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Overall Prevalence and Mortality of Chronic Liver Disease in the Town of Mbujimayi

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Abstract

Background

Chronic liver disease is exploding worldwide, and particularly in sub-Saharan Africa. The African region is associated with limited incomes, inadequate diagnostic and therapeutic possibilities, and consequently aggravated morbidity and mortality from chronic liver disease.

Objective

The aim of this study was to determine the prevalence of chronic liver disease, describe the clinical and paraclinical profile of patients and identify factors influencing vital outcome.

Methods

This was a documentary, retrospective, analytical, cross-sectional study of patients admitted for chronic liver disease during the period January 1, 2020 to December 31, 2024 at Bonzola Hospital. The clinical and paraclinical characteristics of patients were collated, and mortality from chronic liver disease and its determinants investigated. Frequencies were used to summarize qualitative variables. Measures of central tendency (mean/median) and dispersion were used to summarize quantitative variables. Proportions were compared using Pearson's chi-square test. A p-value < 0.05 was considered statistically significant.

Results

The hospital prevalence of chronic liver disease was 1.6% over the period considered. These diseases consisted of cirrhosis (41.02%), chronic viral hepatitis B (17.7%), chronic viral hepatitis C (12.7%), chronic viral hepatitis B and C co-infection (7.6%) and cancer (14.1%). The average age of patients was 55 ± 18 years, with the majority between 40 and 79 years of age. Men were more affected than women, probably due to the alcohol and smoking habits more prevalent among men in our study environment. The most frequent reasons for consultation were abdominal pain, vomiting, jaundice or oedema and ascites, indicating decompensation and/or degeneration of liver disease, and thus a rather late admission and diagnosis. At discharge, 26.9% of patients had died. The rather short hospital stay of the deceased patients suggested a greater severity of their condition at the time of admission.

Conclusion

Chronic liver disease is a major health problem in our environment. It is essential to promote health education to encourage early recourse to care, while improving the technical platform for optimal patient management.

Keywords: Chronic Liver Diseases, Prevalence, Nosological Entities and Vital Outcome

Introduction

Liver cirrhosis is defined by the existence of a diffuse architectural disorder of the liver parenchyma, characterized by the existence of fibrosis surrounding so-called regenerating hepatocyte nodules [1]. It is the terminal stage in the development of hepatic fibrosis induced by most chronic liver diseases [2]. Yet this pathology is a major public health issue, as its estimated prevalence attests.

The prevalence of cirrhosis of the liver and other chronic liver diseases in individuals of all ages rose by 62.03%, from 1,274,022 (1,027,186-1,548,534) cases in 1990 to 2,051,553 (1,661,430-2,478,127) cases in 2019. There were also 1,472,011 deaths (95% CI: 1,374,608-1,578,731). This represents a significant increase of 45.32% on the 1,012,975 reported in 1990 [3].

Regionally, sub-Saharan Africa suffers from under-reporting. However, it is the second region with the highest mortality rate, with 42.86 deaths (38.53-47.51) per 100,000 inhabitants, after Central Asia [3].

According to the latest data from the World Health Organization (WHO), the Democratic Republic of Congo (DRC) ranks 41st in the world in terms of deaths due to liver disease, with 15,044, or 2.29% of all deaths. The age-adjusted mortality rate is 36.25 per 100,000 inhabitants [4]. Local epidemiology in Kasai Oriental Province remains poorly documented. Liver disease is often under-diagnosed in the region, with a considerable number of individuals presenting late at the decompensation stage [5].

The most common causes of cirrhosis in sub-Saharan Africa are chronic viral hepatitis (hepatitis B, C and D), excessive alcohol consumption and, increasingly, metabolic risk factors associated with hepatic steatosis linked to metabolic dysfunction [6]. In addition, traditional herbal medicine may also contribute to this phenomenon, as its use is associated with a significant increase in hepatic fibrosis [7].

Financially disadvantaged communities are often disproportionately affected by liver disease, but often lack timely access to appropriate care [5]. In the majority of patients, progression to cirrhosis occurs within 15-20 years [8]. However, many cases do not present for treatment until the terminal phase of the disease. The community offers a mystical explanation for these chronic liver pathologies, resorting to traditional medicine based on potentially hepatotoxic plants [7].

Chronic liver disease has not been the subject of any certified scientific study in Mbujimayi. This observation served as the main argument for launching this study on chronic liver diseases in general, with the aim of describing their epidemiological, etiological, clinical and evolutionary characteristics.

