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Original Article

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Prevalence and aetiologies of ascites in medical patients: A five year retrospective study at the Regional Hospital Bamenda, Cameroon

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Abstract

Introduction: Ascites is a common clinical syndrome and a major cause of morbidity and mortality in patients due to its frequent complications. It is frequently reported in the context of decompensated liver cirrhosis, but non-cirrhotic causes are becoming frequent. The aim of this research was to study the prevalence and aetiologies of ascites in hospitalized medical patients in the Regional Hospital Bamenda.

Materials and methods: we carried out a hospital based cross-sectional study that ran from November 2024 to June 2025. Files of adult medical patients hospitalized from 2020 to 2024 (retrospectively), and consenting adults hospitalized in the interna medicine units of the Regional Hospital Bamenda from January to May 2025 were included. Data were consecutively collected using a predesigned questionnaire on: sociodemographic, clinical characteristics, aetiologies and complications in patients with ascites, and then analysed using R statistical software version 4.2. Categorical variables were expressed as frequencies and percentages, while continuous variables were expressed as mean and standard deviation.

Results: During this study period, a total of 7397 patients were hospitalized. Of these, 280 had ascites giving a prevalence of 3.79%. The mean age of participants was 51±18.5 years with a sex ratio of 0.9. Heart failure (32.4%); decompensated liver cirrhosis (27.2%); malignancy (11.7%); and nephrotic syndrome (9.75%) were the most common identified aetiologies. Meanwhile, hyponatremia (26.6%), hypotension (17.2%), acute kidney injury (15.0%) and spontaneous bacterial peritonitis (10.7%) were frequently identified complications.

Conclusion: The prevalence of ascites was 3.79% in this studied Cameroonian population with right heart failure, decompensated liver cirrhosis, malignancy and nephrotic syndrome as the most common aetiologies. Hyponatremia, hypotension, acute kidney injury and spontaneous bacteria peritonitis were the most identified complications.

Keywords: ascites, liver cirrhosis, heart failure, Bamenda; Cameroon.

Résumé

Prévalence et étiologies de l'ascite chez les patients médicaux : une étude rétrospective de cinq ans à l'Hôpital Régional de Bamenda, Cameroun

Introduction : L'ascite est un syndrome clinique fréquent et une cause majeure de morbidité et de mortalité chez les patients en raison de ses complications fréquentes. Elle est fréquemment rapportée dans le contexte d'une cirrhose hépatique décompensée. Le but de ce travail était d'étudier la prévalence et les étiologies de l'ascite chez des patients hospitalisés à l'Hôpital Régional de Bamenda.

Méthodes et matériels : Nous avons réalisé une étude transversale hospitalière qui s'est déroulée de novembre 2024 à juin 2025. Les dossiers des patients adultes hospitalisés de 2020 à 2024, et les adultes consentants hospitalisés dans les unités de médecine interne de l'Hôpital Régional de Bamenda ont été inclus. Les données ont été recueillies consécutivement à l'aide d' un questionnaire prédéfini sur les caractéristiques sociodémographiques, cliniques, étiologies et complications chez les patients atteints d'ascite, puis analysées à l'aide de la version 4.2 du logiciel statistique R. Les variables catégorielles ont été exprimées en fréquences et en pourcentages, tandis que les variables continues ont été exprimées en moyenne et en écart-type.

Résultats : Au cours de notre période d'étude, 7397 patients ont été hospitalisés au service de médecine interne de l'hôpital régional de Bamenda, dont 280 présentaient une ascite soit une prévalence de 3,79%. L'âge moyen des patients était de 51±18.5 avec une sex-ratio de 0.9. Les étiologies les plus fréquentes de l'ascite étaient : insuffisance cardiaque (32,4%); la cirrhose du foie décompensée (27,2%); les tumeurs malignes (11,7%); les cancers primitifs du foie et le cancer de l'ovaire était les tumeurs malignes les plus courantes; et le syndrome néphrotique (9,75%). Les complications fréquemment identifiées chez les patients atteints d'ascite étaient les suivantes : une hyponatrémie (26,6 %), une hypotension (17,2%), une lésion rénale aiguë (15,0 %) et une infection spontanée du liquide ascite (10,7 %).

