

## PATTERN OF LIVER CANCER ADMISSIONS AT THE UNIVERSITY COLLEGE HOSPITAL, IBADAN - A 4-YEAR REVIEW

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### ABSTRACT

**Background:** Liver Cancer (LC) is a common malignancy globally, and it exacts an enormous toll on the health care system. Therefore, it is imperative to have an epidemiological profile for effective planning.

**Methods:** This study examined the basic demographic, admission profile and outcome of this category of patients through a retrospective cross-sectional study. The study was carried out using data of clinical diagnoses of LC admitted into the Gastro-intestinal Unit (GLU), Department of Medicine, University College Hospital, Ibadan between 1<sup>st</sup> January 2011 and 31<sup>st</sup> December 2014.

**Results:** Two hundred and six patients (16.8%) had diagnoses of LC out of the 1228 total cases admitted by the GLU. The total male patients were 147(71.4%) and female 59 (28.6%) while the most prominent age group for both genders and males were 41-50 years in the male group and 51-60 years among females. The mean  $\pm$  SD and median hospital stay was  $10.6 \pm 11.6$  days and eight days for LC patients, respectively. The intrahospital fatality rate was 37.9% and occurred mainly within five days of admission.

**Conclusion:** Liver Cancer is an important disorder in gastrointestinal practice and had high fatality within a few days of admission; hence, efforts should be made to improve the care of the patients.

**Keywords:** Liver cancer, Epidemiology, Nigeria, In-patient, Gastroenterology

### BACKGROUND

Liver Carcinoma (LC) is the third most prevalent cause of cancer-related death worldwide.<sup>1</sup> The incidence of LC is found to be 16 to 32 times higher in developing countries than in developed countries.<sup>1,2</sup> Globally 550,000 to 600,000 new LC cases occur each year and it is a leading cause of cancer death in sub-Saharan Africa with Mozambique having the highest incidence.<sup>1</sup> The incidence is generally more in Africa and South East Asia where HBV and HCV infections are prevalent particularly for hepatocellular carcinoma (HCC) while cholangiocarcinoma (CCC) is commoner in areas with high prevalence of *Clonorchis Sinensis* and *Clonorchis viverrini*.<sup>3,4</sup>

In the African population, the age-standardized incidence of HCC is as high as 41.2/100,000 persons/year.<sup>1</sup> Hepatocellular carcinoma affects male-female in ratio 4:1 globally, with 1:1 among those without cirrhosis, 9:1 in high incidence countries while CCC is commoner in females.<sup>5</sup>

There is a dearth of epidemiological studies on the disorder; however, the available studies showed that the disease constitutes a significant portion in gastroenterology consultations or malignancies that are

encountered in Africa.<sup>6,7</sup> Out of the 4,568 deaths recorded in the medical wards of UCH, over 14 years (1960-1973) liver diseases were the third most common cause of death accounting for 12.1% of all deaths while PLCC was responsible for 42.5% of liver diseases related deaths.<sup>8</sup> Liver cancer accounted for 44.3% of liver diseases admission at University of Nigeria Teaching Hospital, Nsukka.<sup>9</sup>

The disease constitutes a significant financial/economic burden on the affected patients, families, and caregivers generally, institutions and the society at large. While the exact figure of burden may not be known for Nigeria, the examination of the demographic pattern of this disease and health service utility would aid health system planning and development in this environment, since the burden of LC is expected to increase in the near future especially without implementing adequate preventive action.<sup>10</sup> Furthermore, this exercise has a significant epidemiological value while serving as a clinical audit tool in the institution.

This cross-sectional study determines the basic demographic characteristics; explores the case outcomes and examines the temporal profile of LC

patients admitted into the male and female medical wards in University College Hospital (UCH), Ibadan.