Methods

Design, context and study population

The present study was carried out in the Internal Medicine Department of the Bonzola General Reference Hospital in Mbujimayi. The study was cross-sectional and retrospective, running from January 01, 2020 to December 31, 2024. The target population was those admitted for chronic liver disease (chronic hepatitis, liver cancer or cirrhosis). Simple and exhaustive random sampling enabled us to select 78 subjects.

Study parameters and statistical analysis

The information sought was related to:

[1]. Patients' socio-demographic characteristics (age, gender, level of education, occupation, marital status),
[2]. Patients' clinical characteristics,
[3]. Paraclinical characteristics (biology and imaging),
[4]. Management resources (drugs and procedures),
[5]. Vital issue.

Data were encoded on a Microsoft Excel 2016 spreadsheet and analyzed using STATA IC 13 software. Frequencies were used to summarize categorical variables. Measures of central tendency (mean/median) and dispersion were used to summarize quantitative variables. Comparison of proportions was performed using Pearson's chi2 test. A p-value < 0.05 was considered statistically significant.

Ethical considerations

The study was approved by the ethics committee of the Official University of Mbujimayi and by the medical and health authorities of the Bonzola General Hospital. Data collection for strictly scientific purposes was anonymous in order to guarantee the confidentiality of participants.

Results

1. General patient characteristics

Of the 4974 patients admitted to the Internal Medicine Department of Bonzola Hospital during the study period, 78 (1.6%) were admitted for chronic liver disease. Their mean age was 55 ± 18 years. Of these patients, 49 were male (62.5%), giving an M/F sex ratio of 1.7. The majority of patients were between 40 and 79 years of age (65.4%). Smoking and alcohol consumption were reported by 38.5% and 64.1% of patients respectively. The majority of patients were married (56.4%) and lived in Kanshi (28.2%).

Table 1: General patient characteristics

Parameters	Number	Mean	Standard deviation
Gender			
Female	29	37.2	
Male	49	62.8	
Age			
0 to 39 years	17	21.8	
40 years to 79 years	51	65.4	55 ± 18
80 years and over	10	12.8	
Marital status			
Single	14	18,0	
Married	44	56,4	
Divorced	5	6,4	
Widowed	15	19,2	
Smoking tobacco			
Yes	30	38,5	
No	48	61,5	
Alcohol drinker			
Yes	50	64,1	
No	28	35,9	
Residence			
Bipemba	12	15,4	
Dibindi	14	18,0	
Diulu	8	10,3	
Kanshi	22	28,2	
Muya	7	8,9	
Outside of Mbujimayi	15	19,2	
Previous jaundice			
Yes	46	59,0	
No	31	41,0	

2. Reasons for consultation and clinical signs

2.1 Reasons for admission

Table 2.1 shows that the most frequent reasons for admission were abdominal pain in 42 patients (53.8%), vomiting in 39 patients (50%), consisting of haematemesis in 8 patients and food vomiting in 32 patients, and abdominal bloating in 21 patients (26.9%). Fever and a right hypochondrium mass were reported in 8 patients (10.3%) and 6 patients (7.7%) respectively.

Table 2.1: Reasons for consultation

Parameters	Workforce	%
Abdominal bloating	21	26.9
Abdominal pain	42	53.8
Vomiting	39	50.0
- Hematemesis	7	18
- Food debris	32	82
Fever	8	10.3
Right hypochondrium mass	6	7.7
Decreased level of consciousness	2	2.6
Other (anorexia, low back pain, edema, headache, agitation, dyspnea, fatigue, etc.)	11	14.1

2.2 Clinical signs

Table 2.2 shows the signs revealed by physical examination. Hepatomegaly was the most frequently observed sign (60 patients, or 78%). It was characterized by an irregular surface in 47 patients, a smooth surface in 35 patients, a sharp lower edge in 32 patients and a soft edge in 31 patients. The consistency of the liver was woody in 21 patients. Physical examination also revealed jaundice in 52 patients (66.7%), turgidity of the jugular veins in 42 patients (56.9%), and edema of the lower limbs in 57 patients (73.1%), of whom 37 (47.4%) had anasarca. Ascites was present in 54 patients (69.2%), with effusion fluid clear in 5 patients (9.3%), citrine yellow in 39 patients (72.2%) and bloody in 6 patients (11.2%).