Conclusion : La prévalence de l'ascite dans la population étudiée était de 3,79 %, les étiologies les plus courantes étant l'insuffisance cardiaque, la cirrhose hépatique décompensée, les tumeurs malignes et le syndrome néphrotique. L'hyponatrémie, l'hypotension, la lésion rénale aiguë et l'infection spontanée de liquide ascite étaient les complications les plus identifiées.

Mots clés : ascite, cirrhose du foie, insuffisance cardiaque, tumeur maligne, Bamenda

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What is known on this topic

- Ascites is a commonly encountered entity in clinical medicine
- Decompensated liver cirrhosis is the most common etiology of ascites
- Ascitic fluid infection and acute kidney injury are the most common complications

What this study adds

- The prevalence of ascites in the Regional Hospital Bamenda is 3.79%
- Right heart failure was the most common etiology of the ascites
- Electrolyte disturbances and ascitic fluid infections were common complications

1 | INTRODUCTION

Ascites is a commonly encountered syndrome in medicine, responsible for considerable morbidity and mortality. It is the most common complication of decompensated liver cirrhosis, estimated at 75000 per 100000, with a 50% risk of developing ascites in 10-years amongst patients with compensated cirrhosis [1]. According to the American Association for the study of the Liver, ascites is associated with a 3-year mortality of 50% [2]. Its causes are wide and varied, concerning diseases of the heart, kidneys or intra-abdominal malignancy, just to name but these [3]. The Centre for Disease Control and Prevention in 2022 reported that 4.5 million adults were diagnosed of liver disease, amongst which 54 , 803 died [4] . Complications of ascites accounts for its negative health outcomes. Reported complications of ascites include: spontaneous bacterial peritonitis, hepatorenal syndrome, electrolyte abnormalities, abdominal wall hernia and burst abdomen[5,6]. The in-hospital prevalence of ascites is wide and varied across regions. In the South Pacific, a study in Fiji in 2024 reported ascites in 15% of 500 admitted patients over two years [7]. A 2018 study in Senegal reported a period prevalence of 11.6% over 12 months [8]. Similarly, in a 2017 study in Benin, the prevalence of ascites was found to be 3.93% [9]. In Cameroon, the in-hospital prevalence of ascites have been reported mainly amongst cirrhotic patients, with values as high as 88.9% in Yaoundé and 90.82% in Douala [10,11]. With respect to aetiologies of ascites, it is wide and varied. In Asia, studies from India and Bangladesh presents decompensated liver cirrhosis, congestive heart failure, intra-abdominal malignancy, and peritoneal tuberculosis [3,12,13]. This picture is similar to that identified in Africa, except that infections are albeit more [14,8,15]. Meanwhile complication wise, peritonitis, hepatorenal syndrome, hepatic encephalopathy, and umbilical hernia are frequent - ly reported[5,6].

In Cameroon, has been studied mostly amongst cirrhotic patients. Non-cirrhotic causes of ascites are very frequent, with no study to the best of our knowledge evaluating this in our context. This gap hinders the appropriate understanding of the ascites burden. For this reason, we decided to carry out this study with aim to determine the prevalence, etiologies, and complication of ascites in admitted medical patients in the Regional Hospital Bamenda.

2 | MATERIALS AND METHODS

Study design

This study was a descriptive cross-sectional study in which the information of each participant was extracted from medical records retrospectively for those discharged before the commencement of the study and directly from patients and their files.