## METHODS

The study was a retrospective cross-sectional study of the case notes of the patients (diagnosed with LC) admitted into Gastroenterology/Liver Unit (GLU), Medicine Department of UCH, Ibadan between 1<sup>st</sup> January 2011 and 31<sup>st</sup> December 2014. The patients were admitted through the Emergency Department, Medical Out-patient Department, and the Gastroenterology/Liver Specialty clinic into designated GLU of the Medical Wards.

### Subjects

A total of 206 patients with diagnoses of LC admitted consecutively into the wards under the GLU were included in this study. Basic demographic data such as age, gender, and unique identification of patients with diagnoses of cases, dates of admission and discharge, and in-patient admission outcomes as entered in the ward record book, were utilized.

### Data acquisition and statistical analyses

Data storage was managed with Microsoft Excel 2010 and analyzed with Statistical Package for Social Sciences version 23 (SPSS Inc, Chicago, IL). The statistical significance was set at p-value  $\leq 0.05$ .

Continuous variables were summarized as mean and standard deviation, while the categorical variables were summarized as proportions and frequencies. The data were illustrated in tables and a figure.

## RESULT

The total patients admitted into GLU's wards were 1,228, with 206 (16.8%) having LC. Table 1 shows the socio-demographic characteristics of the participants.

**Table 1:** Age group and sex distribution among 206 patients with LC admitted into Gastrointestinal/Liver Unit Wards, UCH; Ibadan; 2011-2014.

Years	Male	Female	Total
<b>Age (Mean)</b>	52.8±14.4	50.9±17.5	-
<b>Age (Range)</b>	17-85	21-85	17-85
<b>Age Group</b>	<b>N</b>	<b>N</b>	<b>N (%)</b>
< 20	3	0	3(2)
21-30	13	9	22(11)
31-40	37	8	45(22)
41-50	43	12	55(27)
51-60	28	15	43(20)
61-70	14	7	21(10)
71-80	7	6	13(6)
>80	2	2	4(2)
<b>Total</b>	147	59	206

Most participants were males accounting for 147 patients (71.4%).

The age range was 17-85 years with a mean  $\pm$ SD age of  $49.1 \pm 15.2$  years. The age group with the highest burden was 41-50 years (27%) among the patients although 51-60 years (25.4%) and 41-50 years (29.3%) among the females and male patients respectively (Table 1).

The mean ages of the LC patients were not significantly higher among the males than females,  $p=0.1888$  and, most of patients presented below 50 years of age (62%).

**Table 2:** Percentage distribution of Hospital stay among 206 patients with LC admitted into Gastrointestinal/Liver Unit Wards, UCH; Ibadan; 2011-2014

Gender	Male (147)	Female (59)	Total (206)
<b>Range(days)</b>	1-119	1-35	1-119
<b>Mean(days)</b>	11±13.1	9.8±6.4	10.6±11.6
0-5	37	29	35
6-10	20	27	22
11-15	14	22	18
16-20	9	10	9
21-25	7	3	6
>26	5	2	4
No Record	8	7	6
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>