Table 2.2: Physical signs

Signs	n	%
Jaundice	52	66,7
Hepatomegaly	60	76,9
Ascites	54	69,2
Appearance of ascites puncture fluid Clear	5	9,3
Lemon yellow	39	72,2
Reddish	5	9,3
Bloody	5	1,9
Not mentioned	4	7,4
Edema of lower limbs	57	73,1
Anasarca	37	47,4

3. Paraclinical parameters

The number of paraclinical tests performed and the proportions of subjects with disturbed results are shown in Table 3. ALAT and ASAT transaminases were measured in 56 patients (71.8%), and serum levels were elevated in 30 patients (53.6%) and 35 patients (62.5%) respectively. Viral hepatitis serology, performed in 60 patients (76.9%), was positive for hepatitis B virus (HBS) in 20 patients (33.3%) and for hepatitis C virus (HBC) in 16 patients (26.7%).

Table 3: Results of paraclinical examinations

Workforce	Workforce	%
Liver enzyme assay (ALAT and ASAT)		
Not performed	22	28,2
Performed	56	71,8
ALAT results		
Normal	26	46,4
High	30	53,6
ASAT results		
Normal	21	37,5
High	35	62,5
PAL results		
Normal	11	19.6
High	45	80.3
GGT results		
Normal	10	18.6
High	46	81.3
Albumin results		
Normal	18	32.1
Low	38	67.8
Prothrombin results		
Normal	25	44.6
Low	31	55.4
Hepatitis virus serology		
Not performed	18	23,1
Realized	60	76,9
HBS# serology		
Positive	20	33,3
Negative	40	66,7
HCV# serology		
Positive	16	26,7
Negative	44	73,3

4. Diagnosis, hospital stay, treatment and vital outcome

Table 4 shows that the major nosological entity was hepatic cirrhosis (41.02%). The median hospital stay was 18 days. At the time of discharge, 21 deaths (26.9%) were recorded.

Table 4: Diagnosis selected, length of hospital stay and vital outcome

Variables	Workforce	%	Median (min-max)
Selected diagnostic entity			
Chronic hepatitis B	14	17,7	
Chronic hepatitis C	12	15,2	
Chronic hepatitis B and C co-infection	6	7,6	
Liver cancer	11	14,1	
Hepatic cirrhosis	32	41,02	
Other chronic liver disease	11	22,8	
Length of hospital stay			
≤ 7 days	27	34.6	18(1-120)
8 to 14 days	23	29.5	
≥ 15 days or more	28	35.9	
Issue			
Death	21	26.9	
Survival	57	73.1	

Table 5 shows that there is a statistically significant relationship between length of hospital stay and death as a vital outcome (p = 0.00). The shorter the hospital stay, the higher the probability of death.

5. Factors associated with mortality

Table 5: Factors associated with vital outcome

Parameters	Deaths				p
	Yes		No		
	n	%	n	%	
Gender					
Female	10	34.5	19	65.5	0.247
Male	11	22.5	38	77.5	
Age					
0 to 39 years	7	41.2	10	58,8	0.317
40 to 79 years	12	23.5	39	76.5	
80 years and over	2	20.0	8	80.0	
Alcohol intake					
Yes	12	24.0	38	76.0	0.437
No	9	32.1	19	67.9	
Tobacco consumption					
Yes	8	26,7	22	73,3	0.968
No	13	27.1	35	72.9	
Anasarca					
Yes	12	32,4	25	67,5	0.297
No	9	21.9	32	78.1	
Length of hospital stay					
≤ 7 days	13	48.1	14	51.9	0.00
8 to 14 days	5	21.7	18	78.2	
≥ 15 days or more	3	10.7	25	89.2	

Discussion

The aim of the present study was to determine the prevalence of hospital admissions for chronic liver disease, to describe the clinical and paraclinical profile of patients admitted for chronic liver disease, and to identify factors associated with vital outcome at the time of discharge.

At the end of the investigations, the study revealed that the prevalence of chronic liver disease was 1.6%. These chronic hepatopathies consisted of chronic hepatitis in 40% of cases, liver cirrhosis in 41.02% and liver cancer (probably hepatocarcinoma) in 14.1%. The majority of patients were male (62.5%). The mean age was 55 ± 18 years, with most patients aged between 40 and 79 (65.5%), married (56.4%) and living in the Kanshi district (28.2%). Smoking and alcohol consumption were reported by 38.5% and 64.1% of patients respectively.

The male predominance of the condition can be explained by the disparity in risk factors between the sexes. For example, in the case of alcoholism, males are more at risk than females in the town of Mbujimayi [9], despite the fact that women rarely confess their drinking habits. The average age of 55 of patients affected by chronic disease may be indicative of the silent evolution of chronic liver pathologies, with late detection in adulthood [10].