Study setting

This study was conducted in the Internal medicine unit of the Regional Hospital Bamenda (RHB). The RHB is situated in the Bamenda II Subdivision in the Mezam Division of the North West region of Cameroon and is located in the Azire health area. It has a 400 plus bed capacity. It also serves as a teaching hospital for the Faculty of Health sciences, the University of Bamenda and other medical and paramedical schools. Its high patient turns over, its technical platform and affordability prompted its selection. The Internal medicine department consists of; female unit (A ward) made up of 36 beds and male unit (C ward) made up of 31 beds but some patients are admitted in New private ward, Solidarity ward and ICU. These wards are managed by a Neurologist, Nephrologist, Internists, Cardiologists, General practitioners, House officers, and Ward nurses with the assistance of medical and nursing students. Radiological examinations are performed at the imaging center well equipped with modern X-ray equipment, an ultrasound machine, and a CT scan. Meanwhile laboratory examinations are done in a well-equipped laboratory with qualified staff.

Study duration and period

This study was conducted for six months, from November 2024 to July 2025. Participants involved covered those hospitalized from 1st of January 2020 to 31st May 2025 at the study site.

Selection Criteria

Consenting adult (>18years) patients with confirmed ascites hospitalized in medical units of the RHB during our study period and/or files of patients with ascites discharged from this unit before the commencement of this study were consecutively included, while incomplete files excluded.

Sample size calculation

The sample size was estimated using the Cochran's formula[16];

$$s = \frac{Z^2 - (p)(1 - p)}{M^2}$$

Where: S = is the minimum sample size; P = Prevalence of ascites; Z = is the statistical level of confidence. At 95% confidence level =1.96 and M = is the level of precision (type 1 error margin) taken at 5%= 0.05. According to a study by Oumarou et al "Epidemiological and Clinical Aspects of Ascites at the Sino-Central African Friendship University Hospital Centre in Bangui, Central African Republic" the prevalence of ascites was 14.9% [17]. Therefore,

$$s = \frac{(1.96)^2 - (0.149)(1 - 0.851)}{0.52^2}$$

S= 186.79 participants, thus a minimum sample size of 187 participants.

Data collection

A pretested data collection form, designed for this study was used to extract information either from participants directly or from the files of patients discharged before the commencement of this study on the following:

- Socio-demographic characteristics: age, sex, occupation, marital status (married, single, widowed, divorced), Residence (rural, urban), and occupation (civil servant, self-employed, unemployed and student).

- Past medical history: Hypertension, diabetes, HIV, viral hepatitis, obesity, cancer, compensated liver cirrhosis, pulmonary TB. The medical history was confirmed by clinical interrogation and/ or with paraclinical investigations or as identified in the medical record of the participants; Social: smoking, alcohol consumption, and intake of herbal medication. The smoking pack years and the alcohol units were not calculated due to insufficient data, thus "Yes" used to ascertain their presence.

- Paraclinical features: Biologic: ascitic fluid analysis (total protein, albumin, WBC and differentials, glucose, gram stain and bacterial culture, and AFB and gene Xpert); serum: albumin, creatinine, lipid profile, bilirubin, urea, hepatitis B/C/D, AFP, urinalysis, full blood count, liver enzymes, serum electrolytes (sodium, potassium, chloride). The results of these investigations were obtained from the participant's files.

Imaging: abdominal ultrasound, abdominal CT scan, cardiac ultrasound, endoscopy, the results of which were obtained as per the patients' medical record.

- Diagnosis: decompensated liver cirrhosis, right heart failure, malignancy, nephrotic syndrome, chronic kidney disease, abdominal TB, ascertained during patients' hospital stay.
- Complications: hypotension, spontaneous bacterial peritonitis, acute kidney injury, hepatorenal syndrome, electrolyte abnormalities, and abdominal hernia as documented.

Data management and analysis

At the end of each day, completed forms were assessed and checked for missing values and inconsistencies, validated, coded and stored using Kobotool box version 14 in a computer with password restricted access. At the end, data were analyzed according to objectives using R statistical software version 4.2. Continuous variables were expressed as mean and standard deviation, while categorical variables were expressed as frequency and percentages, presented eventually in the form of tables and figures (bar charts, and histograms).