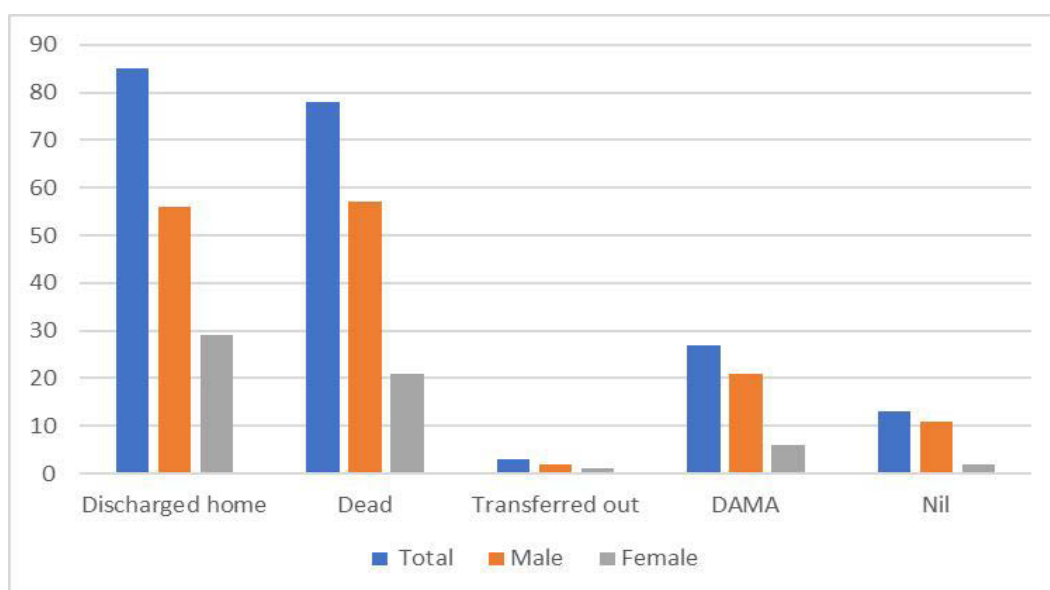
The mean hospital stay was  $10.6 \pm 11.6$  days, and the longest day of 119 days was observed (Table 2). The median hospital stay was eight days. The male patients with LC spent longer days on admission compared to their female counterparts though not statistically significant ( $p$ -value= 0.542). The peak hospital stay was 0 to 5 days in 72 patients (35%), as shown in Table 2. Eighty male and 88 female patients spent less than 21 days in the hospital ( $p$ -value = 0.323).

Regarding the treatment outcome, discharged home, discharged against Medical advice (DAMA) and death occurred in 85(41.3%), 27(13.1%) and 78(37.9%) respectively, Table 3. Only three patients (1.5%) were transferred out for surgical care.

The relationship between days on admission and outcome among the patients with LC (Table 3) showed that a high number DAMA, had home discharges and deaths within 0-5days. However, 79.2% of the 78 deaths among the patients were within 15 days of

**Table 3:** Relationship between days on admission with outcome among the 206 patients with LC admitted into GIT/Liver Unit Wards, UCH; Ibadan, 2011-2014.

Days on Admission	Types of Outcomes - Number (%)				
	Discharged home	Dead	Transferred out	DAMA	Nil
0-5	26(30.6)	31(40.2)	0	12(44.5)	3(21.5)
6-10	24(28.2)	16(20.8)	0	5(18.5)	1(7.1)
11-15	11(12.9)	14(18.2)	0	7(25.9)	1(7.1)
16-20	11(12.9)	6(7.8)	0	2(7.4)	0
21-25	7(8.3)	5(6.5)	0	0	0
>26	5(5.9)	4(5.2)	0	0	0
No Record	1(1.2)	2(1.3)	3(100)	1(3.7)	8(64.3)
Total	85(100)	78(100)	3(100)	27(100)	13(100)



**Fig. 1:** Gender distribution and outcome of hospital admission of patients with Liver Cancer GIT/Liver Unit Wards, UCH; Ibadan, 2011-2014.

admission while DAMA took place throughout the admission of patients with LC.

Although the patients had shorter days on admission through death ( $p < 0.0001$ ), there was no statistical difference in the gender distribution of the patterns of outcome among them, Figure 1. Also, 151 (73.3%) of the 206 patients with LC were out of admission with 15 days.

## DISCUSSION

The determination of basic demographic features of patients with LC has epidemiological value in the clinical setting while the clinical outcome and duration of hospital stay are essential in prognosticating diseases. Such study also serves as clinical audit tool in a health institution.