Other researchers interested in chronic liver disease have also reported a male predominance [11, 12]. A mean age of 49 was reported in a similar study [13]. However, a study conducted in Ethiopia showed a median age of 38 [12]. The difference with the present study could be explained by the fact that the Ethiopian study included all patients, including those in the early phase of the disease, whereas in the present study, only patients hospitalized in the internal medicine department were concerned.

Clinical variables

Questioning of patients with chronic liver disease revealed that at least half had consulted a physician for abdominal pain (53.8%), and had a history of vomiting (50.0%) or jaundice (59.0%). Eighteen percent of those with a history of vomiting had emitted haematemesis, which, in the context of chronic liver expectation, may suggest the existence of a complication such as ruptured oesophageal varices. Symptoms such as abdominal pain, vomiting and jaundice indicative of liver damage were also prominent in the Benin study [13].

Clinical signs showed that 66.7% of participants had icteric bulbar conjunctiva, 53.9% jugular vein turgor, 69.2% ascites and 73.1% lower limb edema. Hepatomegaly was reported in 78.3% of cases. These signs are indicative of decompensation of chronic liver disease, and point to a more expensive need for care in subjects with chronic liver disease [7]. Similar signs have also been reported by other researchers in African settings [14-16].

Paraclinical variables

During the course of this study, not all patients had undergone liver marker assays or serological tests for the diagnosis of viral hepatitis. Only 71.8% of patients had a liver marker assay and 76.9% a serological test for hepatitis B and C viruses. Limited access to diagnostic facilities is a major obstacle to the diagnostic management of chronic liver disease, recognized by the WHO as a major problem, particularly in sub-Saharan Africa [17], where low incomes are a prohibitive limit to such access.

Among patients tested for viral hepatitis, 33.3% were positive for hepatitis B virus and 26.7% for hepatitis C virus. This situation reflects the epidemiology of chronic liver disease, with viral hepatitis B the main cause in developing countries, as is the case in the Democratic Republic of Congo [18]. Other African studies have also reported a high proportion of positive serology for viral hepatitis B and C, at 35.8% and 11% respectively [12]. In the present study, ALAT was elevated in 53.6% of participants and ASAT in 62.5%. A similar enzyme disturbance has been reported by other investigators, with 58.3% of patients showing elevated ALAT and 50.5% for ASAT [16].

Diagnosis, hospital stay and vital outcome

Hepatic cirrhosis was observed in 22.8% of participants. Hepatic cirrhosis is the terminal stage of chronic liver disease. The present results indicate that many patients consulted at an advanced stage of the disease, and that diagnosis was late [17]. A study carried out in Kinshasa also reported a predominance of patients admitted at the cirrhosis stage, i.e. 43.5% [19].

The median hospital stay was 18 days (1-120 days). Of 57 patients alive at the time of discharge, improvement was noted in 26 patients, while 34.6% of patients were discharged on request and 5.1% escaped. The high proportion of discharges not decided by practitioners can be explained not only by patients' mistaken beliefs about the cause of the illness and misconceptions that viral hepatitis has no treatment in conventional medicine [20], but also by patients' inability to cover the cost of care.

Determinants of death

The mortality rate was 26.9%. This work showed an inverse

relationship between the probability of death and the length of hospital stay, suggesting that death was more likely to occur in patients after a short hospital stay. This relationship indicates that patients are admitted in the terminal state, when signs of liver decompensation and failure have become evident. It has also been reported that over 50% of patients with chronic liver disease are admitted to hospital in the terminal phase [6]. This may be due to poverty, limited confidence in modern medicine, or greater reliance on traditional medicine [20]. This is illustrated by a high mortality rate at the start of hospitalization [5].

Strengths and weaknesses

This study is worth its weight in gold because it tackles an area that is very poorly documented in our milieu, namely chronic liver disease. The fact that the study was carried out in a referral hospital in the town of Mbujimayi is a significant first contribution.

Documentary review of medical records enabled analysis of clinical and paraclinical data, thus providing a better understanding of hospital management of this chronic liver disease, and no doubt other pathologies too, in our environment. Notwithstanding the shortcomings of our retrospective and documentary approach, the results obtained will serve as a starting point and reference for future projects.

However, the retrospective nature of the study is a definite weakness. It did not allow us to interview patients to assess their knowledge, beliefs, attitudes and practices concerning this pathology. The patients' therapeutic itinerary is crucial to understanding and distinguishing the reasons for late recourse to care for these patients. A prospective study would be advisable for greater precision.

Conclusion

Chronic liver disease is a global and regional health problem. Conscientious education of the population and the availability of diagnostic and therapeutic resources will go a long way towards reversing the dangerous trend in these diseases and saving lives.

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