Operational definition of terms:

- Ascites: evidence of free fluid accumu lation within the peritoneal cavity (needle aspiration or imagery evidence – abdominal ultrasound/CT scan);
- Etiology: described the most probable under - lying disease that contributed to the develop - ment of ascites. It was confirmed by looking for signs and symptoms of the particular disease or confirmatory paraclinical exam findings;
- Complications: were considered clinical scenario that occurred secondary to the presence of ascites. Information on this was taken from follow up notes and paraclinical investigations;
- Hepatorenal syndrome: raised serum Creatinine in a patient with liver cirrhosis and ascites without any other apparent cause of kidney injury;
- Live cirrhosls: any of the following - shrunken liver, regenerative nodules, rough hepatic surface, varices with or without features of hepatocellular insufficiency or thrombo - cytopenia identified accordingly; decomp - ensated liver cirrhosis: liver cirrhosis with features of decompensation (pedal oedema, ascites, jaundice, hepatic encepha -lopathy, gastrointestinal bleeding, spontaneous bacteria peritonitis);
- Heart failure:obvious symptoms and signs of heart failure in a patient with cardiovascular risk factors or chronic respiratory disease, confirmed either by a raised serum Pro BNP and/ or cardiac ultrasound;
- Nephrotic syndrome: at least two of the follo - wing glomerular range proteinuria >3g/24hour or 3+ dipstick, hypoalbuminemia <30g/l, oedema, hyperlipidemia and lipiduria;
- Chronic Kidney Disease: abnormalities in kidney function > 3 months with implication for health or renal ultrasound with kidney length <9mm with poor corticomedullary differentiation;
- Malignant ascites: ascites in a patient with documented abdominal malignancy on imaging, histopathology or any other standard modality or the identification of malignant cells in ascitic fluid analysis;
- Peritoneal tuberculosis: ascites with lymphocytic predominance in a patient with risk factors for tuberculosis with constitutional symptoms with or without a positive gene Xpert upon excluding all other possible causes;
- Hepatocellular carcinoma: patient with or without liver cirrhosis and AFP>400ng/L or abdominal CT scan with contrast showing a hepatic lesion with a wash-in, wash-out sequence;
- Peritoneal carcinometosis: underlying malignancy peritoneal nodularity on abdominal CT scan or peritoneal biopsy and histopathology showing malignant cells or a rough nodular abdominal wall in a patient with metastasized cancer;
- Abdominal wall hernla: a protrusion in the abdominal wall with identified wall weakness;
- Mesenteric vein thrombosis: mesenteric vein thrombus on abdominal CT scan with contrast in a patient with severe abdominal pains.

Ethical and administrative authorizations: Ethical clearance N◦2025/0054H/UBa/IRB of 6/5/2025 was obtained from the Institutional Review Board of the Faculty of Health Sciences of the University of Bamenda, and administrative authorization N◦24/00149/UBa/D-FHS of 26/12/2024 from the Dean of the Faculty of Health Sciences, of the University of Bamenda; authorization N◦11/ATT/NWR/RDPH of 28/01/2025 from the Regional Delegation of Public Health and authorization N◦R005/MPH/RDPH/RHB/024 of 14/01/2025 from the Director of the RHB.

3| RESULTS

During this study period, 7397 adult patients were admitted in the internal medicine departments of the Regional Hospital Bamenda. Of these, 280 had ascites: 248 were from the retrospective phase while 38 were from the prospective phase. Of the 280 participants with ascites, 12 medical records were excluded because of incomplete file (no medical history and/ or incomplete investigations). Thus, a total of 268 participants were retained for the study.

Socio-demographic characteristics: The mean age of participants was 51±18.5 year with extremes of 18 and 92. Females were more represented (53.4%; n=143), with a sex ratio of 0.9. Most of participants resided in rural areas (75%; n=201), were married (69%; n=185) and unemployed (59.6%; n=159) (Table I).