In this study, LC constitutes 18% and was the highest-ranking admission in the years under review. This burden was like the findings from previous studies.<sup>8,9</sup> This is not unusual considering that LC is one of the most prevalent malignancies globally, Nigeria inclusive.<sup>11</sup> The country still has one of the highest frequencies in the world:<sup>12</sup> In other centres across Nigeria, LC constituted 19.1% of all cancers in Port Harcourt, 17% in Maiduguri and Ilorin, 38.8% of all cancers of the digestive system.<sup>1,13</sup>

The male: female ratio (2.5:1) was found among the patients with LC and this is similar to studies in Tanzania, Port Harcourt, Jos and Ile-Ife where the ratio of 2.2:1, 2:1, 2:1 and 2:1 were found respectively among cases studied.<sup>14</sup> However, the ratio we found is much higher than the finding in a study of 227 liver biopsies over

the ten years in Jos.<sup>14</sup> The difference could be secondary to the fact that our diagnosis is predominantly clinical compared to histology in the Jos study. The gender differences in the prevalence of LC, with male predominance, have been demonstrated in previous studies.<sup>11, 15 16</sup>

Majority of our patients were between 40-70 years for both genders though males had malignancy at a younger age. The mean age in this study is similar to 43.7 years that was described previously in Enugu.<sup>9</sup> The age range of 17-85 years in this study for LC is similar to a Yemini study where 26-75 years was found while previous studies in Nigeria found 35 to 73 years, 23 to 75 years and 35 to 73 years.<sup>14,17,18</sup> This has serious socioeconomic implication considering the productive capacity of these age groups. While the disease is usually as a result of predisposing factor such as hepatitis B virus infection which could have occurred earlier in life, it is therefore imperative that preventive efforts such as childhood Hepatitis B vaccination should be actively encouraged.

A Tanzanian study of 142 patients, the overall median duration of hospital stay was 14 days and, both higher than what we obtained.<sup>2</sup> Also, the average duration of hospital stays of  $10.6 \pm 11.6$  days was without statistical gender difference in the outcome of our patients. Although the mean duration of hospital stay is higher than a similar study in Nigeria.<sup>19</sup>

A study in Enugu also had a higher proportion of LC mortality but a lower proportion of DAMA.<sup>20</sup> The differential timing of presentation may explain this mortality in the two centres. Furthermore, late presentation and poor prognosis of the disease may generally have contributed to this unsatisfactory finding.<sup>2,19</sup> Discharge against medical advice is likely to vary in different population due to sociocultural and health behaviour characteristics obtainable in different populations. The high proportion of discharge home in our study calls for the palliation of the patients on an out-patient basis with the participation of relations in their holistic care, a treatment approach that is highly encouraged for the care of advanced state cancer patients.

The intra-hospitality mortality rate of 37.9 % among the studied patients with LC and three-quarter of them having their fatal outcome within fifteen days of admission call for availability of more intervention and preventive tools in this environment. Although this mortality rate is lower than a previous study carried out in Tanzania.<sup>2</sup> It, however, corroborates the poor outcome and scourge of liver cancer among Nigerians just as in other Africans and thus calls for the institution

of surveillance activity towards early diagnosis of the tumours.<sup>21,22</sup>

## CONCLUSION

Liver cancer constitutes about one fifth and makes the highest-ranking admission of the diseases seen at in-patient Gastroenterology/Hepatology Unit at our centre. The mortality rate is high among the LC patients due to its poorer prognosis and late presentation. Our study has re-emphasized the predominance of LC diagnoses among the males compared to females. A high rate of DAMA found for the diseases might reflect the lack of adequate funds for care and fear of possible outcomes.

Further studies would be needed to be carried out to further elucidate on the specific pattern of clinical diagnoses aided by advanced investigative tools and the possible reasons for the high DAMA rate observed among our patients.

## Limitation of study

The weakness of this study is mainly that the data are derived from the clinical diagnosis in the ward registers, which are prone to error by those entering the data and not purposely developed for this study. Furthermore, the histological types and staging of LC were not included in this report.

**Conflict of interest:** Nil

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