem et al.,[8] reported that 32.3% had ascites, 23.1% had weight loss, 98% had abdominal pain, 33.9% had jaundice, and 19.5% had lower limb edema.

Moreover, Aljumah et al.,[9] aimed to investigate the risk factors, clinical characteristics, treatment modalities, and outcomes in Saudi patients with HCC and propose points for early detection of the disease. Reported that 14.90% had ascites, 8.50% had weight loss, 28.10% had abdominal pain, and 7.70% had jaundice.

Our studies showed that the number of tumors was single in 29%, two in 27%, three in 24%, four in 6% and multiple (≥5) in 14%. Tumors were well defined in 94% and ill-defined in 6%. The size of the largest tumor ranged between 2.5 and 12 cm, with an average size of 5.71±1.62, and the total size of the tumor ranged between 2.5 and 15.5 cm, with an average size of 9.79±3.16 cm.

Our study supported with El-Azab et al.,[10] who aimed to study the epidemiological and pathological properties of hepatocellular carcinoma (HCC) cases eligible for surgical resection, the study reported that 82.6% had single tumor, and 17.45 had multiple. However, Tumors were well defined in 13.5% and poor-defined in 22.5%, the total size of tumor ranged

from 1-20 cm with average size of 6.21 ± 3.558 cm.

In our study showed that, among HCC patients, 63% had PV invasion, 50% had metastasis and 11% had previous surgical interventions. Among the 50 patients with metastasis, LN metastasis occurred in 74% followed by bone metastasis in 12%, chest metastasis in 10% and both LN & chest in 4%. MDT decision recommend giving Nexavar in 4% of patients and giving systemic therapy in 6% of patients.

Our study supported with El-Assal et al.,[11] who reported that 24.74% had PVT, 59.8% of patients had metastasis, and 7.73% had surgery. However, among patients with metastasis abdominal metastasis occurred in 39% followed by lung metastasis in 11%, bone metastasis in 7.1% and LN metastasis in 2.7%.

Our studies showed that the child's score ranged between 5 and 14, with a mean value of 8.84±2.48. The child class was (A) in 24%, (B) in 30% and (C) in 46%. AlBi score ranged between -3.41 to -1.30 with mean value of -2.46±0.52. AlBi grade I was detected in 41%, grade II in 57% and grade III in 2% of HCC patients. BCLC category A was detected in 15%, category B in 22%, category C in 45% and category D in 18% of HCC patients.

As well Ramadan et al.,[12] aimed to investigate characters and risk factors in the development of hepatocellular carcinoma (HCC) in Mansoura University Hospitals reported that child class was (A) in 45.5%, (B) in 47.7% and (C) in 6.8%, BCLC category A was detected in 15%, category B in 3.2%, category C in 29.5% and category D in 47.3% of HCC patients.

In our study, we showed that, according to the comparison between different regimens of DAAs in the studied HCC group regarding clinical presentation, there was no statistically significant difference between different regimens of DAAs regarding abdominal pain, varices, weight loss, jaundice, ascites, lower limb edema, and hepatic encephalopathy.

In line with Mahmoud et al.,[13] they reported that there were no significant differences between DAAs types regarding clinical presentation Accidental discovery (Abdominal pain, Loss of weight, Bleeding tendency, Ascites, Lower limb edema, Hepatic encephalopathy.

As well, agreed with Ahmed et al.,[14] they reported that there was no statistically significant difference between the HCC without DAAs group and the HCC after DAA group regarding abdominal pain and Ascites.

In our study that, accordance comparison between different regimens of DAAs in studied HCC group regarding severity scores we demonstrated that there was no statistically significant difference between different regimens of DAAs regarding child score, child class, and BCLC.

Our study supported with Mahmoud et al.,[13] they reported that there was no significant statistically difference between the Sof-RIB, Sof-Dac and Sof-RIB-Dac regarding Fib4 score, Child score, Child grade, PST and BCLC staging.

Recommendations: Future studies on HCC attendees at Al-Azhar University hospitals require larger sample sizes, longer follow-ups, well-designed randomized controlled trials, comparative observational studies, and a representative sample of patients with similar age, gender, and disease severity. Multicenter studies are recommended for validation.

4. Conclusion

In conclusion, the majority of studied patients were male, rural residence, Non-working or housewife, married and had performance II&III, the most associated comorbidities was HTN, HCV was the most underlying, and 100 % of HCC patients had liver cirrhosis, the majority of patients with ascites were moderate (63.4%), 94% had well defined tumor, with single tumor in 29% of patients, the majority of affected segment was VII in 20% of patients, 50% of patients had metastasis and most of them were LN metastasis. The mean child score was 8.84±2.48 with class (C) in 46% of patients, the mean ALBI score was -2.46±0.52, with 57% patients having grade II, and BCLC category C was in 45% of patients.

Disclosure

The authors have no financial interest to declare in relation to the content of this article.

Authorship

All authors have a substantial contribution to the article

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Conflicts of interest

There are no conflicts of interest.

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