Symptoms on consultation: The main symptoms at presentation were: abdominal distention (95.1%; n=255), abdominal pain (54.5%; n=146), dyspnea (53%; n=142), and weight loss (39.6%; n=106) (Table II)

Table I. Sociodemographic characteristics of study participants (N=268)

Variables		Frequency (n)	Percentage (%)
Age (Years)		Mean : 51±18.5 *	
	(15-31)	47	17.5
	(32-46)	63	23.5
	(47-66)	10	38.1
	(67-96)	2	20.9
Se	Male	56	46.6
	Female	125	53.4
Residence	Rural	143	75.0
	Urban	3	25.0
Marital status	Married	201	69.0
	Widow/Widower	67	16.0
	Single	18	14.2
	Divorced	5	0.7
Occupation	Unemployed	43	59.6

*Mean ± Standard Deviation

Table II. Presenting features of participants with ascites (N=268)

Characteristic	Frequency (n)	Percentage (%)
Abdominal distension	25	95.1
Abdominal pain	5	54.5
Dyspnoea	14	53.0
Weight loss	6	39.6
Orthopnoea	14	38.4
Jaundice	2	21.6
Vomiting	10	18.3
Constipation	6	17.2
Facial swelling	10	14.2
Gastrointestinal bleeding	3	7.1
Pruritus	58	5.2
Anuria	49	3.4
Altered consciousness	46	1.5
	38	

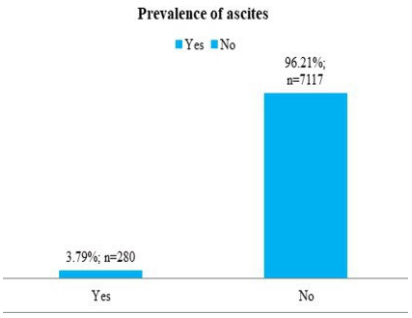

Figure I. Prevalence of ascites

During our study, a total of 7397 patients were admitted within the period under study, among which 280 of them had ascites giving a prevalence of 3.79% (Figure 1). The gender specific prevalence was 3.29% in females and 4.0% in males.

Aetiologies of ascites: Among the 268 participants, the most frequent etiologies of ascites were heart failure (32.4%; n=87), decompensated liver cirrhosis (27.2%; n=73), malignancy (11.7%; n=31), nephrotic syndrome (9.7%; n=26) (Table III).

Table III. Etiologies of ascites (N=268)

Aetiology	Frequency (n)	Percentage (%)
Heart failure	87	32.4
Decompensated liver cirrhosis	73	27.2
Malignancy	32	11.9
Nephrotic syndrome	26	9.7
Chronic kidney disease	25	9.3
Peritoneal tuberculosis	13	4.9
Acute kidney injury	4	1.5
Undetermined aetiology	3	1.1
Malnutrition	2	0.7
*Others	3	1.1

Others: Lupus peritonitis (n=1), Budd-Chiari syndrome (n=1), Mesenteric vein thrombosis (n=1)

Etiologies of malignant ascites: Out of the 32 cases of malignant ascites, the top primary cancers were

liver tumors (31.2%; n=10), ovarian (18.8%; n=6), and pancreatic cancer (15.5%; n=5) (Table IV).

Table IV. Etiologies of malignant ascites (n = 32)

Malignancy	Frequency(n=32)	Percentage(%)
Primarylivertumours	1	31.2
Ovariantumours	0	18.8
Pancreaticcancer	6	15.5
Colorectalcancer	5	12.5
Hodgkin'slymphoma	4	6.3
Breastcancer	2	3.1
Burkitt'slymphoma	1	3.1
Pseudomyxomaperitonei	1	3.1
Carcinomatosisofunknownorigin	2	6.2

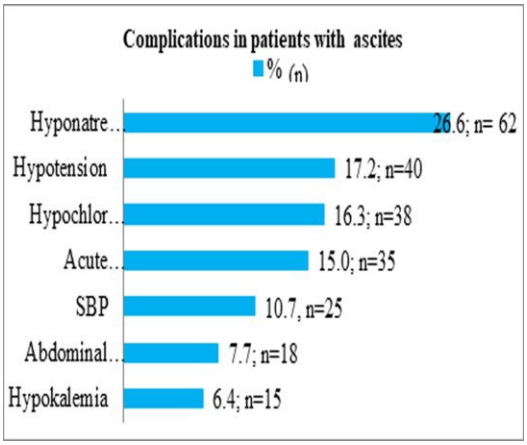

Figure 2. Complications in patients with ascites

The most common complication noticed was hyponatremia (26.6%; n=62), followed by hypotension (17.2%; n=40), acute kidney injury (15.0%; n=35), and spontaneous bacterial peritonitis (10.7%; n=25). Other complications identified are shown in Figure 2.

4 | DISCUSSION

This was a descriptive cross-sectional study that aimed at assessing the prevalence of ascites, its aetiologies and complications in medical patients admitted in the Regional Hospital Bamenda. We found the prevalence of ascites to be 3.79%, with heart failure, decompensated liver cirrhosis, malignancy and nephrotic syndrome being the most common aetiologies. Hyponatremia, hypotension, acute kidney injury and spontaneous bacterial peritonitis were identified as the most frequent complications.

The prevalence of ascites in our study was 3.79%. This is comparable to 3.6% obtained by Ouattara et al in a 6-year retrospective study at the internal medicine department of the University Teaching Hospital Treichville, Ivory Coast, 3.66% of Dembele et al in a 12 month prospective study in the internal medicine department of the University of Bamako Teaching Hospital Mali. This is also similar to 3.68% obtained by Sidide et al in a 10 month prospective study in Mali and the 3.93% reported by Donovou et al in a 5-year retrospective study in the internal medicine department of the Teaching Hospital Borgou, Benin. This could be explained by the similarities in demographics, in-hospital nature of the studies, large sample size and the services considered. On the contrary, much higher prevalence were reported by Dia et al in Dakar (11.6%), 11.9% by Sehonou et al in Porto-Novo and 14.6% by Oumarou et al in Bangui. Some studies out of Africa also reported higher prevalence than ours such as 15% by Bancod et al in a 2 year retrospective study in Fiji. These discrepancies may be due to the difference in study designs and duration and also because most of these studies were done in the Hepatogastroenterology department and others considered both medical and surgical patients.

In this study, heart failure was identified as the most common aetiology of ascites, constituting 32.4% followed by decompensated liver cirrhosis (27.2%) and malignancy (11.7%), confirming the same aetiologies all over. This proportion of heart failure is rather surprising as most studies show decompensated liver cirrhosis as the most common aetiology of ascites. Such studies include; Rahman et al in Bangladesh reported liver cirrhosis (58.5%) followed by tuberculous peritonitis (34.78%) and malignancy (7.6%). Rizwan et al in India noted liver cirrhosis at 68%, abdominal tuberculosis (11%) and heart failure (6%). Other studies in sub-Saharan Africa show a higher iac ascites at 21% in Porto-Norvo, while Wotongola et al reported 20% in Uganda and 19% by Ouattara et al in Ivory Coast. The differences in the frequency of these aetiologies can be due to the difference in life style risk factors for these aetiologies in different populations, the admission patterns in the studied hospitals, its technical platform and degree of service specialization considered: hepatogastroenterology versus internal medicine. The low frequency of decompensated liver cirrhosis (27.2%) as compared to other studies in and out of Africa may be due to, the poor survival rate of patients with decomp - ensated liver cirrhosis. It can also be partly

explained by discrepancies in the risk factors for decompensation such as alcoholism, infections, gastrointestinal bleeding and smoking between our studied population and the others. The frequency of malignant ascites (11.7%) is similar to other studies such as the 7.6% obtained from Bihar in rural India by Jamal et al , the 10% by Rahman et al in Bangladesh and 9.7% by Oumarou et al in the Central African Republic. On the other hand, some studies had frequencies of malignant ascites far higher than in our own such as the 43.6% of malignant ascites reported by Ouattara et al ' in Ivory Coast and 24% by Dia et al in Senegal. The most identified primary cancers were liver tumours (32.2%), ovarian tumours (18.8%), and pancreatic cancer (15.5%). This is different from that reported by Ayantunde et al [61] in the Nottingham city hospital which were ovarian cancer 36.7%, pancreatobilliary ascites at the Bamenda Regional Hospital, Cameroon
cancer 21% and gastrointestinal cancer 18.3%. This is because Ayantunde et al studied malignant ascites in the oncology department and partly because our population has a higher chance of developing liver cancer due to the surging viral hepatitis B and C as reported by Bigna et al. The aetiologies of nephrogenic ascites included nephrotic syndrome (9.7%) and chronic kidney disease (9.3%), comparable to Sehonou et al that reported nephrotic syndrome at 10% and the 7% reported by Rizwan et al in Ahmadabad. However, these values are higher than 4.9 % of nephrotic syndrome by Dia et al in Senegal, 4.34% chronic kidney disease by Jamal et al in India and 1% of nephrotic syndrome by Rahman et al in Bangladesh. The variations may be due to the operational definition of terms and the difficulty in the certitude between nephrotic syndrome and chronic kidney disease in a pure retrospective study like some of the studies mentioned above. Other infrequent aetiologies of ascites were identified in our study constituting 1.1%: lupus peritonitis, Budd-Chiari syndrome and mesenteric vein thrombosis. The most frequent complication during admission amongst our participants was hyponatremia (26.6%) which is lower than 57% reported by Angeli et al in 2006 across Europe and America. This disparity is likely because Angeli et al studied hyponatremia only in liver cirrhosis patients with a larger sample size. The high value of hypotension (17.2%) in this study can be explained by frequent therapeutic paracentesis without use of highly effective plasma volume expanders such as albumin due to its inaccessibility and cost, but also a consequent of high dose diuretics. Acute kidney injury was noted at 15.0%, similar to the 13-20% range stated by the Korean Society for the study of the liver . Spontaneous infection of the ascitic fluid was present in 10.7% (n=25) of participants, lower than 17.7% of Kowo et al 2020 in Yaoundé, 25.28% of Duah et al 2019 in Ghana and 34% reported by Piano et al 2019. This is not surprising because these high frequencies were obtained from studies done only in participants with cirrhotic ascites; considering the immune-depressive state of decompensated liver cirrhosis and frequent paracentesis. Abdominal wall hernias were noticed in 7.7% of the participants, including umbilical and inguinal hernia. This value of mechanical complications is due to the late presentation of patients often with massive ascites that results in increase intra-abdominal pressure, although it is far lower than the 20% described by Belghiti et al 1997 in Paris.

While our study provides insights into the prevalence and both cirrhotic and non-cirrhotic aetiologies of ascites in medical admissions in the Regional Hospital Bamenda, the following l imitations existed: patients with ascites hospitalized in the surgical wards weren't recruited, technical platform didn't permit extensive etiologic search, investigations were paid by patients those limiting this to only what they could afford, quality of data collected was affected by what was identified in the medical records. Lastly, this was a single centre study, making generalizability of its results difficult. Long study period, the first study to present national statistics on both cirrhotic and non-cirrhotic cause of ascites were the identified strengths of this study.

5| CONCLUSION

The prevalence of ascites in medical patients admitted in the Regional hospital Bamenda is low. Heart failure, decompensated liver cirrhosis, malignancy, nephrotic syndrome and chronic kidney disease are the most frequent aetiologies of ascites. The main identified complications in patients with ascites were: hyponatremia, hypotension, acute kidney injury and spontaneous bacterial peritonitis. Implementation of preventive strategies, early diagnosis and prompt management of ascites will go a long way to improve the quality of life of suffers

► **Abbreviations:**

AFP: Alpha-Fetoprotein

CT scan: Computed Tomography Scan

ICU: Intensive Care Unit

RHB: Regional Hospital Bamenda

SBT: Shiyntum Bernard Tirvitsemo

TB: Tuberculosis

WBC: White Blood Cell

WHO: World Health Organization

► **Competing interest**

The authors declare that they have no competing interests

► **Funding**

This research did not receive any funding

► **Authors' contributions**

NPMK, SBT, MA and KM conceived and designed this research.

NPMK, SBT and MA collected data.

PMKN, and SBT analysed data.

NPMK, SBT, MA and KM interpreted results.

NPMK, and KM drafted manuscript.

All co-authors edited and revised manuscript. All authors read and approved final manuscript.

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